SOFTWARE ENGINEERING LAB

LABORATORY MANUAL

[R22A0585**]**

B.TECH II YEAR – I SEM[A.Y:2024-2025]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Recognized under 2(f) and 12 (B) of
UGCACT1956

(Affiliated to JNTUH, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2015
Certified)Maisammaguda, Dhulapally (Post Via. Hakimpet), Secunderabad – 500100, Telangana State, India

INDEX

		Name of the Activity/Experiment	Grade/ Marks	Faculty Signature

Department of Computer Science and Engineering

Vision

- To acknowledge quality education and instill high patterns of discipline making thestudents technologically superior and ethically strong which involves the improvement in the quality of life in human race.

Mission

- To achieve and impart holistic technical education using the best of infrastructure, outstanding technical and teaching expertise to establish the students in to competent and confident engineers.

- Evolving the center of excellence through creative and innovative teaching learning practices for promoting academic achievement to produce internationally accepted competitive and world class professionals.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
Maisammaguda, Dhulapally Post, Via Hakimpet, Secunderabad – 500100

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

GENERAL LABORATORY INSTRUCTIONS

1. Students are advised to come to the laboratory at least 5 minutes before (to the starting time),those who come after 5 minutes will not be allowed into the lab.
2. Plan your task properly much before to the commencement, come prepared to the lab with thesynopsis / program/ experiment details.
3. Student should enter into the laboratory with:

a. Laboratory observation notes with all the details (Problem statement, Aim, Algorithm,Procedure, Program, Expected Output, etc.,) filled in for the lab session.
b. Laboratory Record updated up to the last session experiments and other utensils (if any) neededin the lab.
c. Proper Dress code and Identity card.
d. Sign in the laboratory login register, write the TIME-IN, and occupy the computer system allotted to you by the faculty.

4. Execute your task in the laboratory, and record the results / output in the lab observation note book, and get certified bythe concerned faculty.
5. All the students should be polite and cooperative with the laboratory staff, must maintain the discipline and decency in the laboratory.
6. Computer labs are established with sophisticated and high-end branded systems, which should be utilized properly.
7. Students / Faculty must keep their mobile phones in SWITCHED OFF mode during the lab sessions. Misuse of the equipment, misbehaviors with the staff and systems etc., will attract severe punishment.
8. Students must take the permission of the faculty in case of any urgency to go out; if anybody found loitering outside the lab / class without permission during working hours will be treated seriously and punished appropriately.
9. Students should LOG OFF/ SHUT DOWN the computer system before he/she leaves the lab after completing the task (experiment) in all aspects. He/she must ensure the system / seat is kept properly.

HEAD OF THE DEPARTMENT **PRINCIPAL**

1. Guidelines to students

A. Standard operating procedure

Explanation on today's experiment by the concerned faculty using PPTcovering the following aspects:

- Name of the experiment
- Aim

B. Writing the python programs by the students

C. Commands for executing programs

Writing of the experiment in the Observation Book

The students will write the today's experiment in the Observation book as per thefollowing format:

a. Name of the experiment
b. Aim
c. Writing the program
d. Viva-Voce Questions and Answers
e. Errors observed (if any) during compilation/execution
f. Signature of the Faculty

Important Instruction

- Students must always have their lab observation and record book with them.
- The tools must be handled carefully by the students as any damage may lead to punishment.
- In labs, students are not permitted to use their cell phones or USB devices.
- Students must adhere to the required dress code and carry an ID card.
- In the lab, students are expected to use the computers that are allotted to them and refrain from talking or making noise.
- Students must update their observation and record books when each experiment is finished.
- After an experiment is complete, lab records must be turned in and rectified with the appropriate lab instructor.
- If a student is absent for any lab, they need to be completed the sameexperiment in the free time before attending next lab.

Instructions to maintain the record

- Student must purchase the record and bring it to the lab before the first lab begins.
- After the experiment is complete, update the record frequently (weekly) and rectify it with theresponsible faculty in-charge for ongoing evaluation.
- In the event that a record is lost, notify the responsible faculty member the same day, and within twodays.
- The assessment marks (5M) will be subtracted if the record is not turned in on time or is not writtencorrectly.

General laboratory Instructions

1. Students are urged to be at the lab at least 5 minutes prior to the start time; anyone arriving after that time will not be admitted.
2. Prepare for the lab with the overview, program, and experiment information by planning your assignmentthoroughly before it begins.
3. Student should enter into the laboratory with:
    - Lab session observation notes that include all relevant information (problem statement, aim, algorithm, procedure, program, expected output, etc.).
    - The most recent experiments and other lab equipment (if any) are listed in the laboratoryrecord.
    - Appropriate attire and identification card.
4. Sign in the lab login register, note your TIME-IN, and use the faculty-allocated computer system.
5. Complete your assignment in the lab, document the outcomes in the lab observation note book, andobtain certification from the relevant faculty member.
6. All students must maintain order and decorum in the lab and should be courteous and helpful with the labstaff.
7. Computer labs are equipped with high-end, branded computers that should be effectively utilized.
8. During lab sessions, faculty and students must keep their mobile devices in SWITCHED OFF mode.Equipment abuse, inappropriate conduct with staff and systems, etc., will result in harsh punishment.
9. If there is an emergency, students must get permission from the faculty before leaving; anyone seen loitering outside a lab or class without authorization during working hours may face harsh consequences.
10. After doing the work (experiment) completely, students should LOG OFF/SHUT DOWN the computersystem before leaving the lab. He or she must make sure the system and seat are properly maintained.

PROGRAM OUTCOMES (PO)

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues andthe consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM EDUCATIONAL OBJECTIVES

PEO 1: The graduates of the program will understand the concepts and principles of Computer Science and Engineering inclusive of basic sciences.

PEO 2: The program enables the learners to provide the technical skills necessary to design and implement computer systems and applications, to conduct open-ended problem solving and apply critical thinking.

PEO 3: The graduates of the program will practice the profession withwork effectively on teams to communicate in written and oral form, ethics, integrity, leadership and social responsibility through safe engineering leading them to contribute their might for the good of the human race.

PEO 4: The program encourages the students to become lifelong activity and as a means to the creative discovery, development, and implementationof technology as well as to keep up with the dynamic nature of the Computer Science and Engineering discipline.

PROGRAM SPECIFIC OUTCOMES

PSO1: Design and development of software applications by using datamining techniques.

PSO2: Enrichment of graduates with global certifications to producereliable software solutions.

COURSE OBJECTIVES:

1. To have hands on experience in developing a software project by using various software Engineering principles and methods in each of the phasesof software development.
2. To gain knowledge about open source tools used for implementing software engineering methods.
3. To exercise developing product-startups implementing software engineering methods.

COURSE OUTCOMES:

1. Ability to translate end-user requirements into system and softwarerequirements.
2. Ability to generate a high-level design of the system from the softwarerequirements.
3. Will have experience and/or awareness of testing problems and will be able todevelop a simple testing report

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

II Year B.Tech.CSE- I Sem **L/T/P/C**

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(R22A0585) SOFTWARE ENGINEERING LAB

List of Experiments

Prerequisites

1. A course on "Programming for Problem Solving"

Co-requisite

1. A Course on "Software Engineering"

Do the following 8 exercises for any two projects given in the list of sample projects or any other projects:

1) Development of problem statement.
2) Preparation of Software Requirement Specification Document, Design Documents and Testing Phase related documents.
3) Preparation of Software Configuration Management and Risk Management related documents.
4) Study and usage of any Design phase CASE tool.
5) Performing the Design by using any Design phase CASE tools.
6) Develop test cases for unit testing and integration testing.
7) Develop test cases for various white box and black box testing Techniques.

Sample Projects:

1. Passport automation System
2. Book Bank
3. Online Exam Registration
4. Stock Maintenance System
5. Online course reservation system
6. E-ticketing
7. Software Personnel Management System
8. Credit Card Processing
9. E-book management System.
10. Recruitment system

TEXT BOOKS:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition, Mc Graw Hill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson Education.
3. The unified modeling language user guide Grady Booch, James Rambaugh, Ivar Jacobson, Pearson Education.

CONTENTS

TASK1: Passport Automation System

AIM: To create an automated system to perform the Passport Process

PROCEDURE: (I) PROBLEM STATEMENT

Passport Automation System is used in the effective dispatch of passport to all of the applicants. This system adopts a comprehensive approach to minimize the manual work and schedule resources, time in a cogent manner. The core of the system is to get the online registration form (with details such as name, address etc.,) filled by the applicant whose testament is verified for its genuineness by the Passport Automation System with respect to the already existing information in the database. This forms the first and foremost step in the processing of passport application. After the first round of verification done by the system, the information is in turn forwarded to the regional administrator's (Ministry of External Affairs) office. The application is then processed manually based on the report given by the system, and any forfeiting identified can make the applicant liable to penalty as per the law. The system also provides the applicant the list of available dates for appointment to 'document verification' in the administrator's office, from which they can select one. The system forwards the necessary details to the police for its separate verification whose report is then presented to the administrator. The administrator will be provided with an option to display the current status of application to the applicant, which they can view in their online interface. After all the necessary criteria have been met, the original information is added to the database

(II) SOFTWAREREQUIREMENTSPECIFICATION:

INTRODUCTION

Passport Automation System is an interface between the Applicant and the Authority responsible for the Issue of Passport. It aims at improving the efficiency in the Issue of Passport and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of 'Issue of Passport' is done in a manual manner then it would takes several months for the passport to reach the applicant. Considering the fact that the number of applicants for passport is increasing every year, an Automated System becomes essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process. As this is a matter of National Security, the system has been carefully verified and validated in order to satisfy it.

SCOPE

- The System provides an online interface to the user where they can fil in their personal details and submits then necessary documents (may be by scanning).
- The authority concerned with the issue of passport can use this system to reduce his workload and process the application in a speedy manner.
- Provide a communication platform between the applicant and the administrator.
- Transfer of data between the Passport Issuing Authority and the Local Police for verification of applicant's information.
- Users/Applicants will come to know their status of application and the date in which they must subject themselves form annual document verification.

DEFINITIONS, ACRONYMS AND THEABBREVIATIONS

- **Administrator**

  Refers to the super user who is the Central Authority with the privilege to manage the entire system. It can be any higher official in the Regional Passport Office of Ministry of External Affairs.

- **Applicant**

  One who wishes to obtain the Passport.

- **PAS**

  Refers to this Passport Automation System.

- **HTML**

  Markup Language used for creating web pages.

- **J2EE**

  Java 2 Enterprise Edition is a programming platform java platform for developing and running distributed java applications.

- **HTTP**

  Hyper Text Transfer Protocol.

- **TCP/IP**

  Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTO BEUSED

- HTML
- JSP
- JavaScript
- Java

TOOLSTOBEUSED

- Eclipse IDÉ(Integrated Development Environment)
- Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles &functions of the actors.

OVERALLDESCRIPTION

PRODUCTPERSPECTIVE

The PAS acts as an interface between the 'applicant' and the 'administrator'. This system tries to make the interface as simple as possible and at the same time not risking the security of data stored in. This minimizes the time duration in which the user receives the passport.

SOFTWAREINTERFACE

- **Front End Client** –The applicant and Administrator online Interface is built using JSP and HTML. The Administrator's local interface is built using Java.
- **Web Server** – Apache Tomcat application server (Oracle Corporation).
- **Back End** –Oracle11gdatabase.

HARDWAREINTERFACE

The server is directly connected to the client systems. The client systems have access to the database in the server.

SYSTEMFUNCTIONS

- Secure Registration of information by the Applicants.
- Schedule the applicants an appointment for manual verification of original documents.
- Panel for Passport Application Status Display by the Administrator.
- SMS and Mail updates to the applicants by the administrator.
- Administrator can generate reports from the information and is the only authorized personnel to add the eligible application information to the database.

USERCHARACTERISTICS

- **Applicant**

  These are the person who desires to obtain the passport and submit the information to the database.

- **Administrator**

  He has the certain privileges to add the passport status and to approve the issue of passport. He may contain a group of persons under him to verify the documents and give suggestion whether or not to approve the dispatch of passport.

- **Police**

  He is the person who upon receiving intimation from the PAS, perform a personal verification of the applicant and see if he has any criminal case against him before or at present. He has been vetoed with the power to decline an application by suggesting it to the Administrator if he finds any discrepancy with the applicant. He communicates via this PAS.

CONSTRAINTS

- The applicants require a computer to submit their information.
- Although the security is given high importance, there is always a chance of intrusion in the web world which requires constant monitoring.
- The user has to be careful while submitting the information. Much care is required.

ASSUMPTIONSANDDEPENDENCIES

- The Applicant sand Administrator must have basic knowledge of computers and English Language.
- The applicants may be required to scan the documents and send.

(III) USECASEDIAGRAM:

The Passport Automation system use cases are:

1. Login
2. Registration
3. Verification
4. Check status
5. Enquiry
6. Dispatch Passport

ACTORSINVOLVED:

1. Applicant
2. Passport Officer
3. Police

USE-CASENAME: LOGIN

The applicant log into the system to obtain a passport

USE-CASENAME: REGISTRATION

The Applicant enters his name and details for applying a Passport. The applicant initially give his/ her details for registration.

USE-CASENAME: VERIFICATION

The system verifies the applicant mandatory information given by him/her.

USE-CASENAME: CHECKS TATUS

The Applicant tries to check the status in which category applied. The system displays the message to the applicant.

USE-CASENAME: ENQUIRY

The police receive intimation from the PAS, perform a personal verification of the applicant and see if he has any criminal case against him before or at present. He has been vetoed with the power to decline an application bysuggestingittotheAdministratorifhefindsanydiscrepancywiththeapplicant.He ecommunicates via this PAS.

USE-CASENAME: DISPATCHPASSPORT

The administrator check or process the application which are submitted by applicant .Process the application means the data which are given by the applicant is processed to create a passport for the applicant and finally dispatches the passport to the applicant

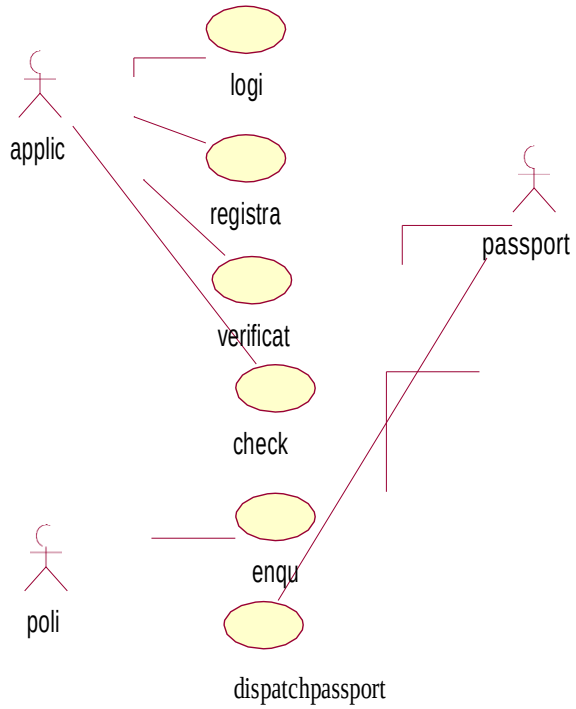


Fig.1.USECASEDIAGRAMFORPASSPORTAUTOMATIONSYSTEM

ACTIVITYDIAGRAM:

The activity diagram represents the series of activities that are occurring between the objects. Following is activity diagram which represents the Software personnel management system process.

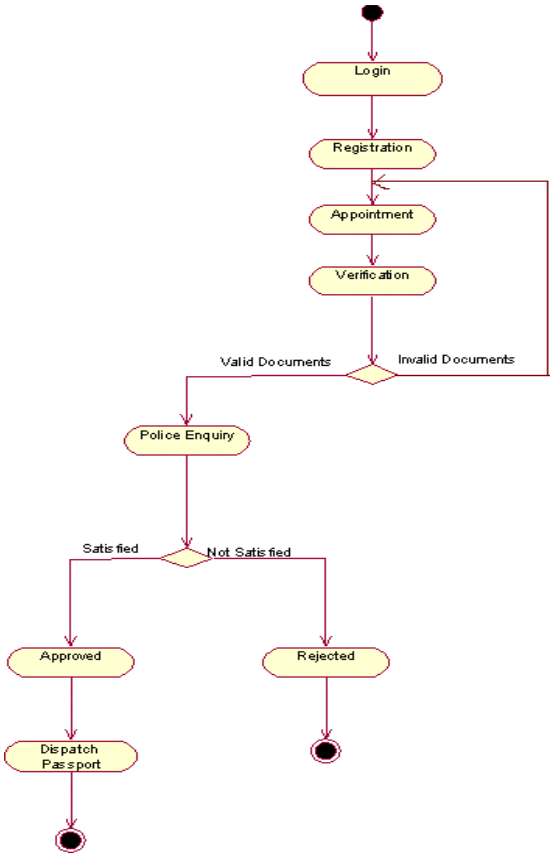


Fig.2.ACTIVITY DIAGRAM FOR PASSPORT AUTOMATION SYSTEM

CLASSDIAGRAM:

The class diagram is referred as object modeling in the static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects.

The Passport Automation system class diagram consists of five classes

1. Login class
2. Appointment class
3. Registration class
4. Authority class
5. Verification class

1) LOGINCLASS:

It consists of two attributes and two operations. The attributes are user name, and password. The operations of this class are creating login ( ),sign in ( ).

2) APPOINMENTCLASS:

The attributes of this class are appointment id,applicant id,date, time, and description. The operation of this class are get appointment ( ), get appointment status ( ), Modify (), cancel ().

3) REGISTRATIONCLASS:

The attributes are applicant id, name, dob, gender, birthplace, fathername,addr1,addr2,district,state,country,pincode,mobile,emailid,qualification.Theoperation areadd( ), modify( ),view().

4) AUTHORITYCLASS:

The attributes of this class are officered, name, designation, and password. The operations are search ( ).

5) VERIFICATIONCLASS:

The attributes of this class are verification id, appointment id,applicant id, officer id, status id, description. The operation are verify().

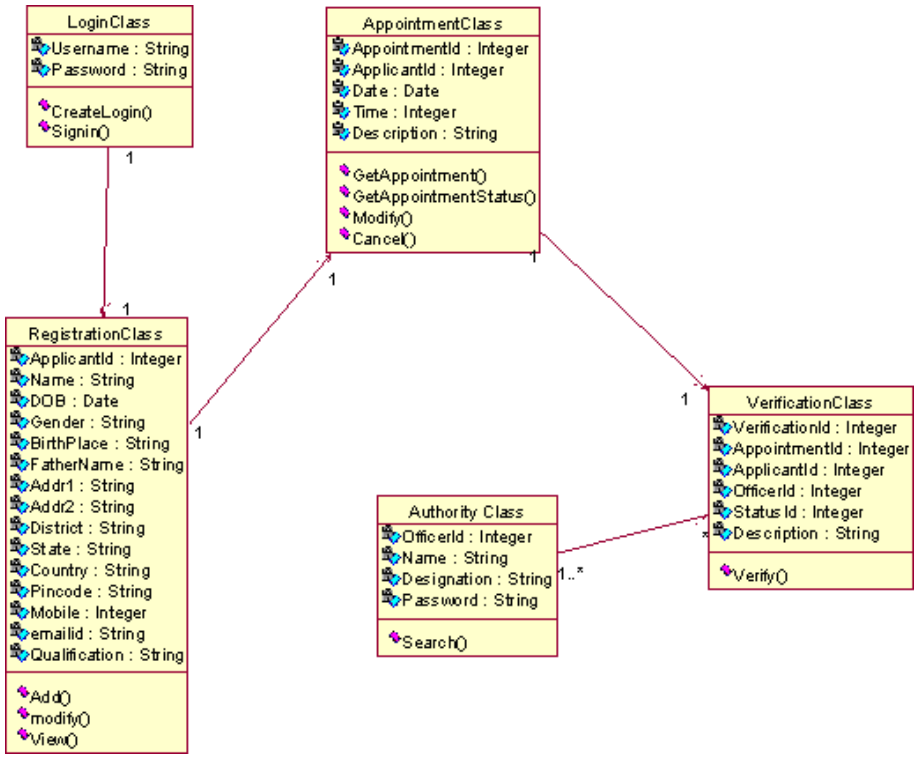


Fig.3.CLASS DIAGRAM FOR PASSPORT AUTOMATION SYSTEM

INTERACTIONDIAGRAM:

- A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario. Sequence diagrams can capture most of the information about the system.
- Most object to object interactions and operations are considered events and event s include signals , inputs, decisions, interrupts, transitions and actions to or from users or external devices.
- An event also is considered to be any action by an object that sends information.
- The event line represents a message sent from one object to another, in which the “form” object is requesting an operation be performed by the “to” object. The “to” object performs the operation using a method that the class contains.
- It is also represented by the order in which things occur and how the objects in the system send message to one another.
- The sequence diagram for each USE-CASE that exists when a user administrator, check status and new registration about passport automation system are given.

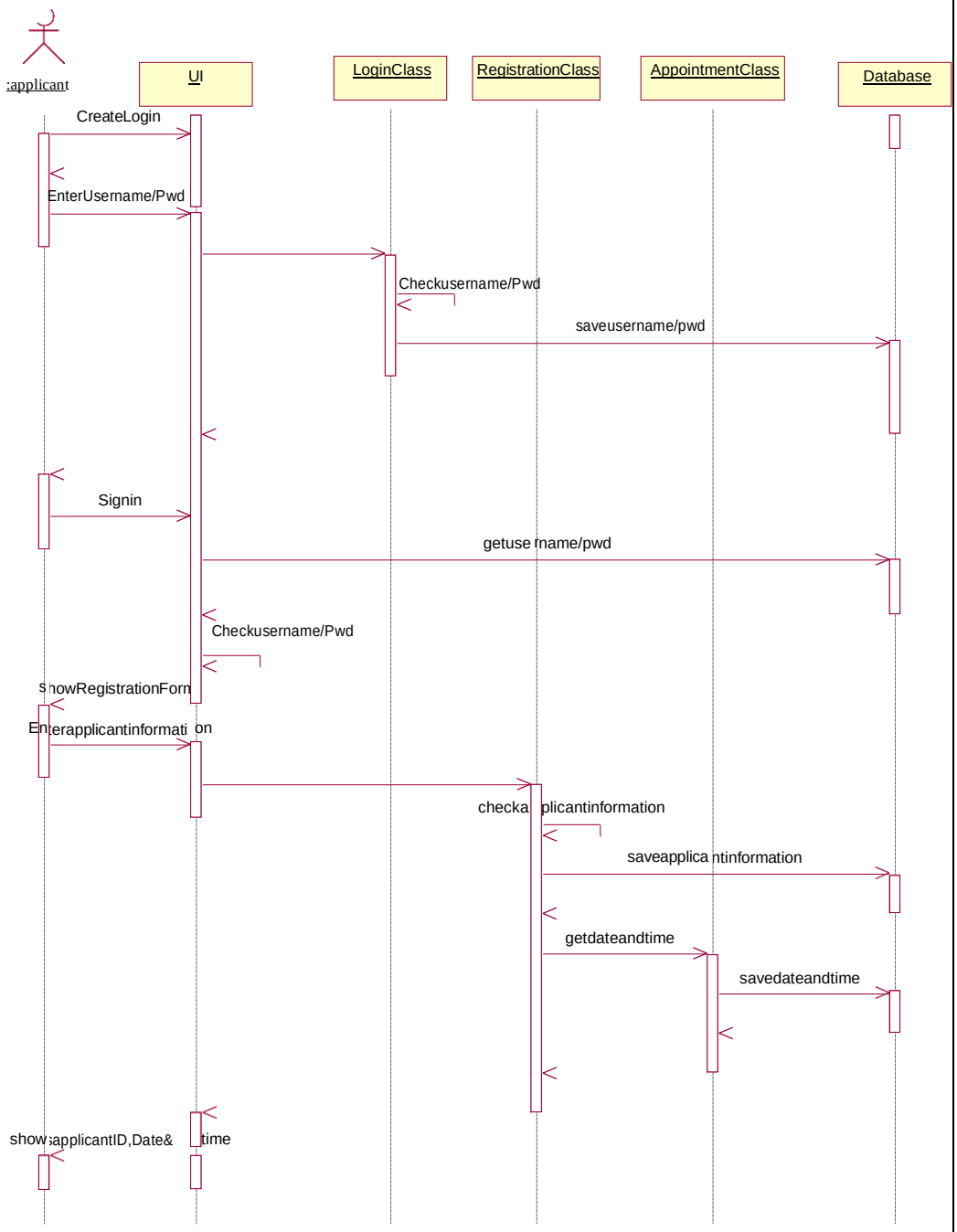


Fig.4.SEQUENCE DIAGRAM FOR LOGIN AND VERIFICATION

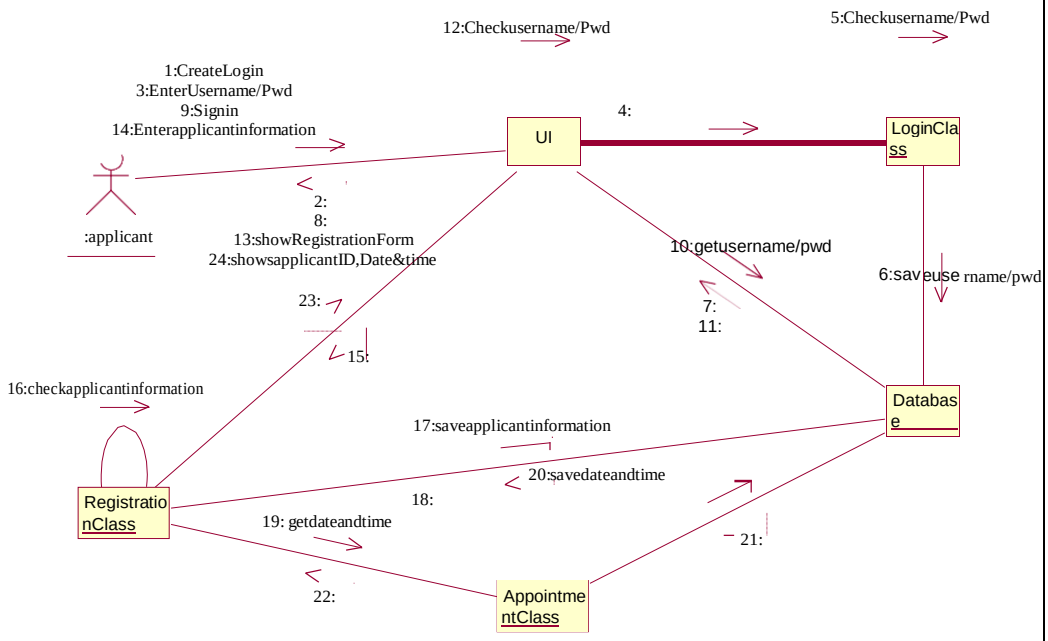


Fig.5. COLLABORATION DIAGRAM FOR LOGIN AND VERIFICATION

- The diagrams show the process done by the Passport Authority to the Passport Automation system. The applicant this to enter his details.
- The details entered are verified by the Passport Authority and theapplicantisapprovedifthedetailsmatchthenthepassportisdispatch, otherwise an appropriate error message is displayed.

STATECHARTDIAGRAM:

- Every object undergoes through some state and on receiving some event the state gets changed. This transition of the state can be represented by the state transition diagram.

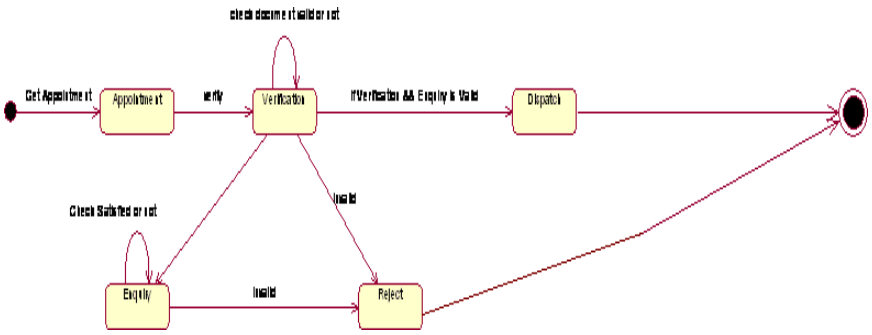


Fig.6.STATE CHART DIAGRAM FOR PASSPORT AUTOMATION SYSTEM

DEPLOYMENT DIAGRAM AND COMPONENT DIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

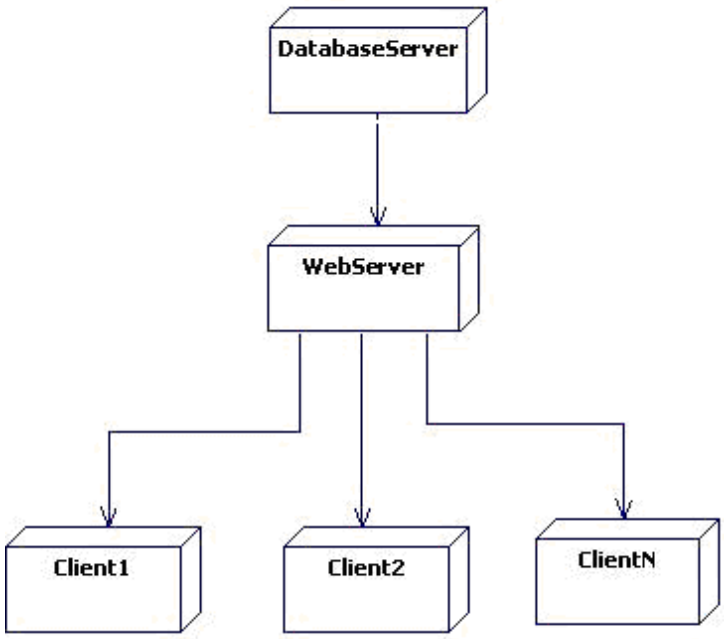


Fig.7.DEPLOYMENT DIAGRAM FOR PASSPORT AUTOMATION SYSTEM

COMPONENTDIAGRAM

Component diagrams are used to visualize the organization and relationships among components in a system.

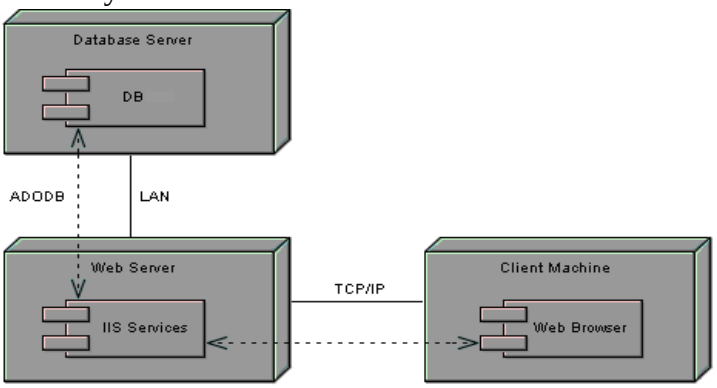


Fig.8.COMPONENT DIAGRAM FOR PASSPORT AUTOMATION SYSTEM

TASK2: BOOK BANK SYSTEM

AIM: To create a system to perform book bank operation

PROCEDURE :(I) PROBLEM STATEMENT:

A Book Bank lends books and magazines to member, who is registered in the system. Also it handles the purchase of new titles for the Book Bank. Popular titles are brought into multiple copies. Old books and magazines are removed when they are out or date or poor in condition. A member can reserve a book or magazine that is not currently available in the book bank, so that when it is returned or purchased by the book bank, that person is notified. The book bank can easily create, replace and delete information about the tiles, members, loans and reservations from the system.

(II) SOFTWAREREQUIREMENTSSPECIFICATION:

INTRODUCTION

Book Bank is the interface between the students and Librarian. It aims at improving the efficiency in the Issue of books or magazines and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of 'Issue of Books or Magazines' is done in a manual manner then it would take several months for the books or magazines to reach the applicant. Considering the fact that the number of students for Book Bank is increasing every year, an Automated System becomes essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process.The system has been carefully verified and validated in order to satisfy it.

SCOPE

The System provides an online interface to the user where they can fill in their personal details and submit the necessary documents (may be by scanning). The authority concerned with the issue of books can use this system to reduce his workload and process the application in a speedy manner.

DEFINITIONS, ACRONYMS AND THE ABBREVIATIONS

- **Librarian** –Refers to the super user who is the Central Authority who has been vested with the privilege to manage the entire system.
- **Student**-One who wishes to obtain the Books or Magazines.
- **HTML** –Markup Language used for creating web pages.
- **J2EE**-Java2EnterpriseEdition is a programming platform and it is the part of the java platform for developing and running distributed java applications.
- **HTTP**-Hyper Text Transfer Protocol
- **TCP/IP** - Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTO BEUSED

Visual Basic
Oracle11g

TOOLSTOBEUSED

Visual Basic Tools
Rational Rose tool (for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements.

Overall description will describe major role of the system components and inter-connections.

Specific requirements will describe roles &functions of the actors.

OVERALLDESCRIPTION:

It will describe major role of the system components and inter-connections.

PRODUCTPERSPECTIVE

The SRS acts as an interface between the 'Students' and the' Librarian'. This system tries to make the interface as simple as possible and at the same time not risking the security of data stored in. This minimizes the time duration in which the user receives the books or magazines.

SOFTWAREINTERFACE

Front End Client - The Student and Librarian online interface is built using Visual studio.
BackEnd-Oracle11gdatabase

HARDWAREINTERFACE

The server is directly connected to the client systems. The client systems have access to the database in the server.

SYSTEMFUNCTIONS

- Secure Registration of information by the Students.
- Librarian can generate reports from the information and is the only authorized personnel to add the eligible application information to the database.

USER CHARACTERISTICS

- **Student** - They are the people who desire to obtain the books and submit the information to the database.
- **Librarian** –He has the certain privileges to add the books and to approval of the reservation of books.

CONSTRAINTS

- The Students require a computer to submit their information.
- Although the security is given high importance, there is always a chance of intrusion in the web world which requires constant monitoring.
- The Students has to be careful while submitting the information. Much care is required.

ASSUMPTIONSANDDEPENDENCIES

- The Student and Librarian must have basic knowledge of computers and English Language.
- The Students may be required to scan the documents and send.

(III) USE-CASE DIAGRAM: The book bank use cases are:

1. book_issue

2. book_ return
3. book_ order
4. book_ entry
5. search book_ details

ACTORS INVOLVED:

1. Student
2. Librarian
3. Vendor

USECASE NAME:SEARCH BOOK_DETAILS

The librarian initiates this use case when any member returns or request the book and checking if the book is available.

Precondition: The librarian should enter all Book details.

Normal Flow: Build message for librarian who search the book.

Post Condition: Send message to respective member who reserved the book.

USECASE NAME: BOOK_ISSUE

Initiated by librarian when any member wants to borrow the desired book. If the book is available, the book is issued.

Precondition: Member should be valid member of library.

Normal Flow: Selected book will be issued to the member.

Alternative Flow: If book is not available then reserved book use case should be initiate.

Post Condition: Update the catalogue.

USECASENAME: BOOK_ORDER

Initiated by librarian when the requested book is not available in the library at that moment. The book is reserved for the future and issued to the person when it is available.

Precondition: Initiated only when book is not available.

Normal Flow: It reserved the book if requested.

Post Condition: Mention the entry in catalogue for reservation.

USECASENAME: BOOK_RETURN

Invoked by the librarian when a member returns the book.

Precondition: Member should be valid member of library.

Normal Flow: Librarian enters bookid and system checks for return date of the book.

Alternative Flow: System checks for return date and if it returned late fine message will be displayed.

Post Condition: Check the status of reservation.

USECASENAME: BOOK_ENTRY

The purchase book use-case when new books invoke it or magazines are added to the library.

Precondition: Not available or more copies are required. **Normal Flow:** Enter booki d, author information, publication information, purchased date, prize and number of copies.

Post Condition: Update the information in catalogue.

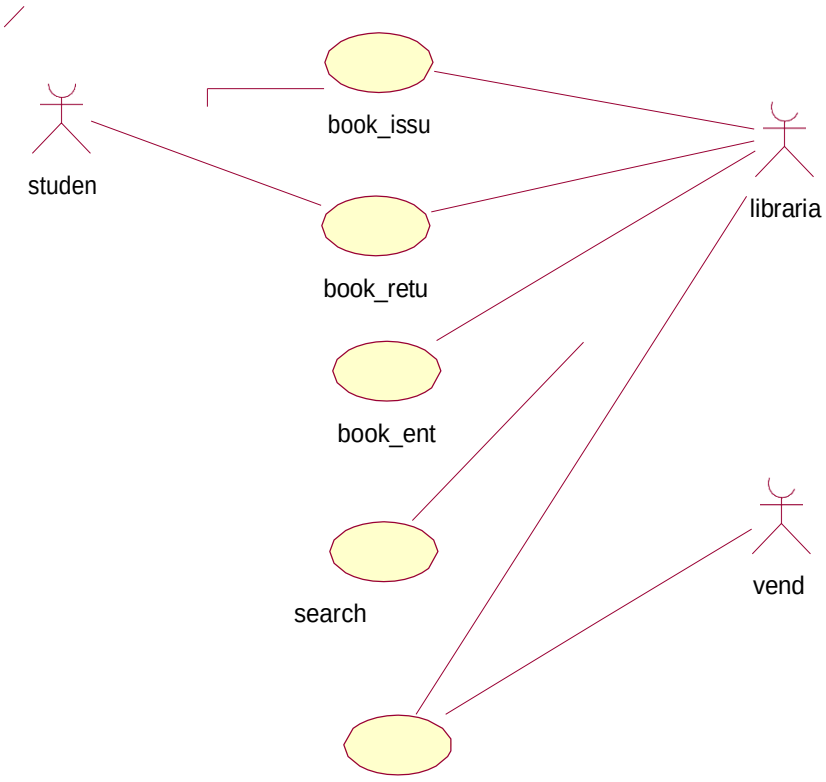


Fig.9. Use-Case Diagram For Book Bank System

ACTIVITYDIAGRAM:

Activity diagrams are graphical representations of workflows of step wise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control. An activity is shown as an rounded box containing the name of the operation.

This activity diagram describes the behavior of the system.

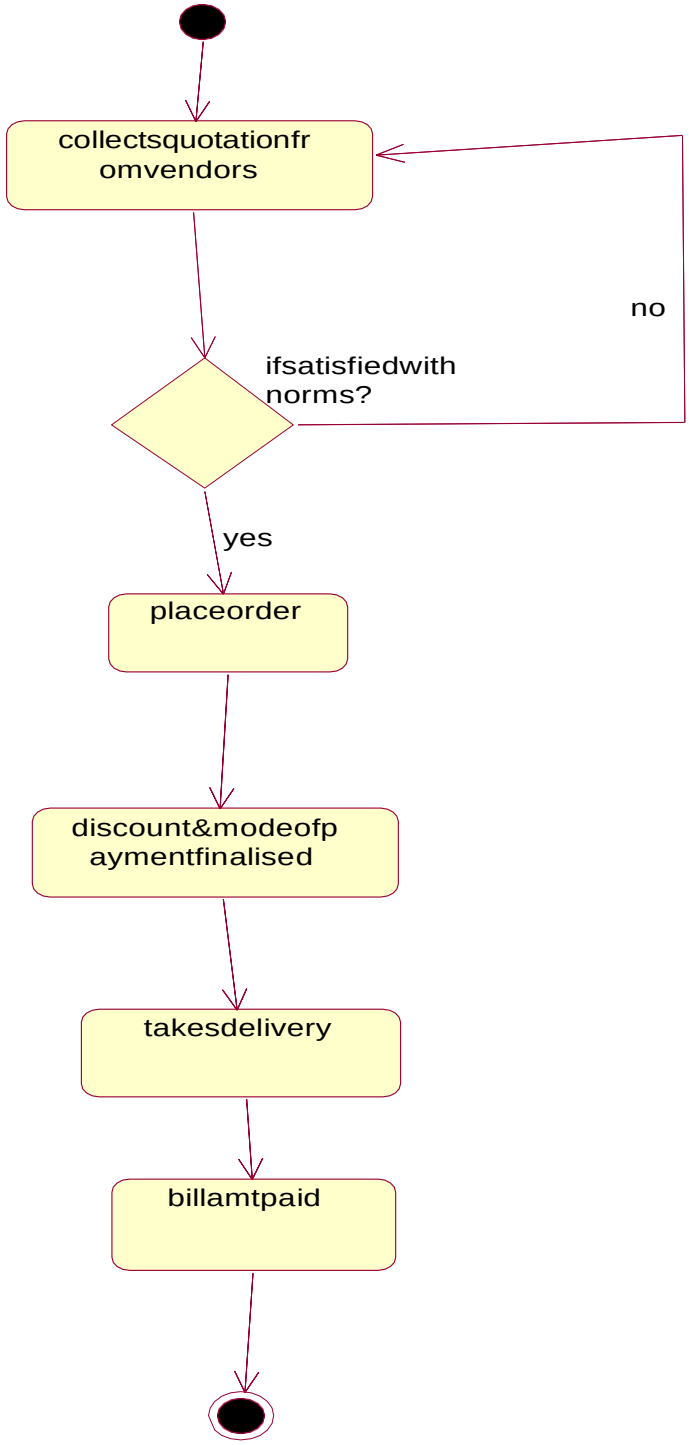


Fig.11. Activity Diagram[OrderBook]

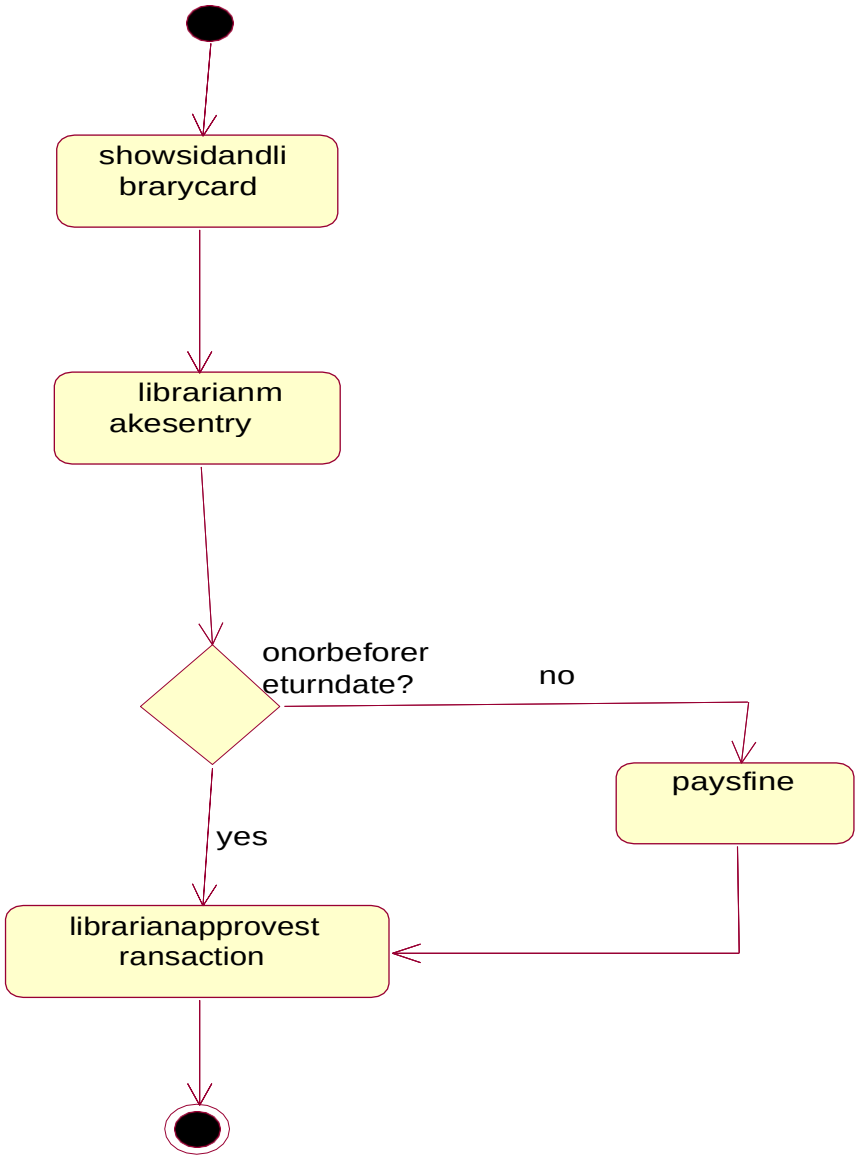


Fig.12.Activity Diagram[ReturnBook]

CLASSDIAGRAM:

The class diagram, also referred to as object modeling is the main static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects.

The ATM system class diagram consists of four classes:

6. Student
7. Book
8. Issue
9. Return
10. Vendor
11. Details

1) STUDENT:

It consists of twelve attributes and three operations. The attributes are enrolling no, name, DOB, father name, address, dept name, batch and book limits. The operations of this class are addStInfo(), deleteStInfo(), modify StInfo().

2) BOOK:

It consists of ten attributes and four operations. This class is used to keep book information such as author, title, vendor, price ,etc

3) ISSUE:

It consists of eight attributes and two operations to maintain issue details such as, issue date, accno of issued book, name of the student who borrowed book.

4) RETURN:

It consists of eight attributes and two operations to maintain issue details such as, issue date, accno of issued book, name of the student who borrowed book

5) STUDENTS:

The attributes of this class are name, dept, year, bcode no The operation is display students ().

6) DETAIL:

The attributes of this class are book name, author, bcode no The operations are delete details ().

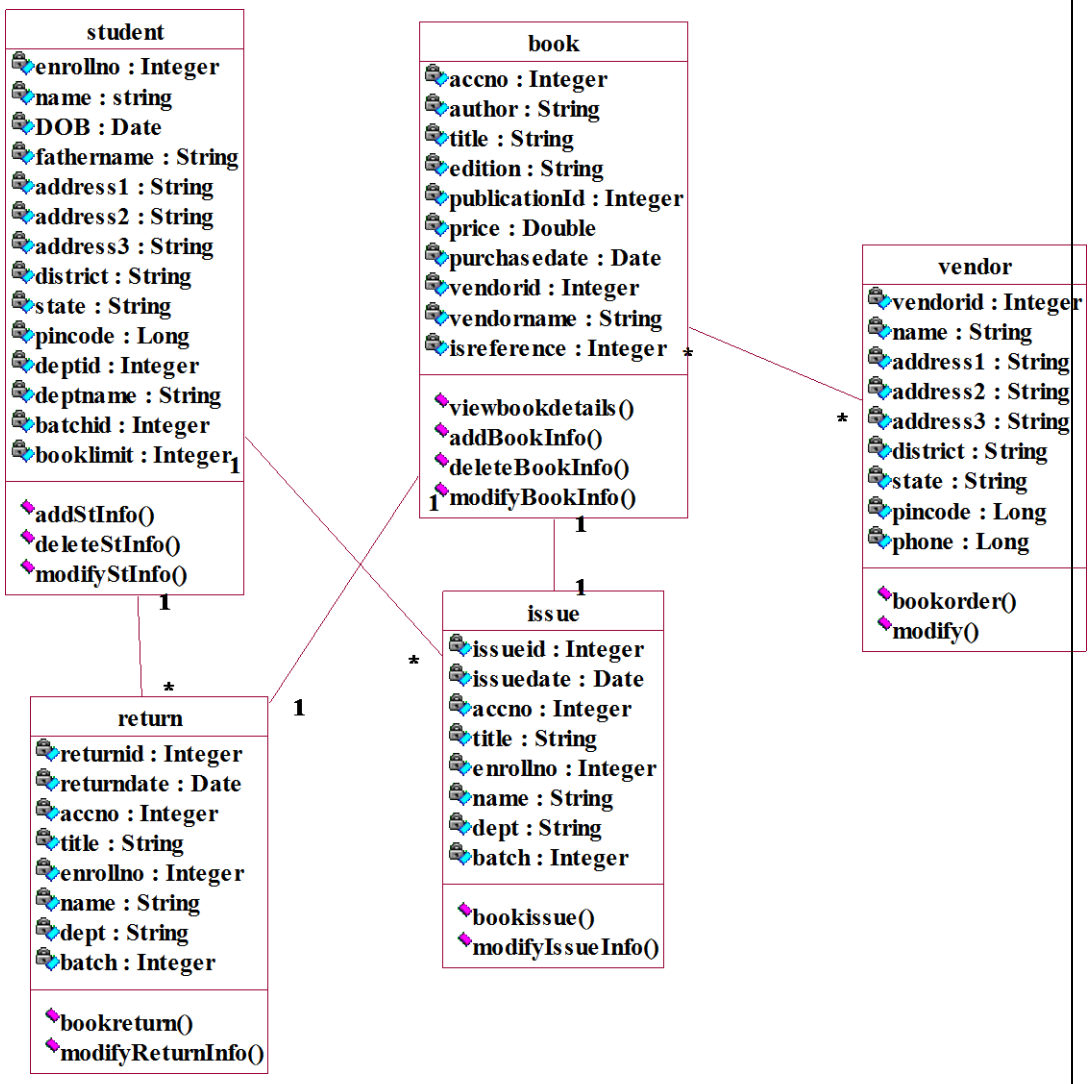


Fig.13.ClassDiagramForBook Bank System

SEQUENCEDIAGRAM:

A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario. Sequence diagrams can capture most of the information about the system. Most object to object interactions and operations are considered events and events include signals, inputs, decisions, interrupts, transitions and actions to or from users or external devices.

An event also is considered to be any action by an object that sends information. The event line represents a message sent from one object to another, in which the "form" object is requesting an operation be performedbythe"to"object.The"to"objectperformstheoperationusingamethodthatthe class contains.

It is also represented by the order in which things occur and how the objects in the system send message to one another.

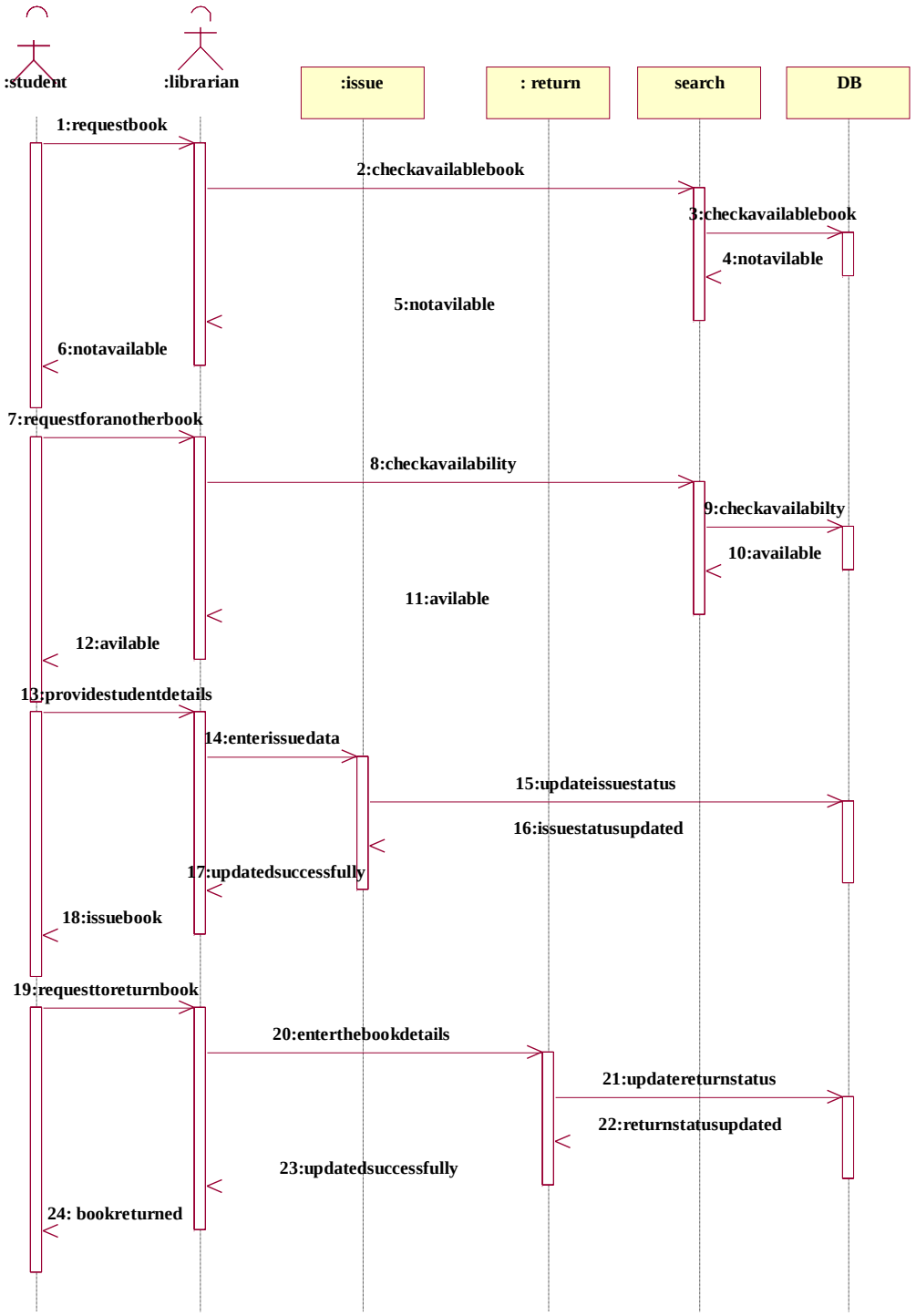


Fig.14.SequenceDiagram For Book Issue &Return

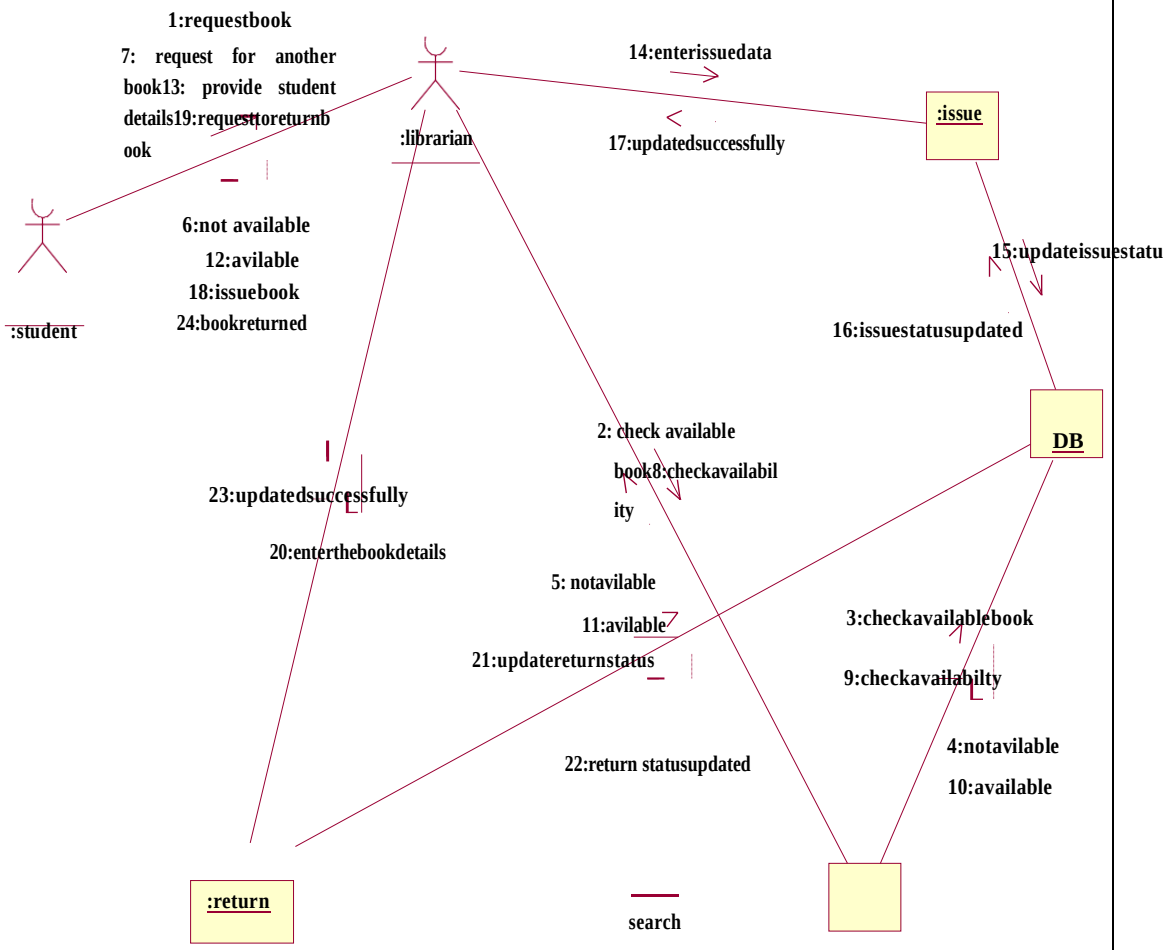


Fig.15.CollaborationDiagram For BookIssue &Return

STATECHART DIAGRAM

It consists of state, events and activities. State diagrams are a familiar technique to describe the behavior of a system. They describe all of the possible states that a particular object can get into and how the object's state changes as a result of events that reach the object

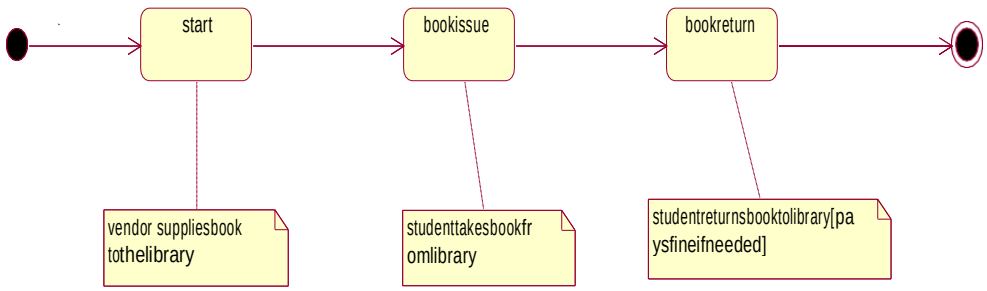


Fig.16.State Chart Diagram

DEPLOYMENTDIAGRAMAND COMPONENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

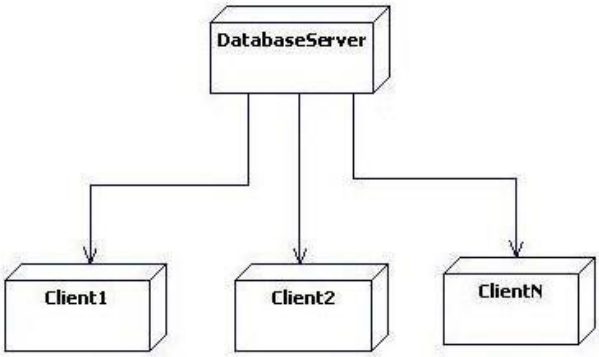


Fig.17.DeploymentDiagram

TASK3: Exam Registration System

AIM: To create a system to perform the Exam Registration system

PROCEDURE :(I)PROBLEMSTATEMENT

Exam Registration system is used in the effective dispatch of registration form to all of the students. This system adopts a comprehensive approach to minimize the manual work and schedule resources, time in a cogent manner.

The core of the system is to get the online registration form (with details such as name, reg. no etc.,) filled by the student whose testament is verified for its genuineness by the Exam Registration System with respect to he already existing information in the database. This forms the first and foremost step in the processing of exam application. After the first round of verification done by the system, the information is in turn forwarded to the exam Controller. The application is then processed manually based on there port given by the system. The system also provides the student the list of exam dates. The controller will be provided with fees details to display the current status of application to the student, which they can view in their online interface. After all the necessary criteria has been met, the original information is added to the database and the hall ticket is sent to the student.

SOFTWAREREQUIREMENTSPECIFICATION:

INTRODUCTION

Exam Registration System is an interface between the Student and the Exam Controller responsible for the Issue of Hall Ticket. It aims at improving the efficiency in the Issue of Hall ticket and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of 'Issue of Hall ticket' is done in a manual manner then it would takes several days for the hall ticket to reach the student Considering the fact that the number of students for hall ticket is increasing every year, an Automated System becomes essential to

meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process. As this is a matter of National Security, the system has been carefully verified and validated in order to satisfy it.

SCOPE

- The System provides an online interface to the user where they can fill in their personal details and submit the necessary documents (may be by scanning).
- The controller concerned with the issue of hall ticket can use this system to reduce his workload and process the application in a speedy manner.
- Provide a communication platform between the student and the controller.

  Students will come to know their status of application and the date in which they must subject themselves form annual document verification.

DEFINITIONS,ACRONYMS AND THE ABBREVIATIONS

• **Exam Controller** - Refers to the super user who is the Central Authority who has been vested with the privilege to manage the entire system.

• **Student**-One who wishes to obtain the Hall Ticket.

• **ERS**-Refers to this Examination Registration System.

• **HTML** –Markup Language used for creating web pages.

• **J2EE** – Java 2 Enterprise Edition is a programming platform java platform for developing and running distributed java applications.

• **HTTP**-Hyper Tex t Transfer Protocol.

• **TCP/IP**–Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTOBEUSED

• HTML
• JSP
• JavaScript
• Java
•

TOOLSTOBEUSED

• Eclipse IDE(Integrated Development Environment)

• Rational Rose tool(for developing UMLPatterns)

OVERVIEW

SRS includes two sections overall description and specific requirements –

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles & function soft he actors.

OVERALL DESCRIPTION

PRODUCT PERSPECTIVE

The ERS acts as an interface between the 'student' and the 'exam controller'. This system tries to make the interface as simple as possible and at the same time not risking the security of data stored in. This minimizes the time duration in which the user receives the hall ticket.

SOFTWARE INTERFACE

- **Front End Client** - The exporter online interface is built using JSP and HTML.
- **Web Server**–Apache Tomcat Server (Oracle Corporation)
- **Back End** -Oracle11gdatabase

HARDWARE INTERFACE

The server is directly connected to the client systems. The client systems have access to the database in the server.

SYSTEMFUNCTIONS

• Secure Registration of information by the Students.

• SMS and Mail updates to the students by the controller.

• Controller can generate reports from the information and is the only authorized personnel to add the eligible application information to the database.

USERCHARACTERISTICS

Student- They are the people who desire to obtain the hall ticket and submit the information to the database.

• **Exam controller**-He has the certain privileges to add the registration status and to approve the issue of hall ticket. He may contain a group of persons under him to verify the documents and give suggestion whether or not to approve the dispatch of hall ticket.

CONSTRAINTS

• The applicants require a computer to submit their information.
• Although the security is given high importance, there is always a chance of intrusion in the web world which requires constant monitoring.
• The user has to be careful while submitting the information. Much care is required.

ASSUMPTIONS AND DEPENDENCIES

• The Students and Exam Controller must have basic knowledge of computers and English Language.
• The student may be required to scan the documents and send.

(II) USECASEDIAGRAM:

The Exam Registration use cases in our system are:

1. Lo gin
2. View exam details
3. Register
4. Acknowledgement
5. Fee Processing

ACTORSINVOLVED:

1. Student
2. System DB

USE-CASENAME:LOGIN

The student enters his username and password to login and retrieve the information.

USE-CASENAME: VIEW EXAMDETAILS

The student view the details about the exam schedule which contains Date, time, etc...

USE-CASENAME: REGISTER

The student should notify the fee details that only the student can pay the correct amount.

USE-CASENAME: ACKNOWLEDGEMENT

The exam fees should be paid by the student to get the hall ticket from the exam controller.

USE-CASENAME: FEE PROCESSING

All the details should be viewed by both the student and the controller to verify whether all the entered details are correct.

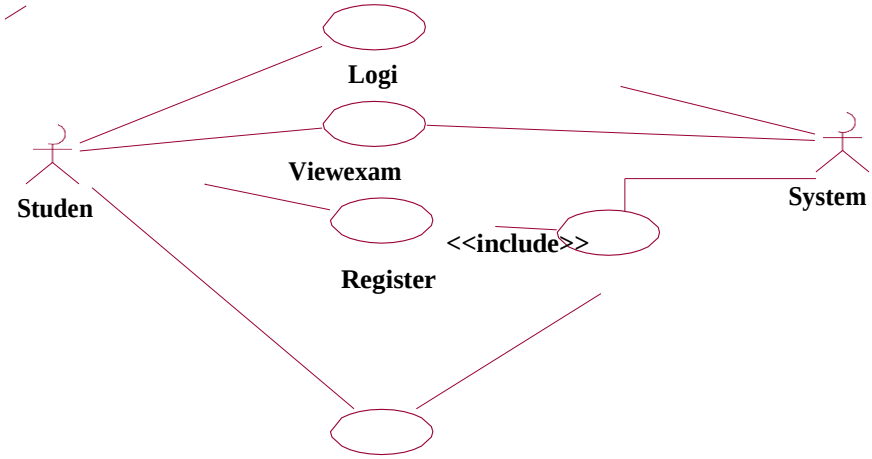


Fig.18.UsecaseDiagramForExam Registration System

ACTIVITYDIAGRAM:

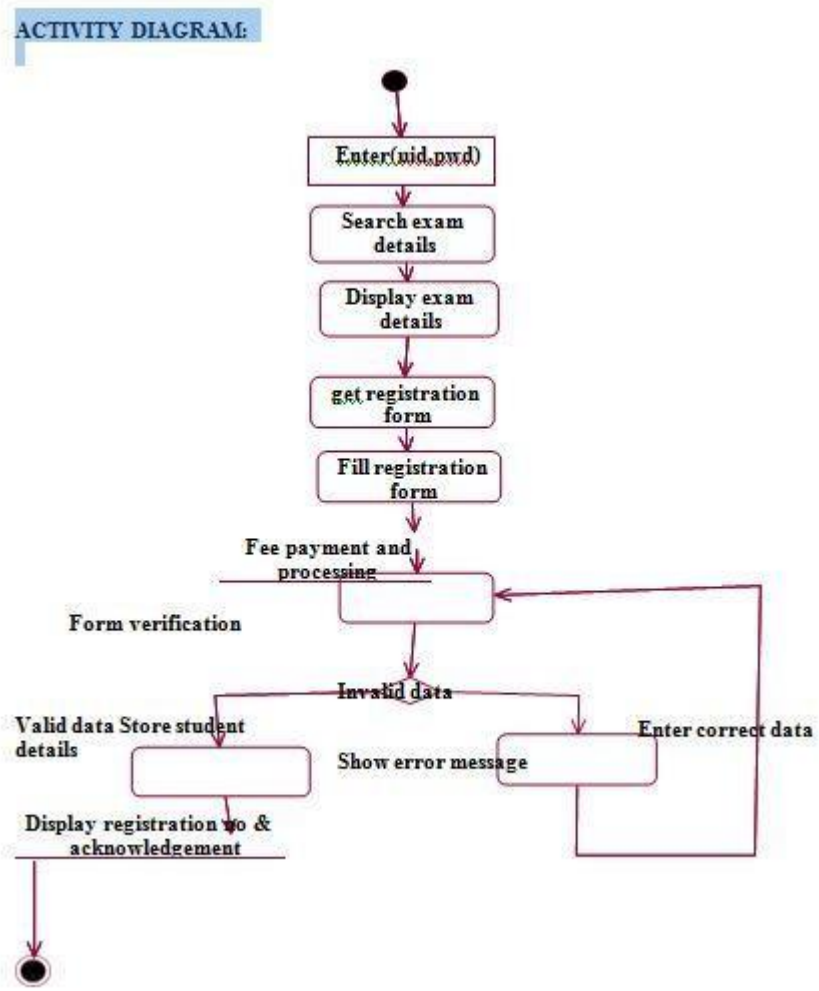


Fig.19.Activity Diagram For Exam Registration System

CLASSDIAGRAM:

The class diagram, also referred to as object modeling is the main static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects.

The Exam Registration System class diagram consists of four two classes of registration system.

6. Student details
7. Exam details
8. Register r

1) STUDENT_DETAILS

Itconsistsofsixattributesandsixoperations.Theattributesid,password, name, age, sex, course. The operations of this class are login(),logout(),conformation(),register(), new fees details().

2) EXAM_DETAILS

Itconsistsoffourattributesandsixmethods.Theattributesareuserid,password,examfees,feesdue.Themethodsarelogin(),logout(),feesdetails(),displayfees(), conformation(), exam controller().

3) REGISTER

This class is used to maintain the registered student information such as, subject registered, date of registration and etc,.

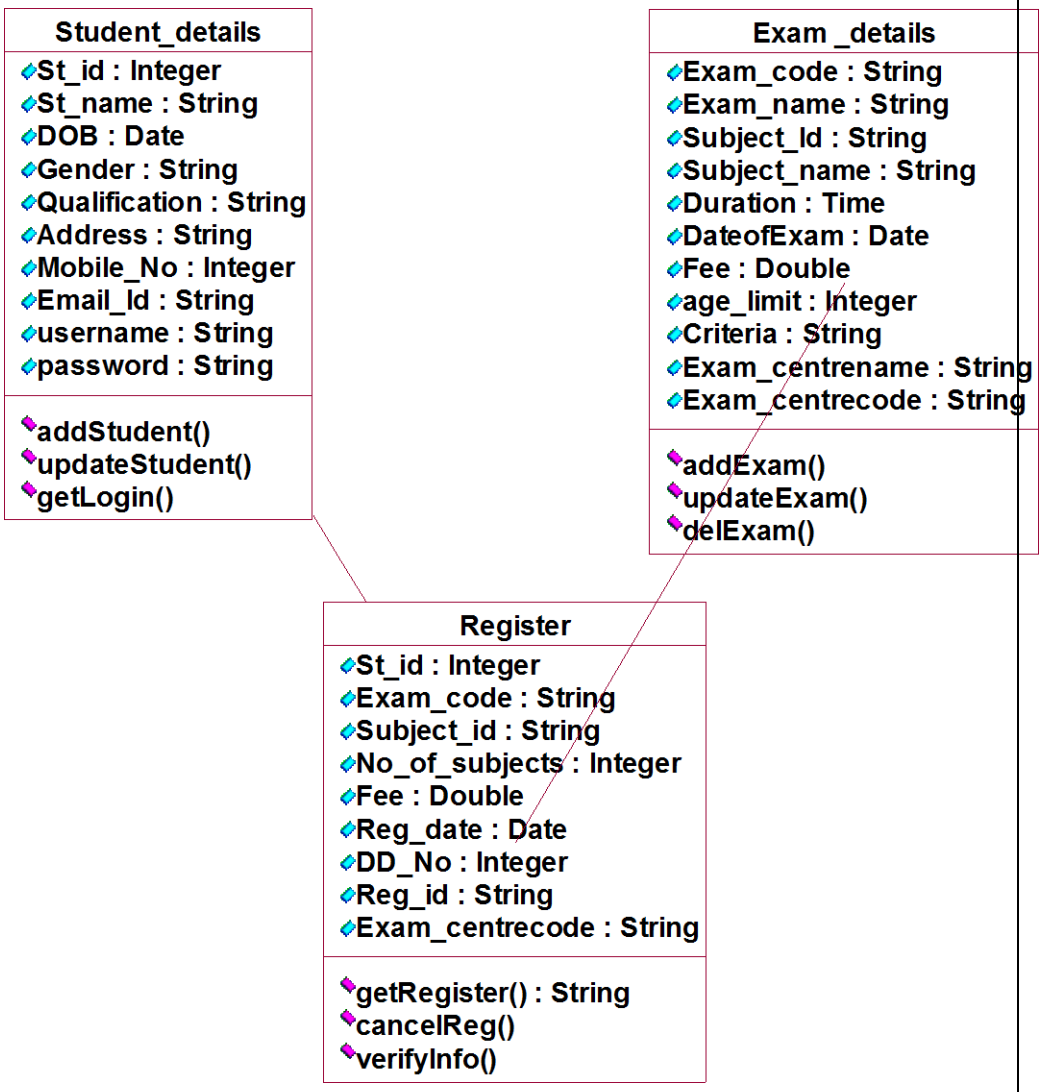


Fig.20.ClassDiagram For Exam Registration System

INTERACTIONDIAGRAM:

A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario. Sequence diagrams can capture most of the information about the system. Most object to object interactions and operation are considered events and events include signals, inputs, decisions, interrupts, transitions and actions to or from users or external devices.

An event also is considered to be any action by an object that sends in formation. The event line represents a message sent from one object to another, in which the “form” object is requesting an operation be performed by the “to” object. The “to” object performs the operation using a method that the class contains.

It is also represented by the order in which things occur and how the objects in the system send message to one another.

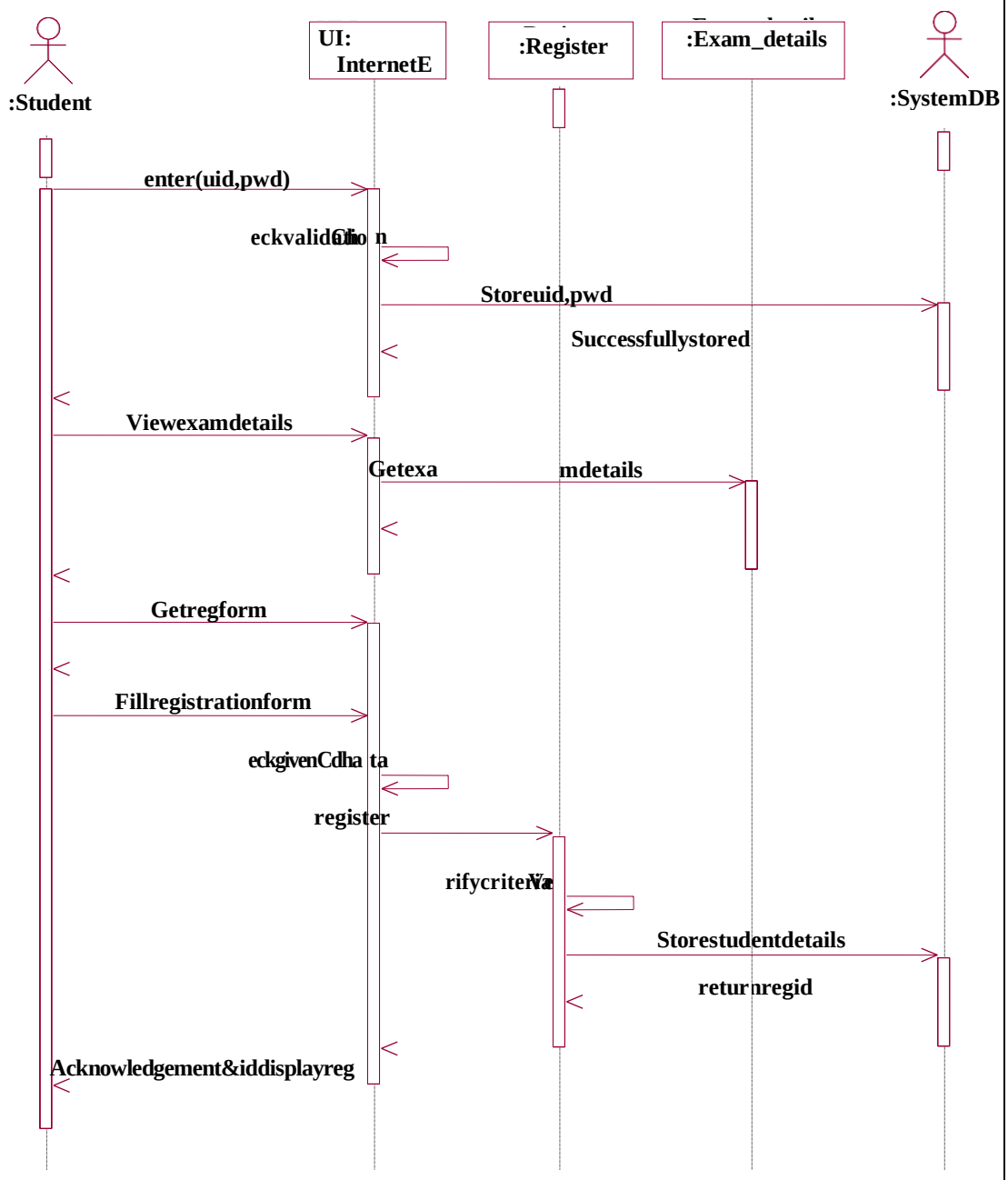


Fig.21.SequenceDiagramForRegistrationSystem

The sequence and collaboration diagram represents that the student enter the information to get the hall ticket and the exam controller issues the hall ticket after verifying the necessary items and this data are stored in the database.

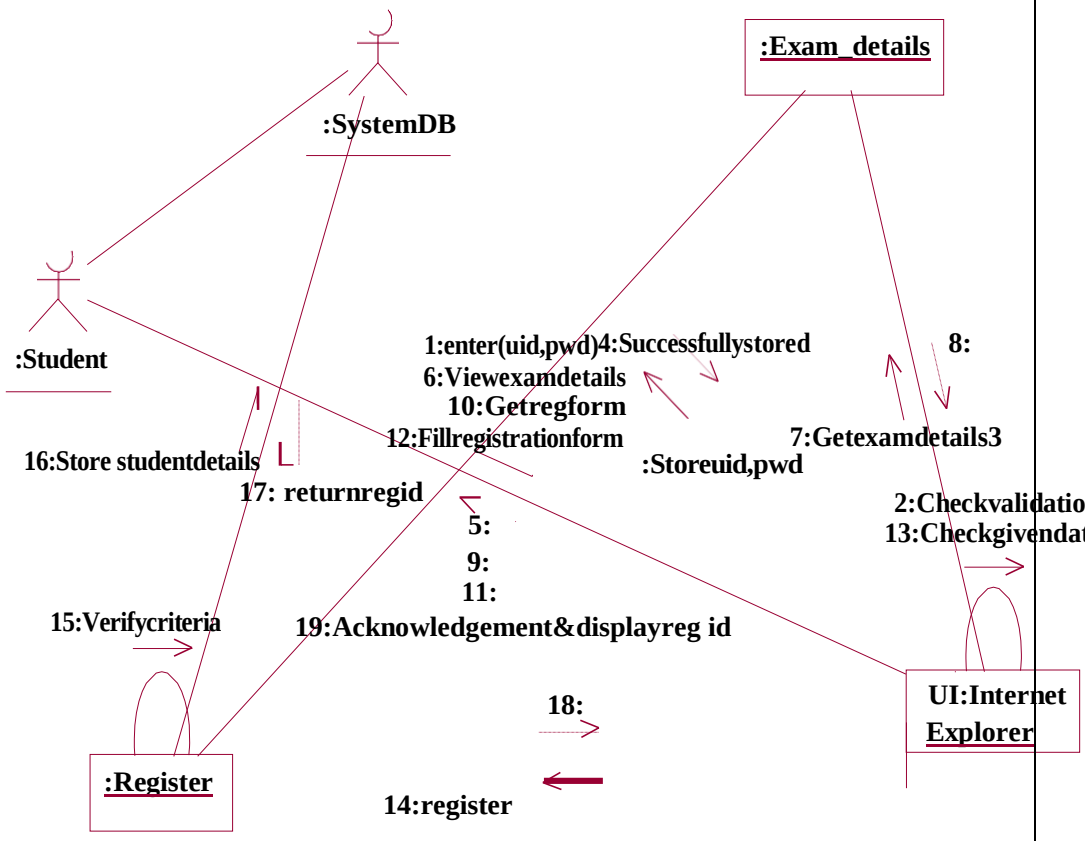


Fig.21.CollaborationDiagramForRegistrationSystem

DEPLOYMENTDIAGRAMAND COMPONENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

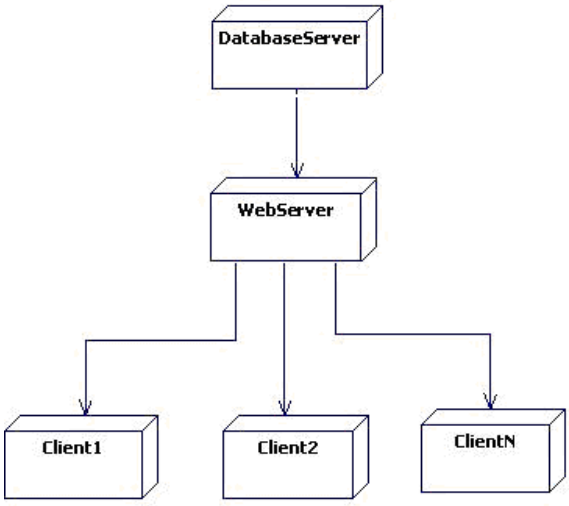


Fig.22.Deployment Diagram

COMPONENTDIAGRAM

Component diagrams are used to visualize the organization and relationships among components in a system.

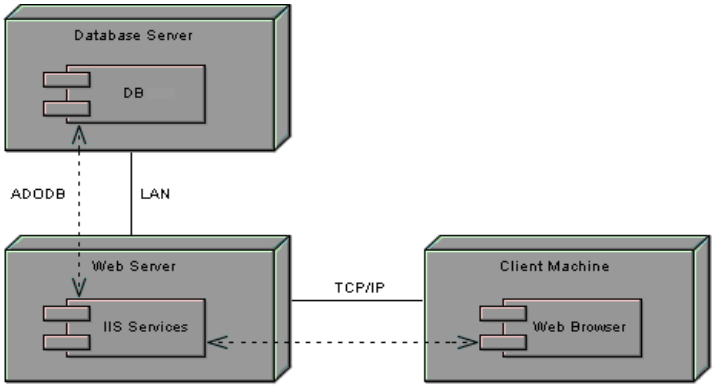


Fig.23.Component Diagram

TASK4: Stock Maintenance

AIM: To create a system to perform the Stock maintenance

PROCEDURE :(I)PROBLEMSTATEMENT

The stock maintenance system must take care of sales information of the company and must analyze the potential of the trade. It maintains the number of items that are added or removed. The sales person initiates this Use case. The sales person is allowed to update information and view the database.

(II) SOFTWAREREQUIREMENTSPECIFICATION

INTRODUCTION

Stock maintenance is an interface between the customer and the salesperson. It aims at improving the efficiency in maintaining the stocks.

PURPOSE

The entire process of Stock maintenance is done in a manual manner considering the fact that the number of customers for purchase is increasing every year, a maintenance system is essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process.

SCOPE

- The System provides an interface to the customer where they can fill in orders for the item needed.
- The sales person is concerned with the issue of items and can use this system.
- Provide a communication platform between the customer and the sales person.

DEFINITIONS, ACRONYMS ANDTHEABBREVIATIONS

- **Market Data provider**: One who analyze the product and distribute the news.
- **Customer:** One who takes order of product
- **Salesperson:** One who maintains the stock details

TECHNOLOGIESTOBEUSED

- Visual Studio
- VBScript

TOOLSTOBEUSED

• Eclipse IDE(Integrated Development Environment)

• Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements

Overall Description will describe major role of the system

components and inter-Connections

Specific Requirements will describe roles &functions of the actors.

OVERALLDESCRIPTION

The Stock maintenance acts as an interface between the 'customer' and the 'sales person'. This system tries to make the interface as simple as possible and at the same time not risking the work of data stored in

SYSTEMFUNCTIONS

Secure order of information by the customer

• Schedule the customer an appointment form annual delivery of the product.

USERCHARACTERISTICS

1. **Customer:** The person who orders for the item.
2. **Validate customer:** The items ordered by the customer are validated.
3. **Sales Detail:** Maintains the stock details after delivering the items to the customer.

CONSTRAINTS

1. The customer should wait until the trade contractor and other to analyze the product.
2. After the distribution of the news about the product. The customer can take order and request of sales person to fill it.
3. Finally the sales person delivers the order.

(III) USECASE DIAGRAM

The functionality of a system can be described in a number of different use-cases, each of which represents a specific flow of events in a system. It is a graph of actors, a set of use-cases enclosed in a boundary, communication associations between the actors and the use-cases, and generalization among the use-cases.

The use cases used in this system are

1. **Product details:** Used for placing an order.
2. **Purchased details:** Used for tracking items that have been ordered.
3. **Sales details:** Used forgive the sales particulars about a item.
4. **Stock details:** Used forgive the stock detail in a shop.
5. **Purchase the product :** Used to provide bills for the customer.

6. **Supply the product:** Used to give the order product to customer.

ACTORS

The actors used in this system are

1. **Customer:** The person who orders for the item.
2. **Shop keeper:** The items ordered by the customer are validated.
3. **Company:** Maintains the stock details after delivering the items to the customer.

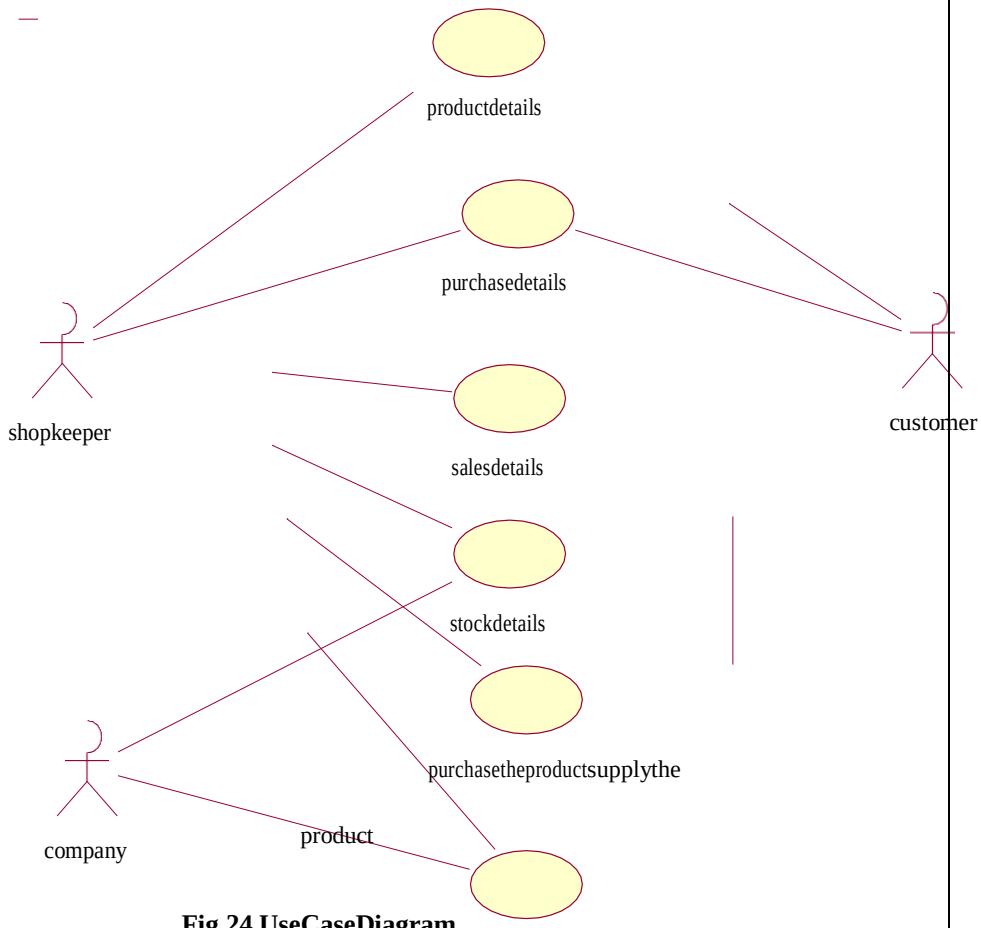


Fig.24.UseCaseDiagram

ACTIVITYDIAGRAM

Itshowsorganizationandtheirdependenceamongthesetofcomponents.Thesediagramsareparticularlyusefulinconnectionwithworkflow and in describing behavior that has a lot of parallel processing. An activity is a state of doing something: either a real-world process, or the execution of a software routine.

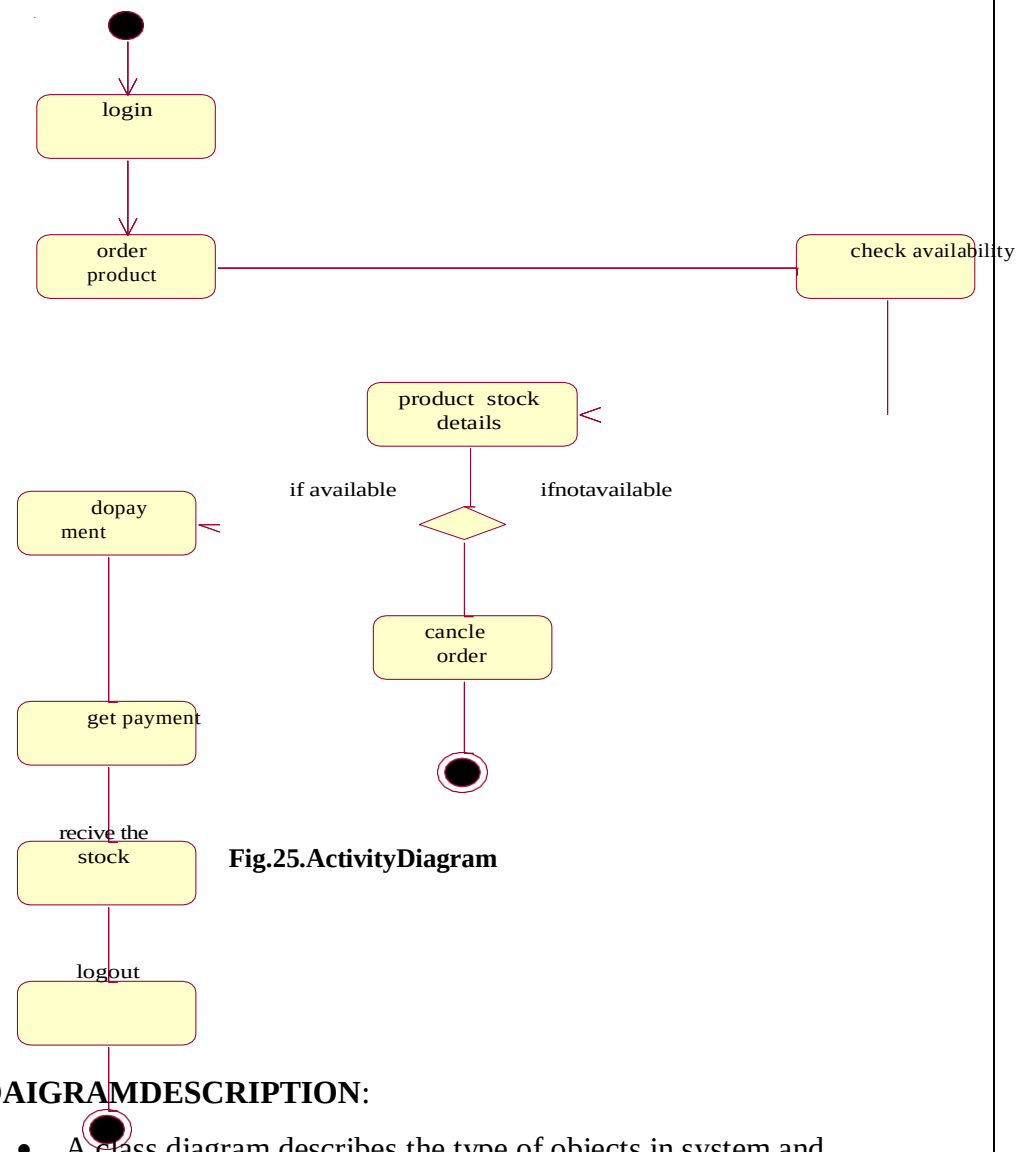


Fig.25.ActivityDiagram

CLASSDAIGRAMDESCRIPTION:

- A class diagram describes the type of objects in system and various kinds of relationships that exists among them.
- Classdiagramsandcollaborationdiagramsarealternaterep resentationsof object models.

The Stock maintenance system class diagram consists of seven classes:

7. **Purchase Details:** One who takes orders for the product?
8. **Sales Details:** The customer makes an order for the required products.
9. **Product Details:** The items that are stored as stock.

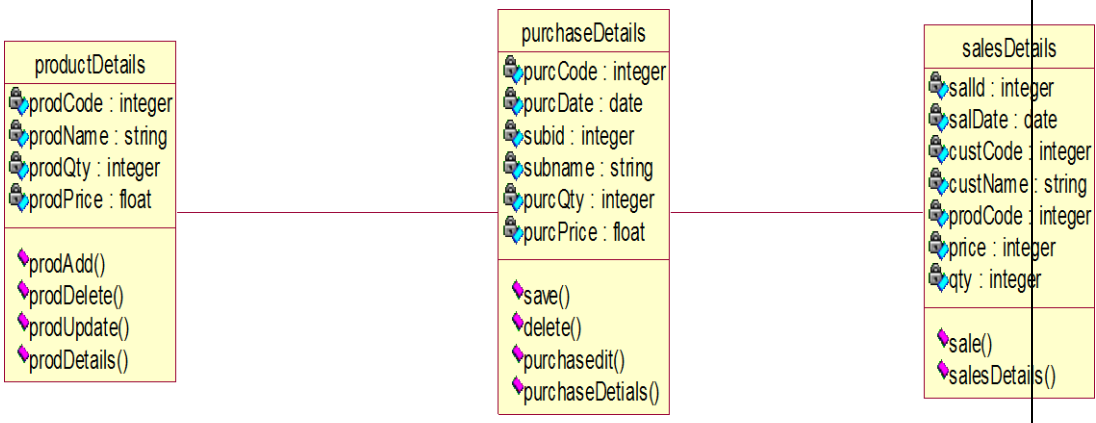


Fig.26.ClassDiagram

UMLINTERACTIONDIAGRAMS

It is the combination of sequence and collaboration diagram. It is used to depict the flow of events in the system over a timeline. The interaction diagram is a dynamic model which shows show the system behaves during dynamic execution.

SEQUENCEDIAGRAM

A sequence diagram represents the sequence and interactions of a givenUSE-CASEorscenario.Sequencediagramscancapturemostoftheinformationaboutthesystem.Mostobjecttoobjectinteractionsandoperationsareconsideredeventsandeventsincludesignals, inputs, decisions, interrupts, transitions and actions to perform users to devices.

An event also is considered to be any action by an object that sends information. The event line represents a message from one object to another, in which the “from” object is requesting an operation be performed by the “to” object. The “to” object performs the operation using a method that the class contains. It is also represented by the order in which things occur and how the objects in the system send message to one another.

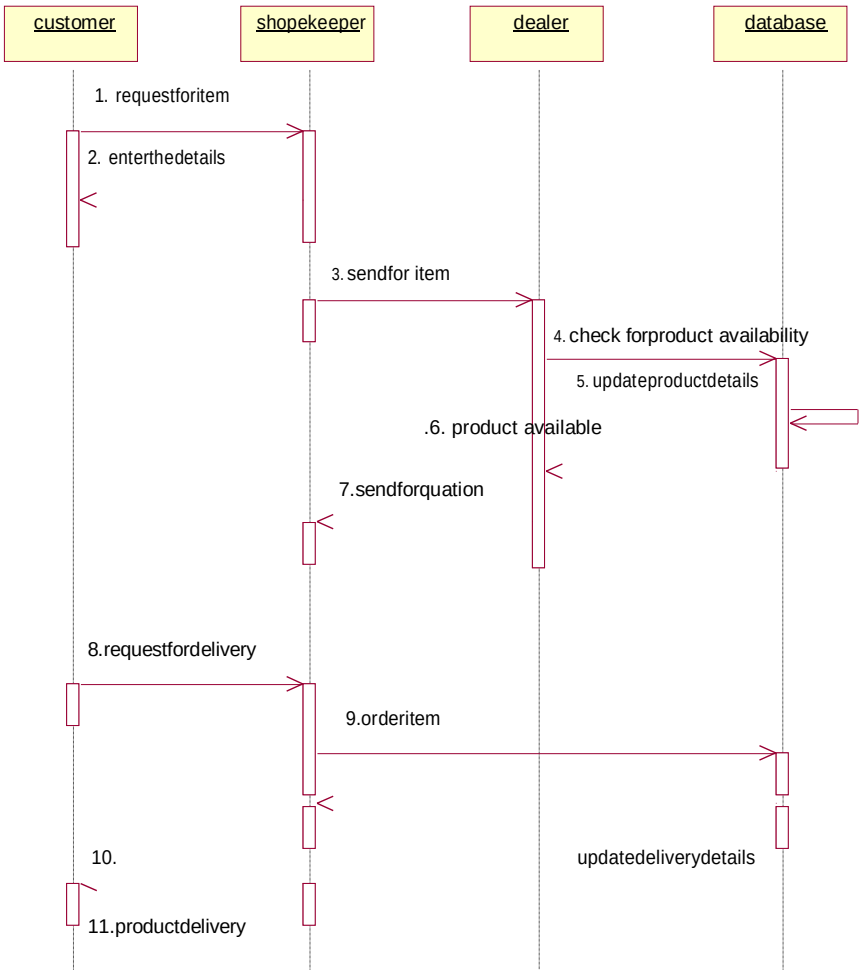


Fig.27.SequenceDiagram

COLLABORATIONDIAGRAM

Collaboration diagram and sequence diagrams are alternate representations of an interaction. A collaboration diagram is an interaction diagrams that shows the order of messages that implement an operation or a transaction. Collaboration diagram is an interaction diagram that shows the order of messages that implement an operation or a transaction. Collaboration diagram shows object s, their links and their messages. They can also contain simple class instances and class utility instances.

During, analysis indicates the semantics of the primary and secondary interactions. Design, shows the semantics of mechanisms in the logical design of system.

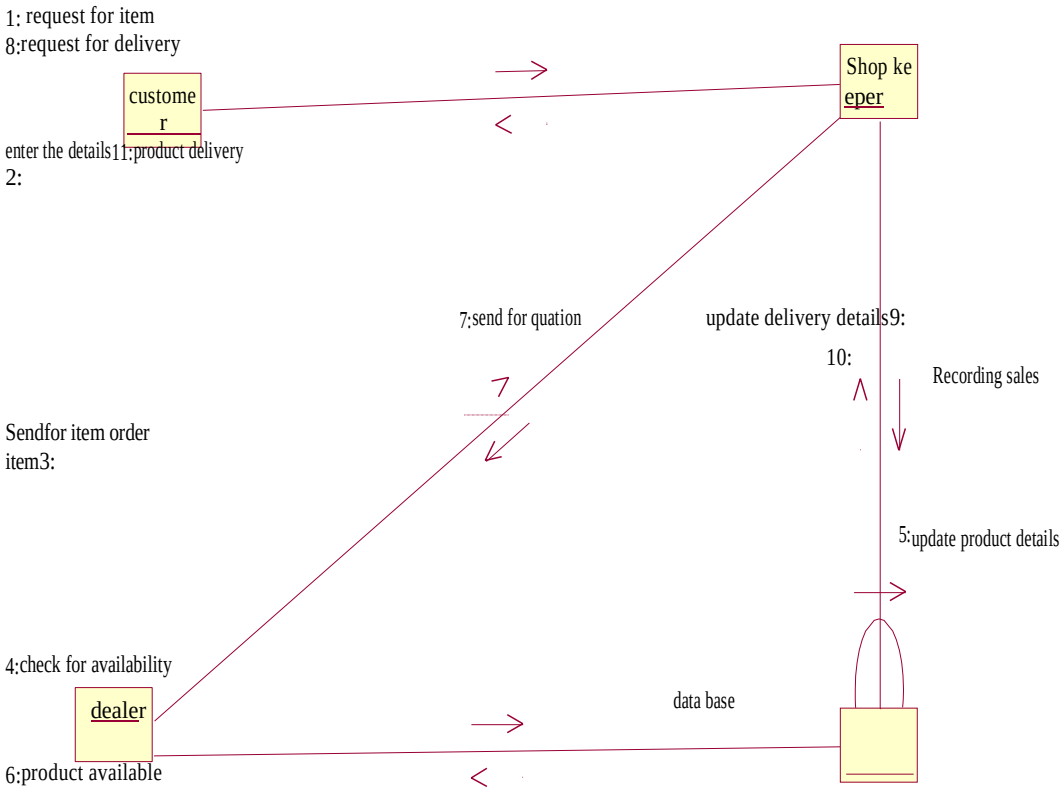


Fig.28.CollaborationDiagram

DEPLOYMENTDIAGRAMAND COMPONENTDIAGRAM

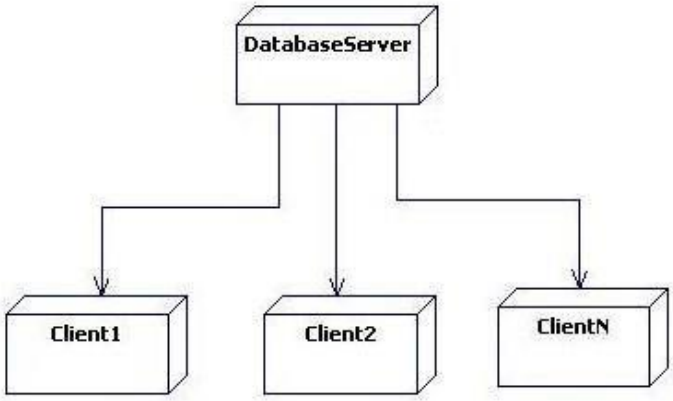


Fig.29. Deployment Diagram

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

TASK5: Online Course Reservation System

AIM: To create a system through which students can register to the courses desired by them.

PROCEDURE: PROBLEM STATEMENT

The system is built to be used by students and managed by an administrator. The student and employee have to login to the system before any processing can be done. The student can see the courses available tohim/herandregistertothecoursehe/shewants.Theadministratorcanmaintain the course details and view all the students who have registered to any course.

(II) SOFTWAREREQUIREMENTSPECIFICATION

INTRODUCTION

Course Reservation System is an interface between the Student and theRegistrarresponsiblefortheissueofCourse.Itaimsatimprovingtheefficiency in the issue of Course and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of 'Issue of Course' is done in a manual manner then itwouldtakesseveralmonthsforthecoursetoreachtheapplicant.Considering the fact that the number of applicants for course is increasing every year, an Automated System becomes essential to meet the demand. So

This system uses several programming and database techniques to elucidate the work involved in this process.

SCOPE

- The System provides an online interface to the user where they can fill in their personal details and submit the necessary documents (may be by scanning).
- The Registrar concerned with the issue of course can use this system to reduce his workload and process the application in a speedy manner.
- Provide a communication platform between the Student and the Registrar.

DEFINITIONS, ACRONYMS AND THE ABBREVIATIONS

- **Registrar**

  Refers to the super user with the privilege to manage the entire system.
- **Applicant**

  One who wishes to register the Course
- **OCRS**

  Refers to online Course Reservation System.
- **HTML**

  Markup Language used for creating web pages.
- **J2EE**

  Java 2 Enterprise Edition is a programming platform java platform or developing and running distributed java applications.
- **HTTP**

Hyper Text Transfer Protocol.

- **TCP/IP**

  Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTOBEUSED

- HTML
- JSP
- Java script
- Java

TOOLSTOBEUSED

- Eclipse IDE(Integrated Development Environment)
- Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles & functions of the actors.

OVERALLDESCRIPTION

PRODUCTPERSPECTIVE

The OCR S acts as an interface between the Student and the 'Registrar'.
This system tries to make the interface as simple as possible and a the same time not risking the security of Data stored in. This minimizes the time duration in which the user receives the course.

SOFTWAREINTERFACE

- **Front End Client** - The Student and Registrar online interface is built using JSP and HTML. The Administrator's local interface Is built using Java.
- **Web Server** – Tomcat Apache application server (Oracle Corporation).
- **Back End** –Oracle11gdatabase.

HARDWAREINTERFACE

The server is directly connected to the client systems. The client systems have access to the data base in the server.

SYSTEMFUNCTIONS

- Secure Reservation of information by the Students.
- SMS and Mail updates to the students by the Registrar
- Registrar can generate reports from the information and is the only authorized personnel to add the eligible application information to the database.

USERCHARACTERISTICS

Applicant - They are the person who desires to obtain the course and submit the information to the data base.

Administrator - He has the certain privileges to add the course status and to approve the issue of course. He may contain a group of person sunder him to verify the documents and give suggestion whether or not to approve the dispatch of course.

CONSTRAINTS

- The applicants require a computer to submit the ir information.
- Although the security is given high importance, there is always en chance of intrusion in the web world which requires constant monitoring.
- The user has to be careful while submitting the information. Much care is required.

ASSUMPTIONSANDDEPENDENCIES

- The Applicants and Administrator must have basic knowledge of computers and English Language.
- The applicants may be required to scan the documents and send

(III) USE-CASEDIAGRAM:

The course registration system has the following use-cases

1. Login
2. View course details
3. Reserve for course
4. Pay fee
5. Check status

ACTORSINVOLVED:

1. Student
2. Registrar

USE-CASENAME: LOGIN

The user enters the username and password and chooses if the user is student or Registrar. If entered details are valid, the user's account becomes available. If it is invalid, an appropriate message is displayed to the user.

USE-CASE NAME : VIEW COURSE DETAILS

In this use case, a student can search all the courses available to him and choose the best course he wants. The student can view the course duration, faculty and department of the courses he may choose.

USE-CASENAME: RESERVE FOR COURSE

When a student has successfully chosen a course, he can register to that course. Upon registration, the student 's details are stored in the data base.

USE-CASE NAME: PAY FEE

After registration to any course, the student may see the details of his current course. He may wish to know details about fees and other information.

USE-CASENAME: CHECK STATUS

The student tries to check the status in which category applied. The system displays the status information to the student.

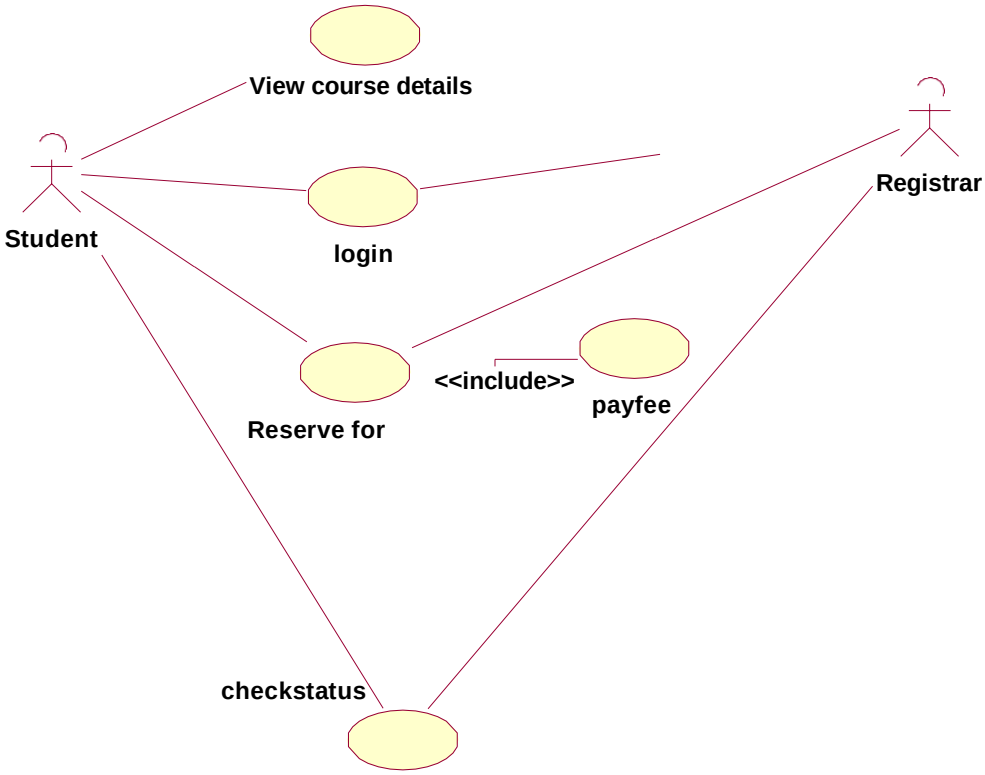
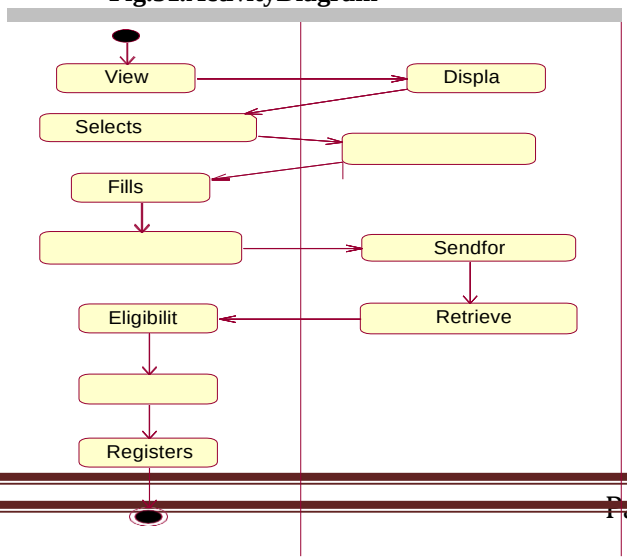


Fig.30.Use-CaseDiagram

ACTIVITYDIAGRAM:

Fig.31.ActivityDiagram



CLASS DIAGRAM:

The class diagram is a graphical representation of all the classes used in the system and their operations, attributes and relationships.

The course registration system makes use of the following classes:

6. Student
7. Course Catalog
8. Reserve Course

1) STUDENT:

It consists of the details of all the students present in the database. The attributes present in this class are student id, student name, student qualification, student address1, studentaddress2, student address3, student mobile no, student emailed,, student dob, student sex. The object of this class is created as soon as the student registers to a course. The operations available to this class are add details (),modify details (), del details (),reserve course().

2) COURSECATALOG:

The course catalog class consist of course id, course name, course duration course fee, course eligibility, total no of seat, course avai seat. The operations are add course(),update course(),del course().

3) RESERVE COURSE:

The reserve catalog class consists of student id, course id, date, amt paid, reg id, DD no. the operation are get course details(), check eligibility(),confirm registration().

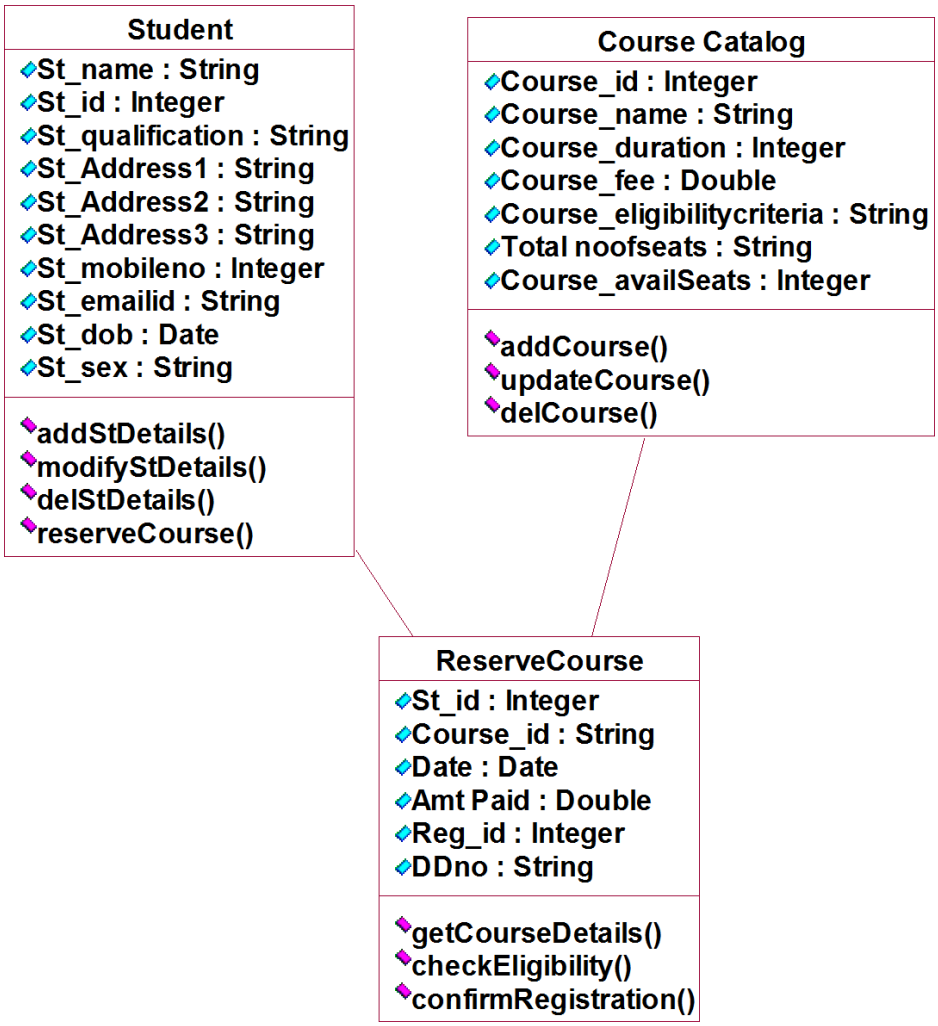


Fig.32.ClassDiagram

INTERACTION DIAGRAM:

- A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario. Sequence diagrams can capture most of the information about the system. Most object to object interactions and operations are considered events and events include signals, inputs, decisions, interrupts, transitions and actions to or from users or external devices.
- An event also is considered to be any action by an object that sends information. The event line represents a message sent from one object to another, in which the "form" object is requesting an operation be performed by the "to" object. The "to" object performs the operation using a method that the class contains.
- It is also represented by the order in which things occur and how the objects in the system send message to one another.
- The sequence diagram for each USE-CASE that exists when a user administrator, check status and new registration about course registration system are given.
- Users have to first login to the system before performing any operation. The user has to provide the necessary details to the system for login.

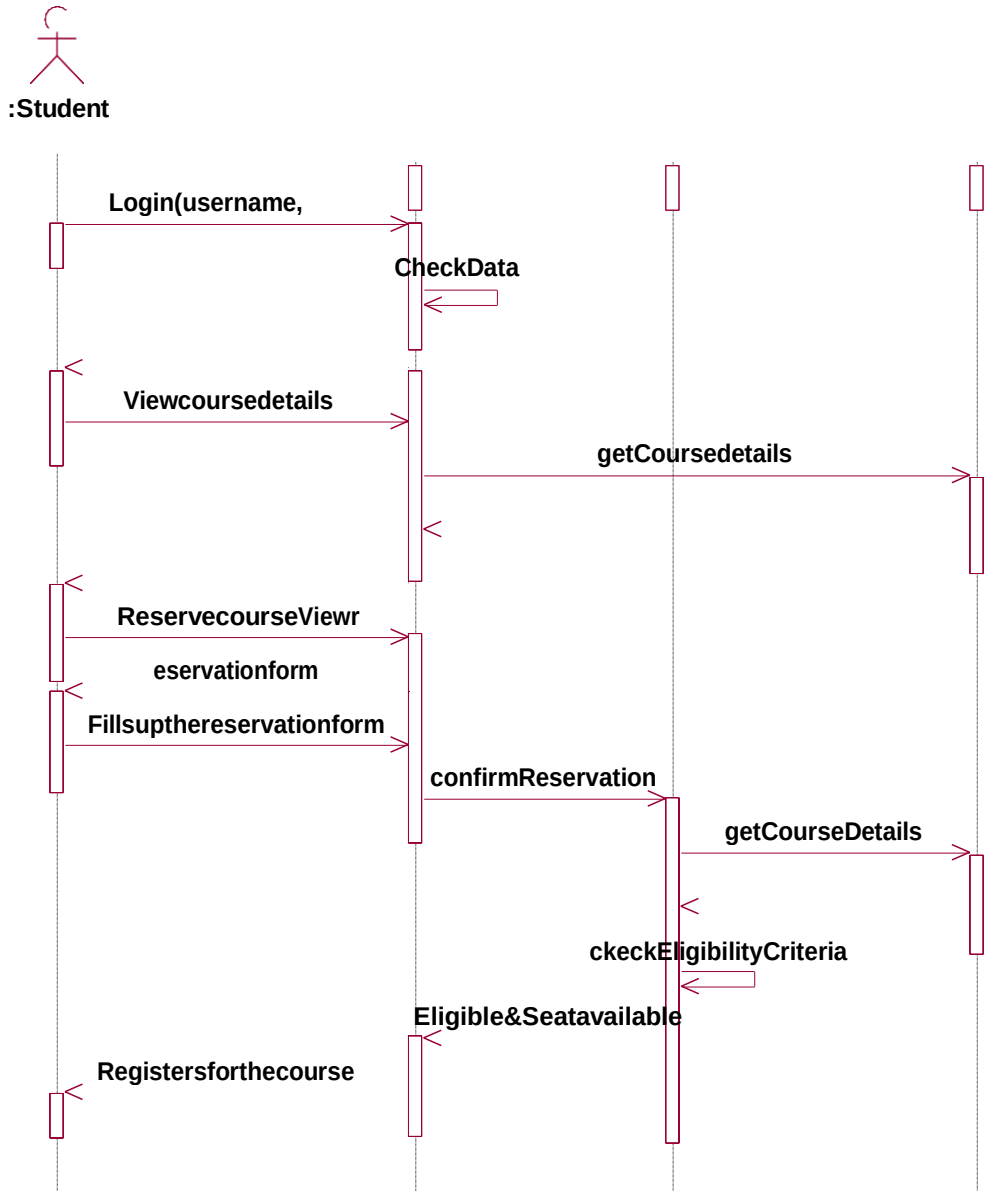


Fig.33. SEQUENCE DIAGRAM

STATECHARTDIAGRAM:

Every object undergoes through some state and on receiving some event the state gets changed. This transition of the state can be represented by the state transition diagram.

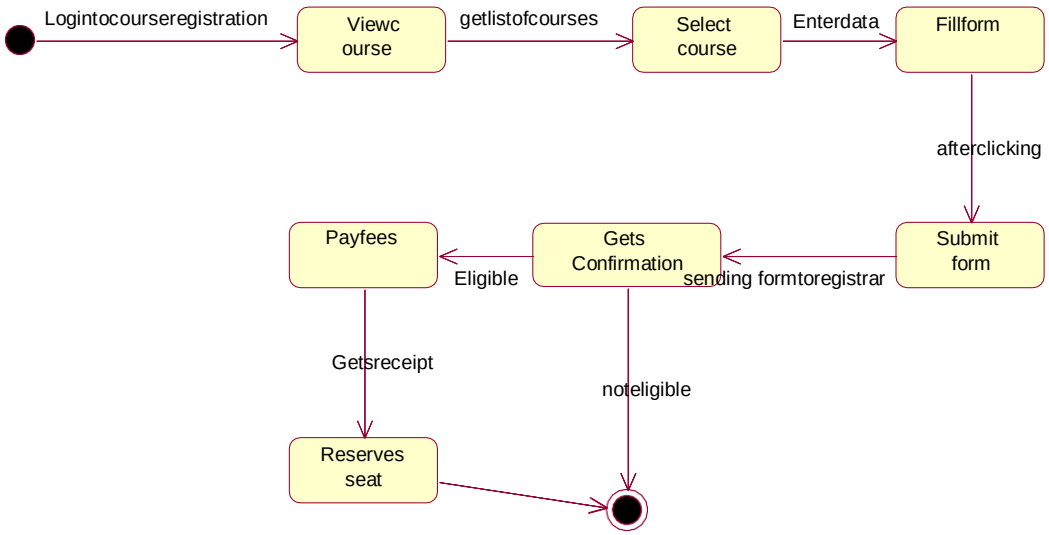


Fig.35. State Chart Diagram

DEPLOYMENT DIAGRAM AND COMPONENT DIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

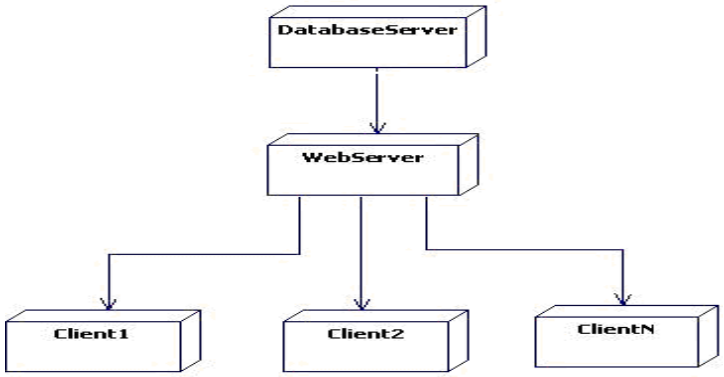


Fig.36.DeploymentDiagram

COMPONENTDIAGRAM:

Component diagrams are used to visualize the organization and relationships among components in a system.

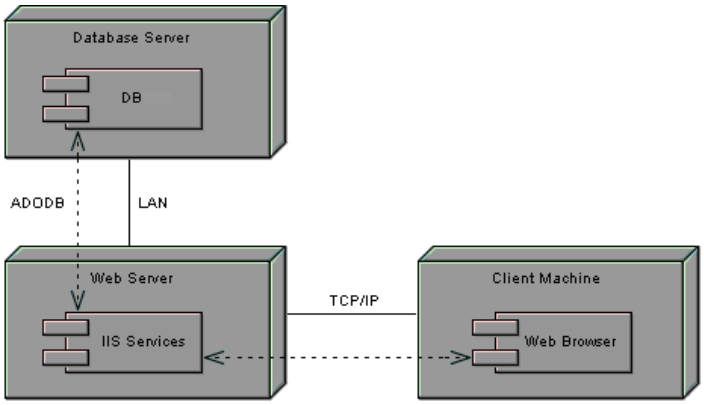


Fig. 37. Component Diagram

TASK 6: E-Ticketing

AIM: To create an automated system to perform E-ticketing.

PROCEDURE: (I) PROBLEM STATEMENT

Our project is carried out to develop software for online Rail way Reservation System. This system has various options like reservation, cancellation and to view details about available seats. Our project mainly simulates the role of a Railway ticket booking officer, in a computerized way.

The reservation option enables a person to reserve for a ticket at theirhomeitself.Allhe/shehastodoistojustloginandentertherequireddetails.Afterthisthereservationdatabaseisupdatedwiththe person details, train name and also the source and destination place.

The cancellation option enables the passenger to cancel the tickets that has been already booked by him/her.

The availability option prompts the person to enter train number, train name and date of travel. After this the availability database is accessed and available positions are produced.

(II) SOFTWAREREQUIREMENTSPECIFICATIONI

INTRODUCTION

The manual system of ticket reservation takes more time and the number of reservations per day is limited. To increase the efficiency of the process, we go for online ticket reservation system. This system supports online ticket booking.

PURPOSE

If the entire process of reservation is done in a manual manner then it would takes several months for reservation to reach the applicant. Considering the fact that the number of passenger is increasing every year, an Automated System becomes essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process. As this is a matter of National Security, the system has been carefully verified and validated in order to satisfy it.

SCOPE

- The System provides an online interface to the user where they can fill in their personal details and submit the necessary documents (may be by scanning).
- The authority concerned with the issue of railway can use this system to reduce his workload and process the application in a speedy manner.
- Provide a communication platform between the passenger and the administrator.
- Passenger will come to know their status of application and the date in which they must subject themselves for manual document verification.

DEFINITIONS, ACRONYMS AND THE ABBREVIATIONS

- **Passenger** – The person that who wishes to obtain the railway ticket.

• **PNR**–Passenger Name Records

• **HTML** –Markup Language used for creating web pages.

J2EE–Java2EnterpriseEditionisaprogrammingplatform java platform for developing and running distributed java applications.
HTTP- Hyper Text Transfer Protocol.

TCP/IP – Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTO BEUSED

- HTML
- JSP
- Java script
- Java

TOOLSTOBEUSED

- Eclipse IDE(Integrated Development Environment)
- Rational Rose tool (for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements–

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles & functions of the actors.

OVERALL DESCRIPTION

PRODUCTPERSPECTIVE

This system tries to make the interface as simple as possible and at the same time not asking the security of data stored in. This minimizes the time duration in which the user receives the ticket.

SOFTWAREINTERFACE

•**Front End Client** - The passenger and System onlineinterfaceisbuiltusingJSPandHTML.TheAdministrators'slocalinterfaceis built using Java.

- **Web Server**–Apache Tom cat Server (Oracle Corporation)
- **Back End** -Oracle11gdatabase

HARDWARE INTERFACE

The server is directly connected to the client systems. The client system have access to the data base in the server.

SYSTEM FUNCTIONS

- Secure Registration on fin formation by the Passengers.
- System can generate reports from the information and is the only authorized personnel to add the eligible application information to the database.
- Display the requested pages to the user.
- Update the database after every successful process.

USERCHARACTERISTICS

Passenger - They are the people who desire to obtain the ticket and submit the information to the database.

CONSTRAINTS

- The passengers require a computer to submit their information.
- Although the security is given high importance, there is always a chance of intrusion in the web world which requires constant monitoring.
- The user has to be careful while submitting the information .Much care is required.

ASSUMPTIONS AND DEPENDENCIES

The Passengers must have basic knowledge of computers and English Language.

The passengers may be required to scan the documents and send.

(III) USE-CASEDIAGRAM

The online ticket reservation system uses the following gusecases:

1. Request forseat availability
2. Make Reservation
3. Cancellation
4. Check status
5. Print ticket

ACTORS INVOLVED:

1) System
2) Passenger

USE-CASE NAME: REQUEST FOR SEAT AVAILABILITY

The passenger can view the train available in the database for deciding which train ticket he wishes to reserve. The passenger can search the train information based on journey date, train type and reservation type. The passenger can view the details of flights such as, train number, source station, destination station, arrival time, departure time, fare and number of seats available.

USE-CASENAME: MAKE RESERVATION

The user is allowed to reserve a ticket on train as he/she requires on the particular date and time. The user has to provide details such as name, train number, date of travel, source station, destination station, proof name and money transaction details.

USE-CASENAME: PRINT TICKET

The user after booking a ticket can print a copy of the ticket reserved. The user has to provide the details about ticket number for searching in the database and passenger name for confirming passenger identity.

USE-CASENAME: CANCEL TICKET

A passenger can decide to cancel a ticket after the ticket is booked. The passenger has to provide details about ticket for searching and details about him for confirmation of identity.

USE-CASENAME: CHECK STATUS

The passenger can view the status of the reserved tickets. So the

passenger can confirm his/her travel.

Request for seat availability

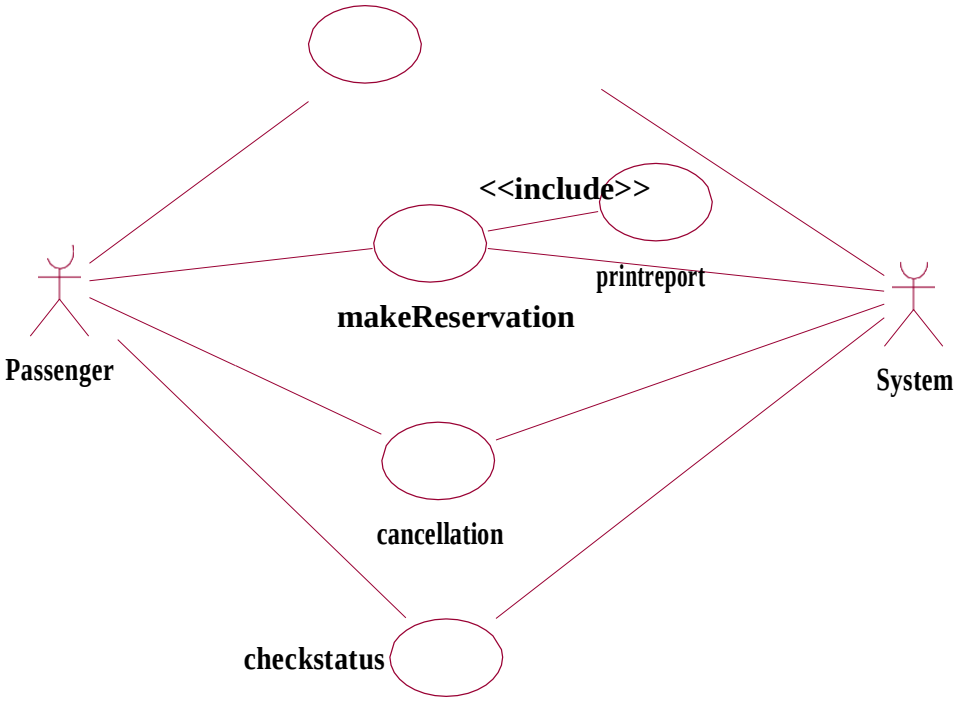


Fig.38.Use-Case Diagram For Airline Reservation

ACTIVITY DIAGRAM

Activity diagrams are graphical representations of workflows of step wise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by- step workflows of components in a system. An activity diagram shows the overall flow of control. An activity is shown as an rounded box containing the name of the operation.

This activity diagram describes the behavior of the system.

- First state is login where the passenger login to the E-Ticketing system.
- The next state is filling details the passenger are used to fill the form.
- Then passenger used to selecting the flight.
- The passenger appears for book ticket and search details from

E-Ticketing Data Base.

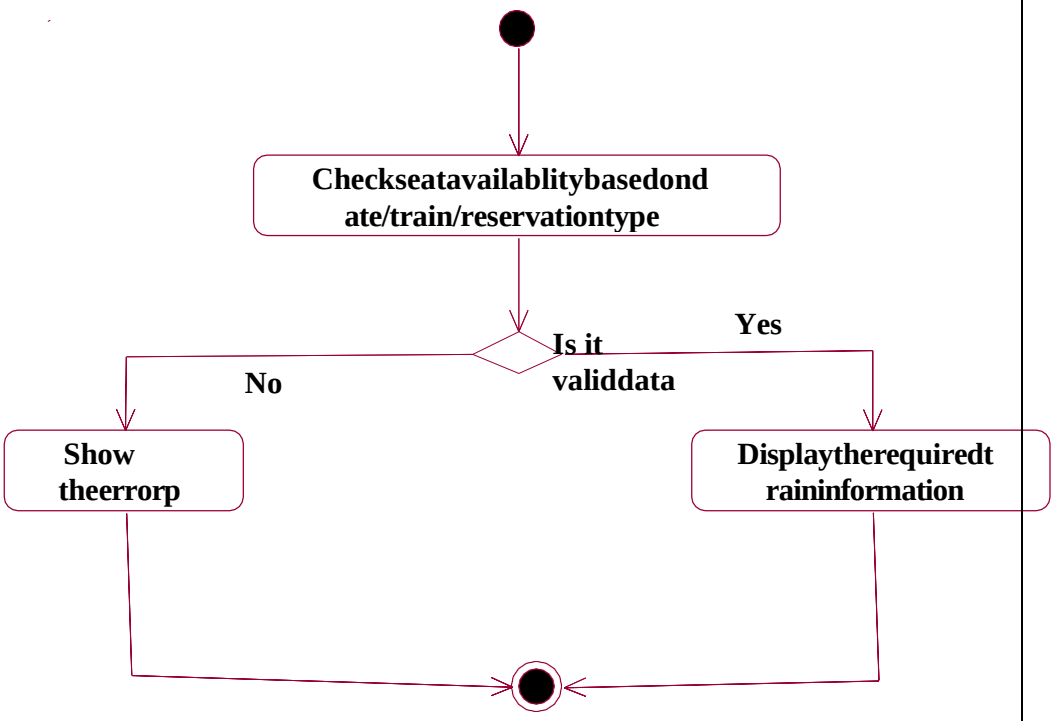
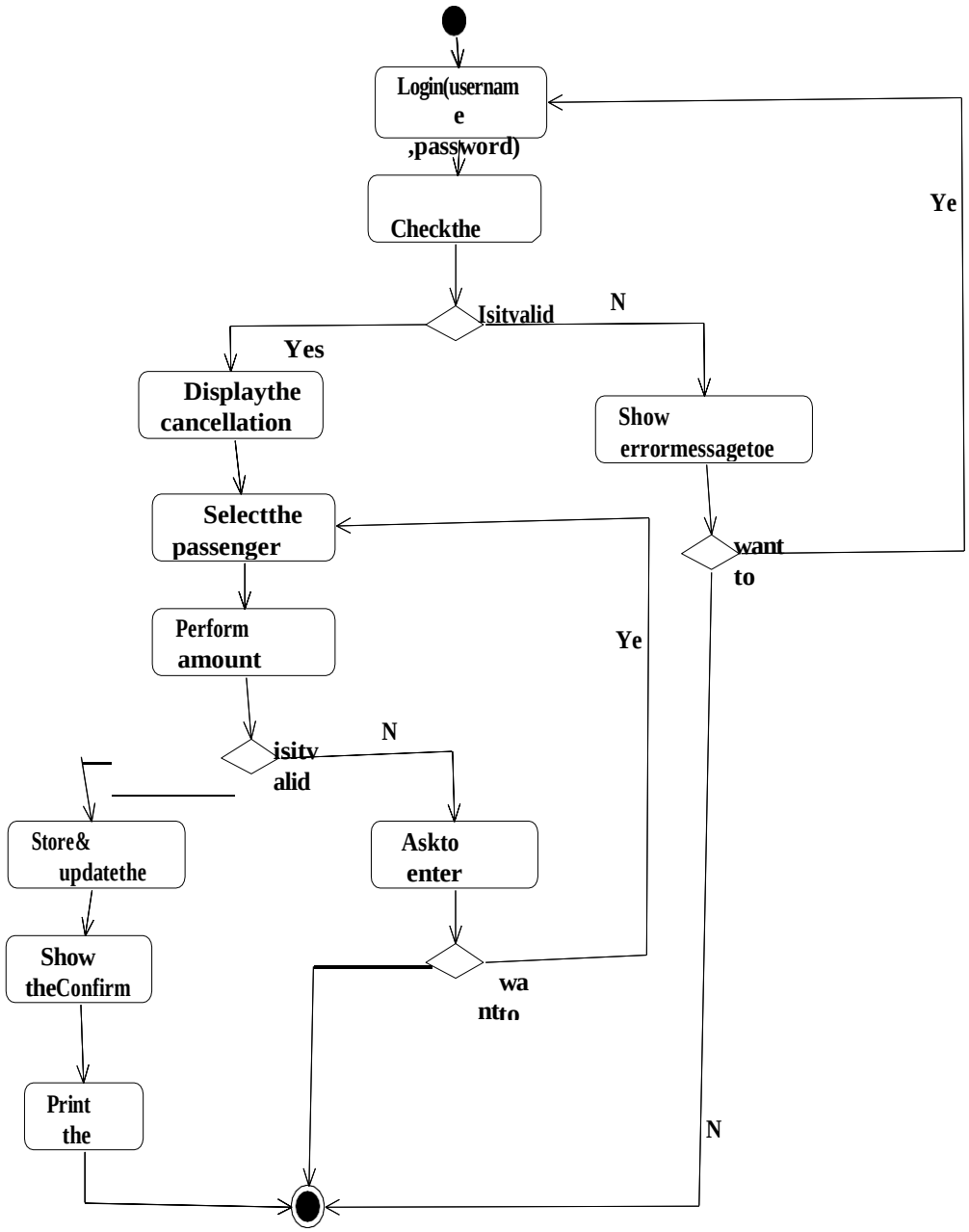


Fig.39.Activity Diagram[Check Availability]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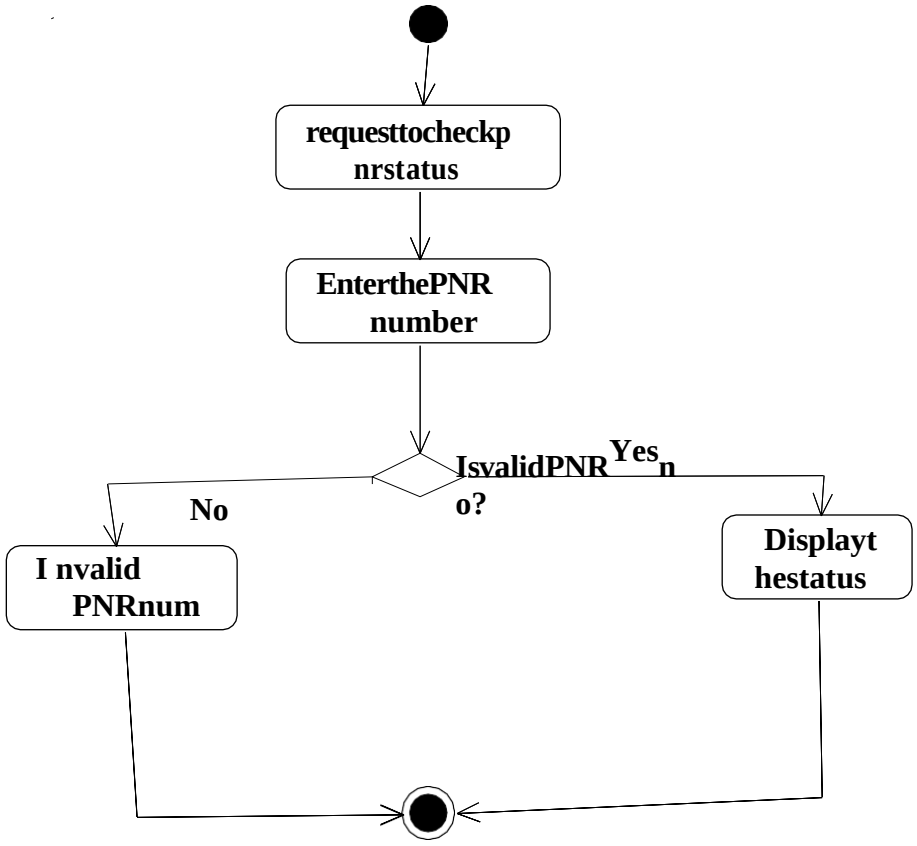
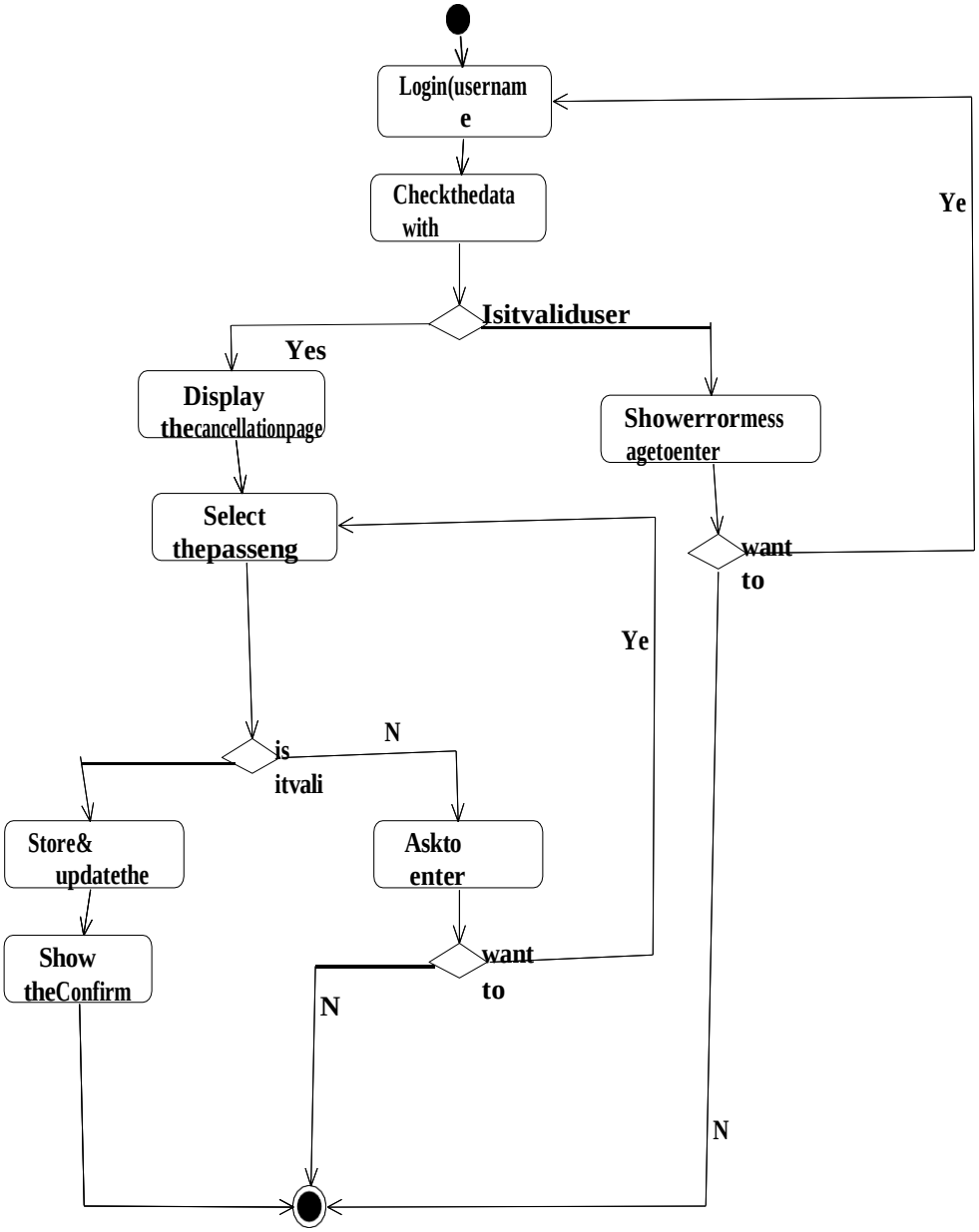


Fig.41.Activity Diagram[Check Status]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CLASSDIAGRAM:

The class diagram, also referred to as object modeling is the main static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationship same among objects.

.

The online ticket reservation system makes use of the following classes:

1. TICKETRESERVATION

It consists of twelve attributes and two operations. It records the details of every ticket booked such as ticket number, passenger ID, source and destination station and etc.

2. TRAININFO

It stores the details of all the trains such as train number, train name, speed, source and destination stations, etc.

3. PASSENGERINFO

It consists of seven attributes and three operations. This class is used to store passenger details such as, passenger name, age, address and etc.

4. SEATAVAILSTATUS

This class is used to update the number of seats available for a particular train by using update Status()operation.

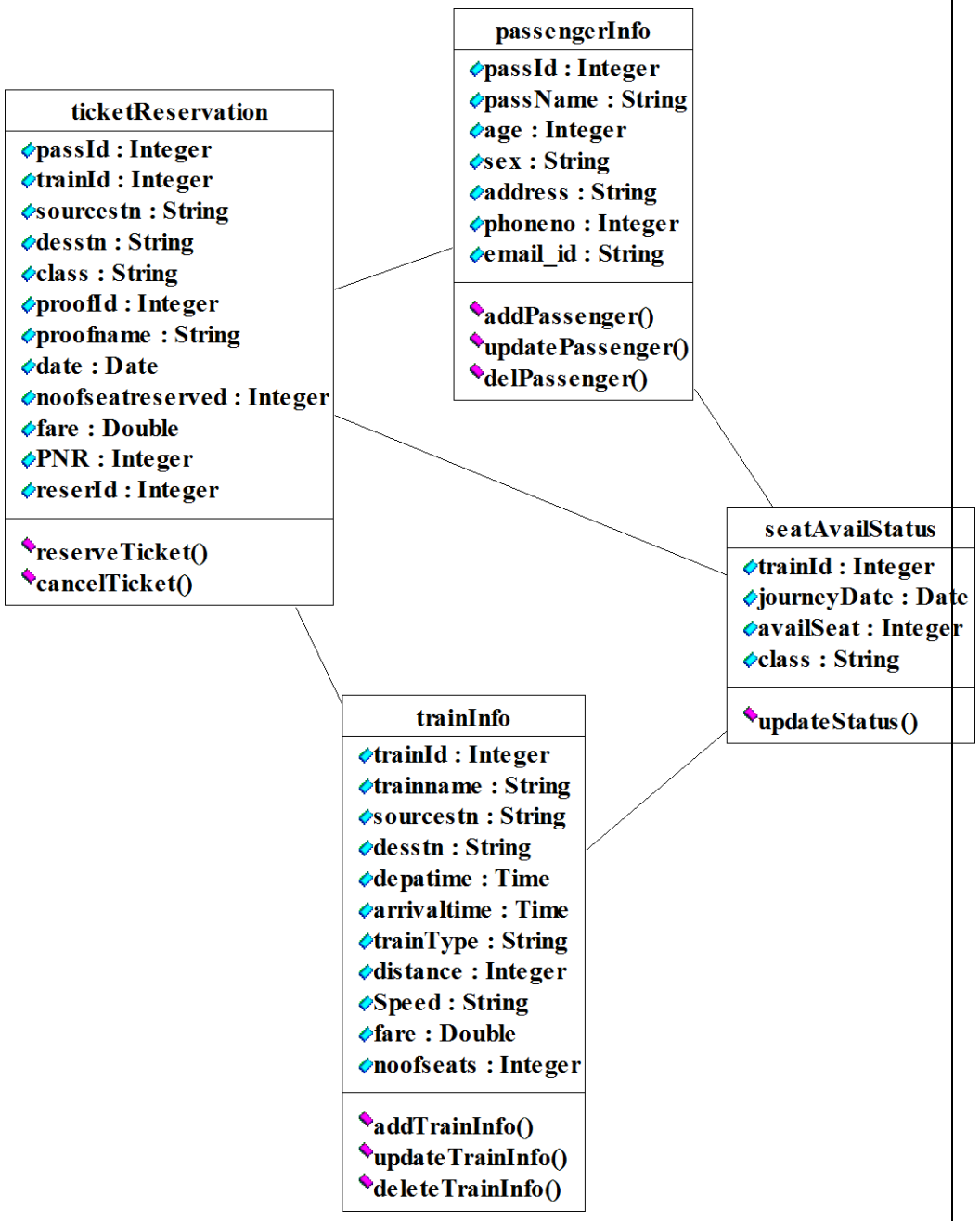


Fig.43.ClassDiagramForE-Ticketing

INTERACTIONDIAGRAM:

A sequence diagram represents the sequence and interactions of a given USE- CASE or scenario. Sequence diagrams can capture most of the information about the system. Most object to object interactions and operations are considered events and events include signals, inputs, decisions, interrupts, transitions and actions to or from users or external devices.

An event also is considered to be any action by an object that sends information. The event line represents a message sent from one object to another ,in which the “form” object is requesting an operation be performed by the “to” object. The “to” object performs the operation using a method that the class contains.

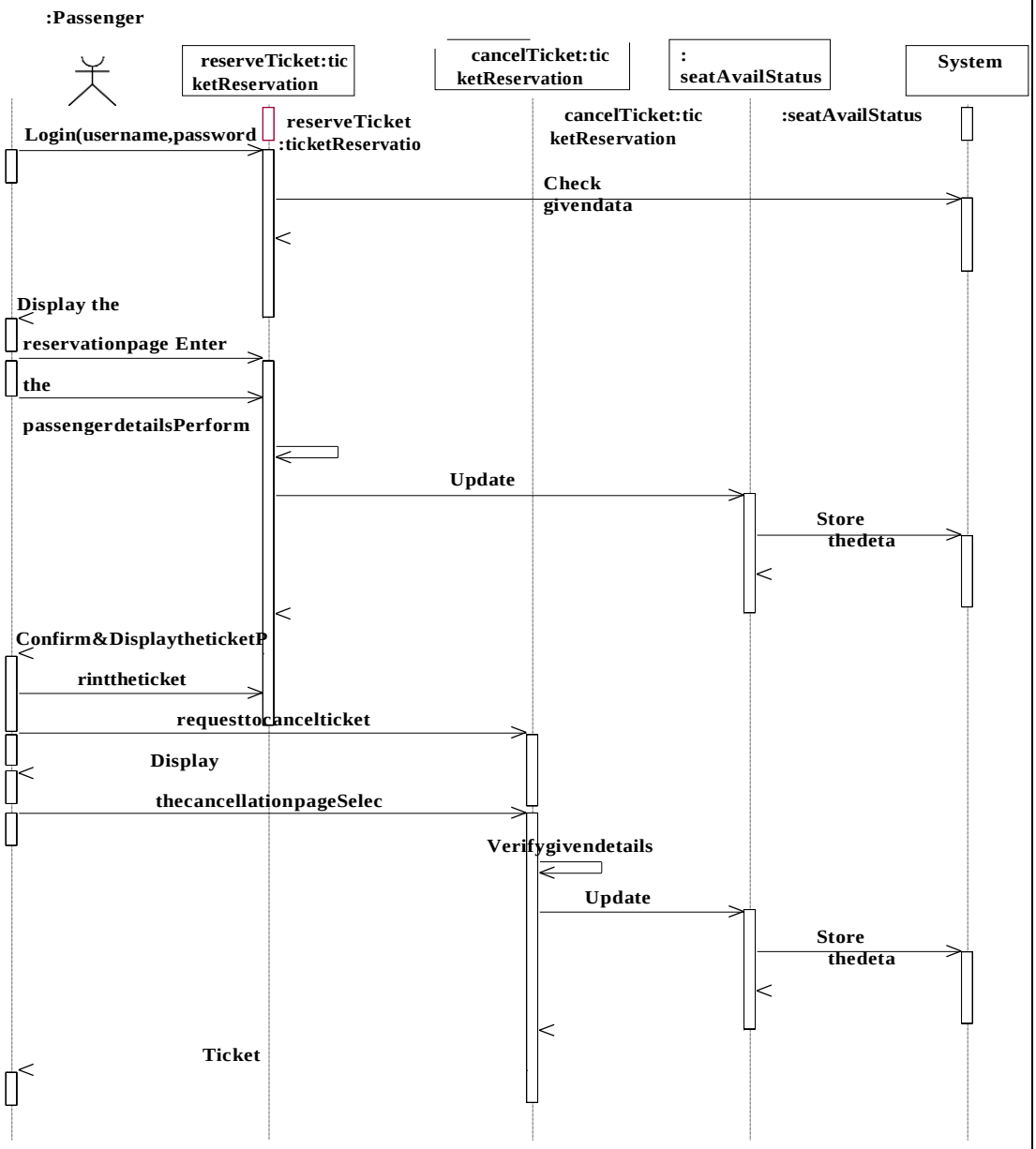


Fig.44.SequenceDiagram

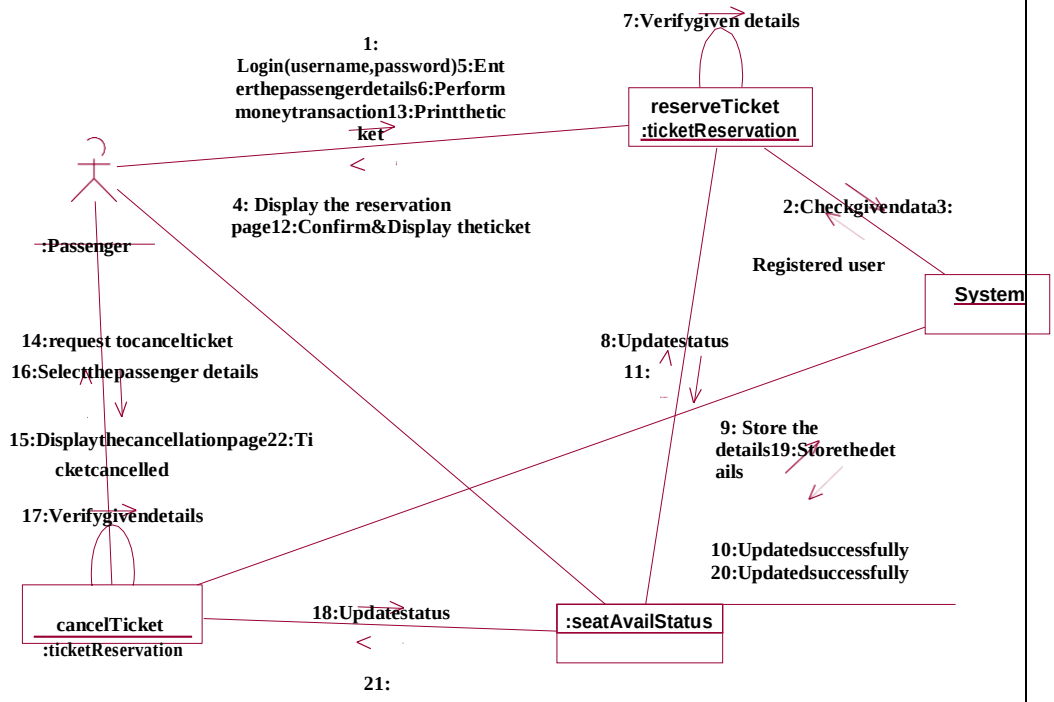


Fig.45.CollaborationDiagram

DEPLOYMENTDIAGRAMAND COMPONENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

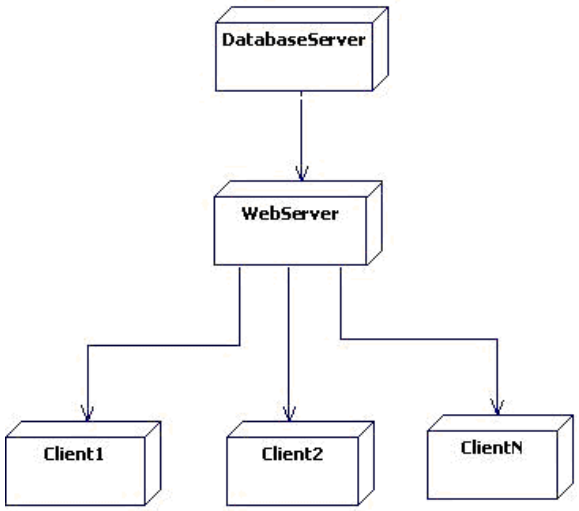


Fig.46.DeploymentDiagram

TASK7: SOFTWARE PERSONNEL MANAGEMENT SYSTEM

AIM: To implement software for software personnel management system

PROCEDURE*:* (I) PROBLEMSTATEMENT*:*

Software personnel management system allows employees to record time card electronically and automatically generates pay slips based on number of hours worked and total amount of sales. The system will run on individual employee desktops where the employee can access and edit only their personal details. The system will maintain information on the employee in the company in order to calculate the payroll. The employees will also be able to know from the system, the number of hours worked per day and total of all hours spent on a project and total pay received year-to-date etc. Payrolladministratorskeeptrackofalltheinformationincludingaddingnewemplo yees, deleting employees, and edit information and run reports. The system will generate records and performance report of the employees.

(II)SOFTWARE REQUIREMENT SPECIFICATION:

INTRODUCTION

The Software Personnel Management system is an interface between Employee and the Administrator responsible for generation of payment slip. It aims at improving the efficiency in the generation of Pay slip and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of Software personnel management is done in a manual manner then it would more time for pay slip generation process. Considering the fact that the number of employee is increasing every year, a

Maintenance system is essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process.

SCOPE

- Software system allows Administrator to manage its employee in a better way.
- When needed, it will take just a few second to find out the background of an employee and his/her contribution to the organization, it will also facilitate keeping all the records of employee.
- So all the information about an employee will be available in a few seconds, it will also make it very easy to generate statistical data or custom data, line finding a certain set of employee.

DEFINITIONS, ACRONYMSANDTHEABBREVIATIONS

- **ADMINISTRATOR**
  Refers to the super user who is maintaining the employee details.
- **EMPLOYEE**
  One who works for a software company.
- **SPMS**
  Refers to this Software personnel management system.
- **HTML**
  Markup Language used for creating web pages.

- **J2EE**

  Java2 Enterprise Edition is a programming platform java platform for developing and running distributed java applications.

- **HTTP**

  Hyper Text Transfer Protocol.

REFERENCES

IEEE Software Requirement Specification format.

TECHNOLOGIESTO BEUSED

- HTML
- JSP
- Java script
- Java
- XML
- AJAX

TOOLSTOBEUSED

- Eclipse IDE(Integrated Development Environment)
- Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles & functions of the actors.

OVERALL DESCRIPTION

PRODUCT PERSPECTIVE:

The SPMS acts as an interface between the 'ADMINISTRATOR' and the 'employee'. This system tries to make the interface as simple as possible and at the same time not risking the security of data stored in. This minimizes the time duration in which to manage the software personnel.

SOFTWAREINTERFACE

- **Front End Client** –The applicant and Administrator online interface is built using JSP and HTML. The ADMINISTRATOR's local interfaces built using Java.
- **Web Server**–A pacheTomcatapplicationserver (Oracle Corporation).
- **Back End** –Oracle11gdatabase.

HARDWAREINTERFACE

The server is directly connected to the client systems. The client systems have access to the database in the server.

SYSTEMFUNCTIONS

The payment module greatly reduces the workload of the

ADMINISTRATOR department by automating the payroll process, allowing ADMINISTRATOR to ensure the pay roll functions are completed on time and without errors. The pay roll class automatically calculates payment amounts and various deductions such as income tax before generating pay checks and employee tax reports.

View Salary

The employee views the salary details efficiently from the SPMS. The employees will also be able to know from the system, the number of hours worked per day and total of all hours spent on a project and total pay received year-to-date etc.

USERCHARACTERISTICS

- **Employee**

  These are the person who desires to view the salary details.

- **Administrator**

  Administrator has the certain privileges to generate pay slip for the employee.

- **Data base manager**

  DB manager stores all the data related to Employee and Administrator.

CONSTRAINTS

- The administrator requires a system to monitor information of the employee.

ASSUMPTIONSANDDEPENDENCIES

- The employee and Administrator must have basic knowledge of computers and English Language.

(III) USECASEDIAGRAM:

The Software personnel management system use cases are:

1. Login

2. Job Assigned
3. View Salary
4. View Employee details
5. Generate payment slip
6. Create DB
7. Update DB
8. Delete DB

ACTORSINVOLVED:

1. Employee
2. Administrator
3. Data base Manager

USE-CASENAME: LOGIN

The Employee log into the system to view the salary details

USE-CASENAME: JOB ASSIGNED

The employee views the job assigned to him/ herby the Administrator.

USE-CASENAME: VIEWSALARY

Theemployeeviewsthesalarydetailsefficientlyfromthe SPMS. Theemployeeswi llalsobeabletoknowthenumberofhoursworkedperdayand total of all hours spent on a project and total pay received year-to-date etc.

.

USE-CASENAME: VIEWEMPLOYEEDETAILS

The Administrator views the details of the employee for the pay roll process

USE-CASENAME: GENERATEPAYMENTSLIP

The Administrator generates the pay slip based on the details of the no of hours/no of days worked by the employee.

USE-CASENAME: CREATE DB

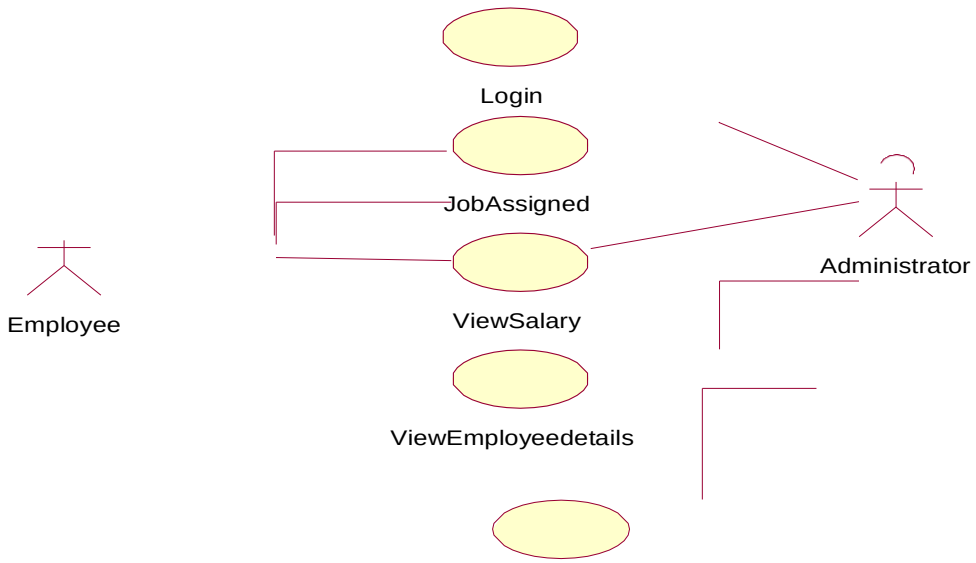
The data base manager creates individual data base tables for the employees

USE-CASENAME: UPDATEDB

When employee information changes the data base manager updates individual data base tables for the employees.

USE-CASENAME: DELETEDB

When an employee relieves/terminated the data base manager deletes individual data base tables for the employees.



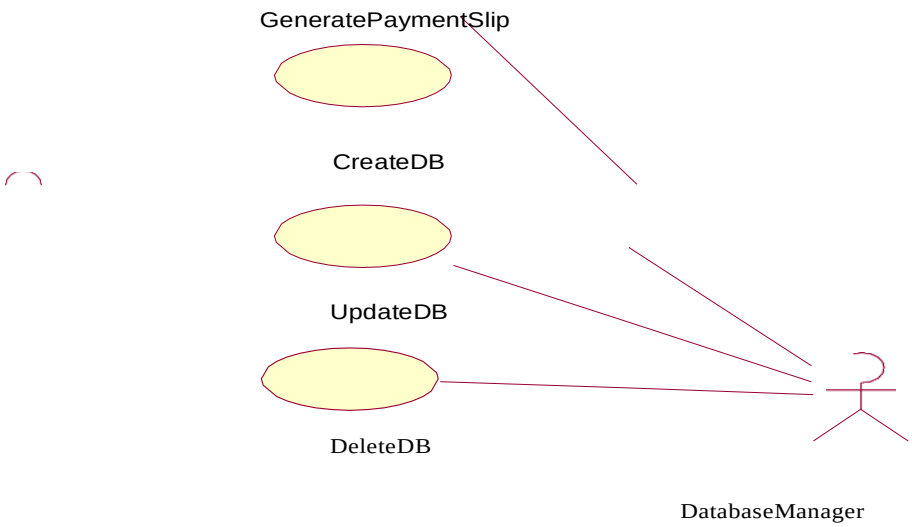


Fig.47. USECASE DIAGRAM FOR SOFTWARE PERSONNEL MANAGEMENT SYSTEM

ACTIVITYDIAGRAM:

The activity diagram notation is an action, partition, fork join and object node. Most of the notation is self explanatory, two subtle points. Once an action finished, there is an automatic outgoing transaction. The diagram can show both control flow and dataflow.

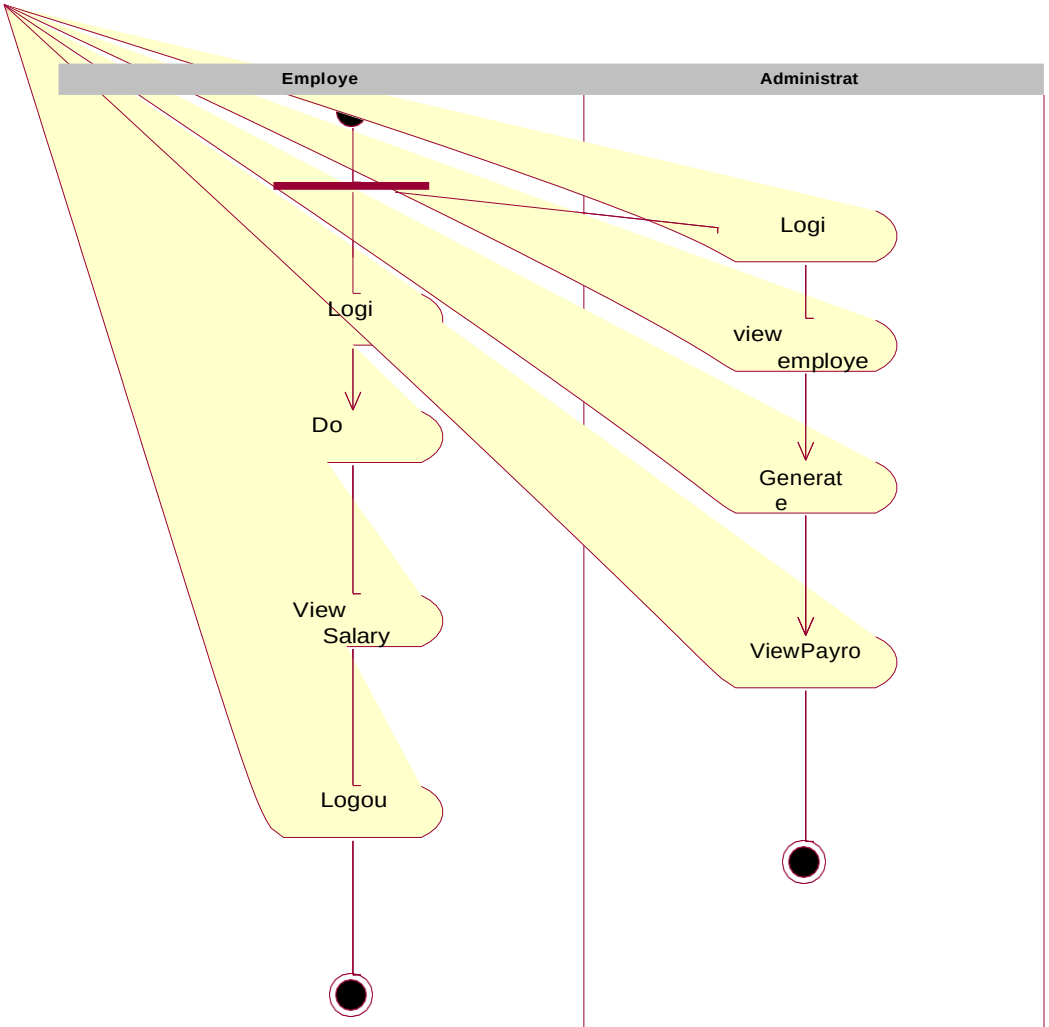


Fig.48.ACTIVITY DIAGRAM FOR SOFTWARE PERSONNEL MANAGEMENT SYSTEM

CLASSDIAGRAM:

The class diagram is referred as object modeling in the static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects.

The Software Personnel Management system class diagram consists of four classes

1. Employee class
2. Administrator class
3. Data base Manager class
4. Payment class

1. EMPLOYEECLASS

It consists of seven attributes and two operations. The attributes are EMP id, EMP name, EMP password, address, mobile number, date, Hours Worked. The operations of this class are Login () and view salary ( ).

2. ADMINISTRATORCLASS

It consists of attributes Admin id, Admin name and Admin password. The operations are login (), Generate pay roll (), view payroll () and view employee detail ( ).

3. DATABASEMANAGERCLASS

The attributes of this class are DB manager id, DB manager name () and DB manager password. The operation are create ( ), update ( ), delete ( ) and display pay roll ( ).

4. PAYMENTCLASS

The attributes of this class are payment id, EMP id, date, Basic pay, HRA, DA, PF, Net pay and Gross pay. The operation are calculate salary () and Generate Slip ().

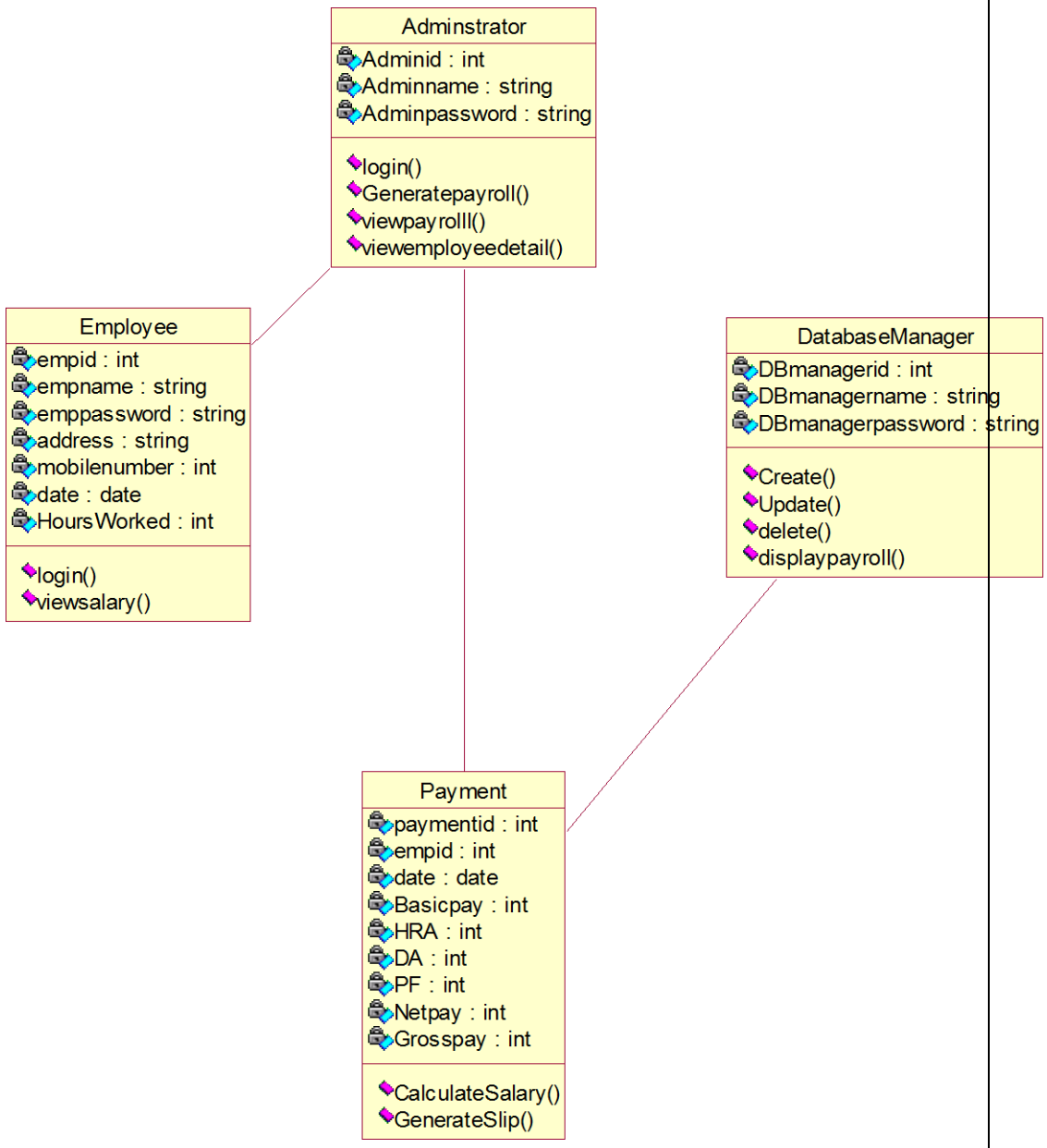


Fig.49.CLASS DIAGRAM FOR SOFTWARE PERSONNEL MANAGEMENT SYSTEM

INTERACTIONDIAGRAM:

- A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario .Sequence diagram scan capture most of the information about the system.
- Mostobjecttoobjectinteractionsandoperationsareconsideredeventsandeventsincludesignals, inputs, decisions, interrupts transitions and actions to or from users or external devices.
- An event also is considered to be any action by an object that sends information.
- The event line represents a message sent from one object to another ,in which the “form” object is requesting an operation be performed by the “to” object.
- The “to” object performs the operation using a method that the class contains.
- It is also represented by the order in which things occur and how the objects in the system send message to one another.
- The sequence diagram for each USE-CASE that exists when a user administrator, check status and new registration about passport automation system are given.

EMPLOYEE:

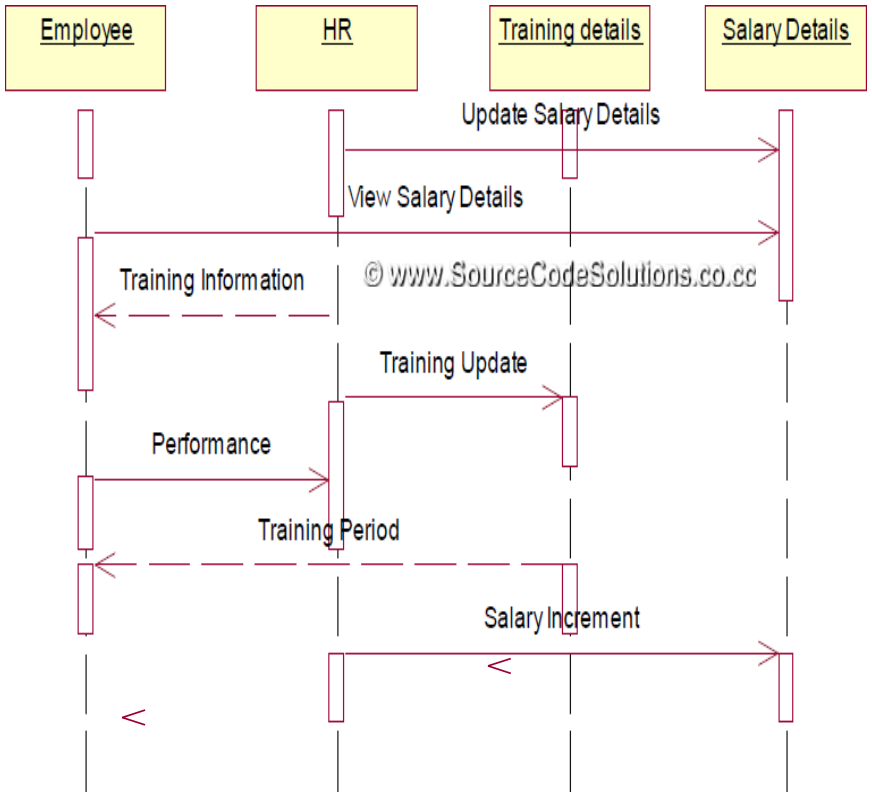


Fig.50.SEQUENCEDIAGRAMFOREMPLOYEE

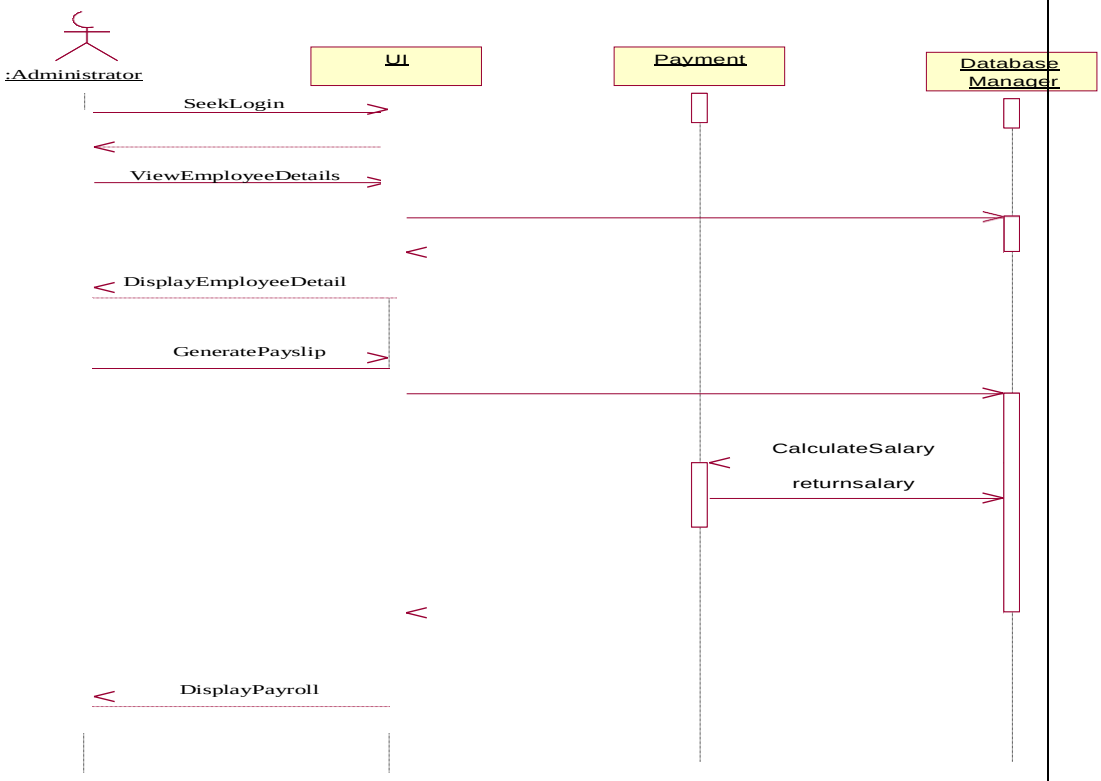


Fig.52.SEQUENCE DIAGRAM FOR ADMINISTRATOR

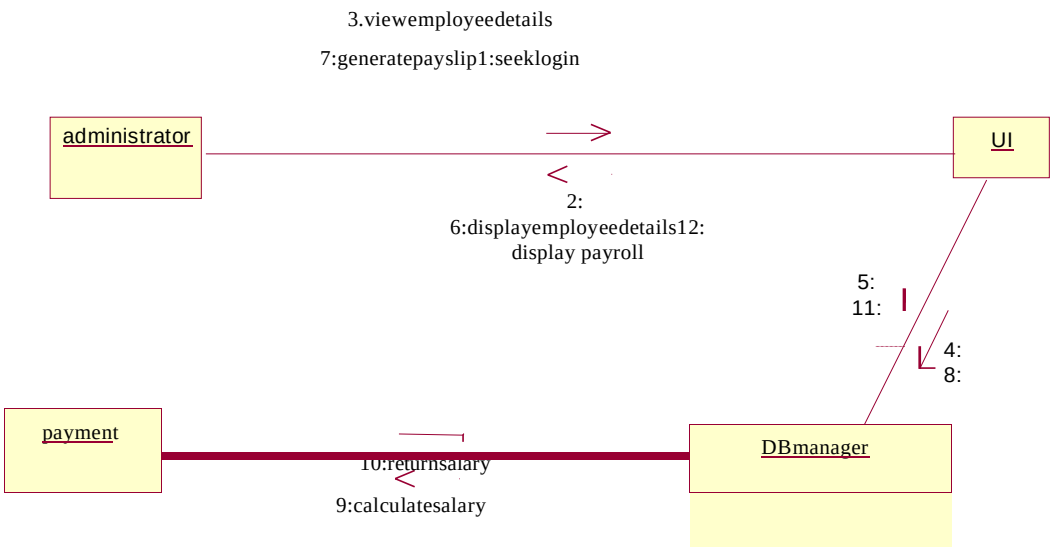


Fig.53.COLLABORATIONDIAGRAMFOREMPLOYEE

STATETRANSITIONDIAGRAM

- States of object are represented as rectangle with round corner, the transaction between the different states.
- A transition is a relationship between two state that indicates that when an event occur the object moves from the prior state to the subsequent.

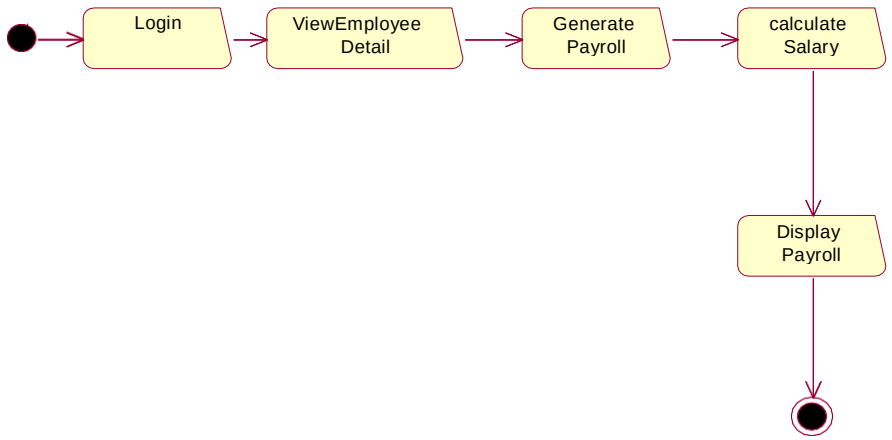


Fig.54. STATE TRANSITION DIAGRAM FOR SOFTWARE PERSONNEL MANAGEMENT SYSTEM

DEPLOYMENTDIAGRAMANDCOMPONENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed

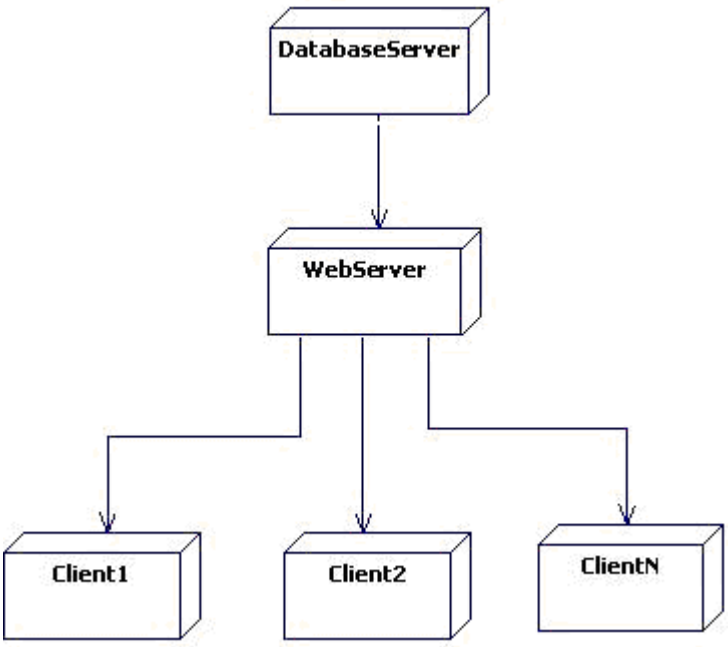


Fig.55.DEPLOYMENTDIAGRAMFORSOFTWAREPERSONNELM ANAGEMENTSYSTEM

COMPONENTDIAGRAM

Component diagrams are used to visualize the organization and relationships among components in a system.

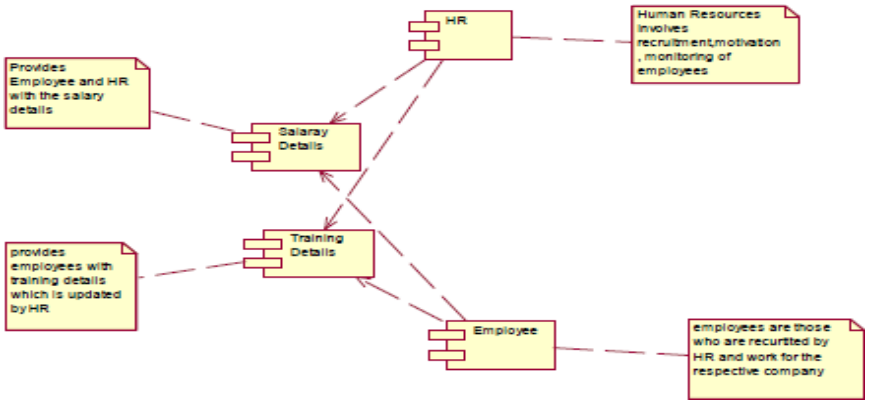


Fig.56.COMPONENT DIAGRAM FOR SOFTWARE PERSONNEL MANAGEMENT SYSTEM

TASK8: CREDIT CARD PROCESSING

AIM: To create a system to perform the credit card processing

(I) PROCEDURE: PROBLEM STATEMENT:

Credit card processing through offline involves the merchant collecting order information (including credit card numbers), storing this in a database on your site, and entering it using their on-site merchant credit card processing system. Takes time to manually enter credit card information for each order. This solution creates following cons:

· Insecure–there is a possibility that a skilled hacker could break into the database and steal an entire list of credit card numbers, there by damaging the merchant's reputation with current client.

· There is a higher risk of customer charge backs with no signature

· Higher risk of fraud for using stolen credit cards

· Many discerning online shoppers will not give their credit card to an "un trusted" online merchant (you may want to consider being part of the Better Business Bureau or similar organization to add credibility).

So there is a need of online and trusted credit card processing.

(II) SOFTWARE REQUIREMENT SPECIFICATION:INTRODUCTION

A credit card is a small plastic card issued to users as a system of payment. It allows its holder to buy goods and services based on the holder's promise to pay for these goods and services. The issuer of the card creates a revolving account and grants a line of credit to the consumer (or the user)

From which the user can borrow money for payment to a merchant or as a cash advance to the user.

When a purchase is made the merchant swipes the card. The information goes to a gateway processor, which either accepts or rejects the transaction. If it is accepted, the transaction is held until the end ofthebusinessday.Themerchantthenreentersthetransactionviathegateway processor, the data is logged, and the debt is transferred to the account. The use of an ATM for cash advance is a similar process.

If you are selling to consumers, merchant services will allow you to expand your customer base and provide a more convenient method of payment than cash or checks. And if you are interested in selling over the Internet, accepting credit card processing is a must. Accepting credit cards allows funds to be transferred to your bank account in less than a week. This can be a welcome relief for businesses that experience a tight cash flow.

The two purchase options for Credit Card Processing facility are:

- Validation only
- Credit card processing(which secures deposits at the time of booking)

With either option, credit card accounts entered during booking are validated to assure that the account is active and in good standing. The credit card processing option also allows properties to process credit card deposits.

PURPOSE

When customers complete their shopping cart, their credit card is preauthorized and the order is entered into Sales Order. Credit Card Processing dials out and obtains a credit card payment. Within five

minutes the customer receives an e-mail receipt.

SCOPE

- Automatically connects to your financial network for credit card authorizations and settlements
- Integrates with Sales Order, Accounts Receivable, and e-Business Manager
- Support for dial-up(modem)connections or secure Internet connections through TCP/IP and SSL
- Compliant with Visa and Master Card Electronic Commerce Indicator (ECI) regulations.
- Multiple address verification options available.

DEFINITIONS, ACRONYMSANDTHEABBREVIATIONS

• **Authorization service** - The issuer of the card creates a revolving account and grants a line of credit to the consumer (or the user) from whichtheusercanborrowmoneyforpaymenttoamerchantorasacashadvanceto the user.

•**User**-One who wishes to uses the Credit card.

• **CCP**-Refers to this Credit Card Processing.

• **HTML** –Markup Language used for creating web pages.
•**J2EE** – Java 2 Enterprise Edition is a programming platform java platform for developing and running distributed java applications.
• **HTTP**-Hyper Text Transfer Protocol.
•**TCP/IP** – Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTO BE USED

• HTML
• JSP
• Java script
• Java

TOOLSTOBEUSED

• Eclipse IDE(Integrated Development Environment)

• Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements–

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles & functions of the actors.

OVERALL DESCRIPTION

PRODUCT PERSPECTIVE

This solution involves signing up for a free Business Account. Once this is done and the e-commerce site is properly configured, you can accept payments from Visa, Master Card, Amex, and Discover cards payments.

SOFTWAREINTERFACE

- **Front End Client** –The applicant and Administrator online interface is built using JSP and HTML. The Administrators local interfaces built using Java.
- **Web Server**-Glassfish application server(SQL Corporation).
- **Back End** –SQL database.

HARDWAREINTERFACE

The server is directly connected to the client systems .The client systems have access to the data base in the server.

SYSTEMFUNCTIONS

1. Accept credit card numbers on the web, store the mine data base, then process them off-line
2. Credit card processing with CCP
3. Credit card processing with a third-party credit card processing company.

USER CHARACTERISTICS

1) **User/Customer**-They are the people who desire to purchase the goods using credit card.

2) Authorization Service

- Validatethecreditcardpaymentstoensurethatthecardnumberisvalidand the card has not expired
- Deposit processing to apply the deposit payment to the card
- PrepareCreditcardtransactionreportsthatshowauthorizationcodes,amounts,and error/success messages

CONSTRAINTS

- Trusted if using a well known third-party processor
- Must suite for higher-volume sites
- Cheaper transaction rates
- Getting money transferred may be very fast
- Must provide fraud prevention measures and fraud protection programs

ASSUMPTIONSANDDEPENDENCIES

- The Applicants and Administrator must have basic knowledge of computers and English Language.
- The applicants may be required to scan the documents and send.

(III)USECASEDIAGRAM:

The Passport Automation system use cases are:

Creating Account: Used to create a account.

Credit card request: Used to send the request to credit card.

Bank Enquiry: Used to get the bank enquiry like pin code to verify your user account.

Issuing card: Used to issuing the card to machine.

Purchase the item: Used to list out the purchase details in shop.

Prepare the bill: Used to issuing the bill for the purchased item.

Paying bill: Used to transaction of money to paying the bill.

ACTORSINVOLVED

Customer/user : The person who order for the item.

Banker: The person to check the account details.

Retailer: The person to preparing the bills.

USE-CASENAME: PURCHASE PRODUCT

Customer purchases items from ecommerce site then proceeds to the site's secure checkout area.

.

USE-CASENAME: AUTHORIZATION REQUEST

Credit card processor collects billing information from the customer via secure connection.

USE-CASENAME: AUTHORIZATION RESPONSE

Billing information is verified and the transaction is completed by the credit card issuer.

USE-CASENAME: PAYMENT APPROVAL

The transaction details are recorded by the credit card processor andresultsaresecurelyrelayedtothemerchant.Merchant'ssitereceivestransacti onresultanddoesappropriate actions (e.g. saves the order & shows message).

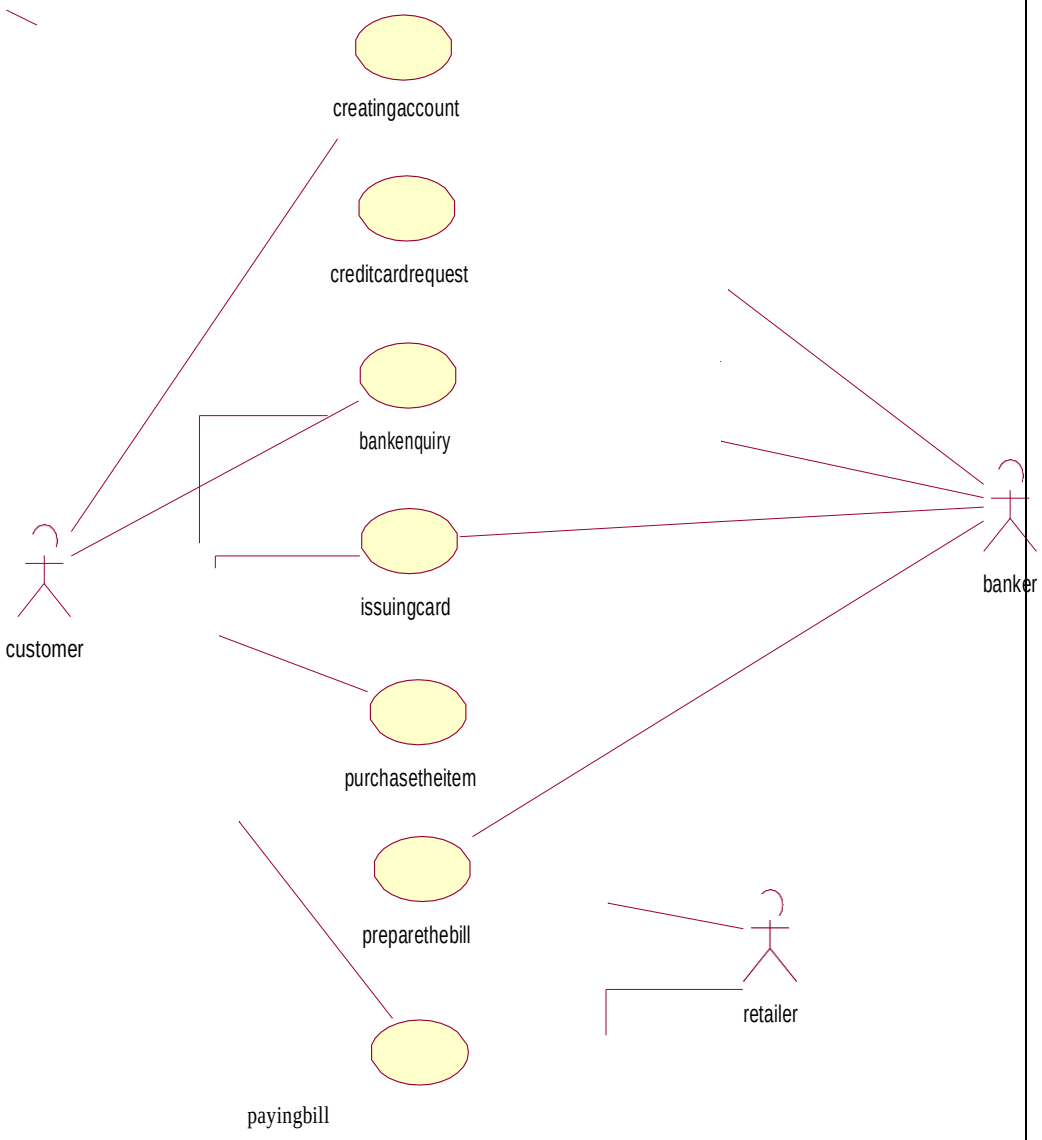


Fig.57 USECASE DIAGRAM FOR PASSPORT AUTOMATION SYSTEM

CLASS DIAGRAM:

The class diagram, also referred to as object modeling is the main static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects.

The Credit Card Processing system class diagram consists of three classes .They are

1. Banker
2. Customer
3. Retailer

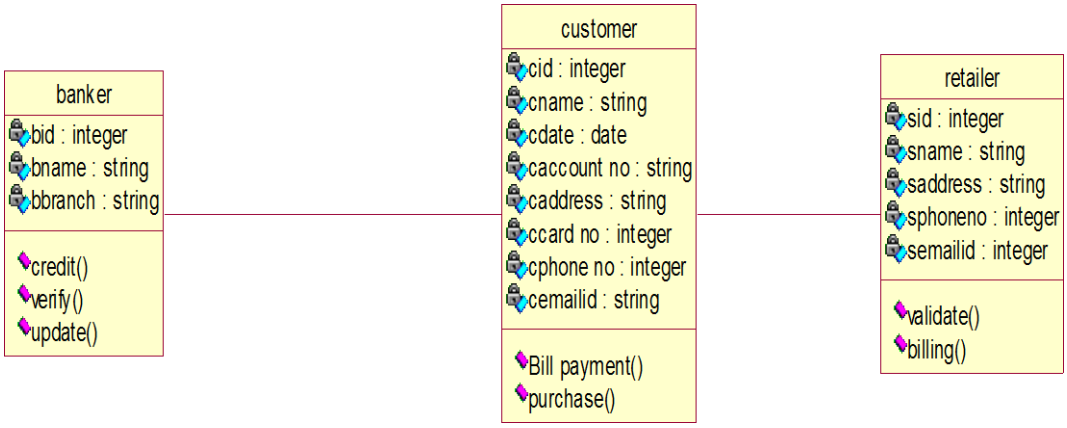


Fig.58. CLASS DIAGRAM

INTERACTIONDIAGRAM:

- A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario. Sequence diagrams can capture most of the information about the system.
- Mostobjecttoobjectinteractionsandoperationsareconsideredeventsandeventsincludesignals,inputs, decisions, interrupts, transitions and actions to or from users or external devices.
- An event also is considered to be any action by an object that sends information.
- The event line represents a message sent from one object to another, in which the "form" object is requesting an operation be performed by the "to" object.
- The "to" object performs the operation using a method that the class contains.
- It is also represented by the order in which things occur and how the object sin the system send message to one another.
- The sequence diagram for each USE-CASE that exists when a user administrator, check status and new registration about passport automation system are given.

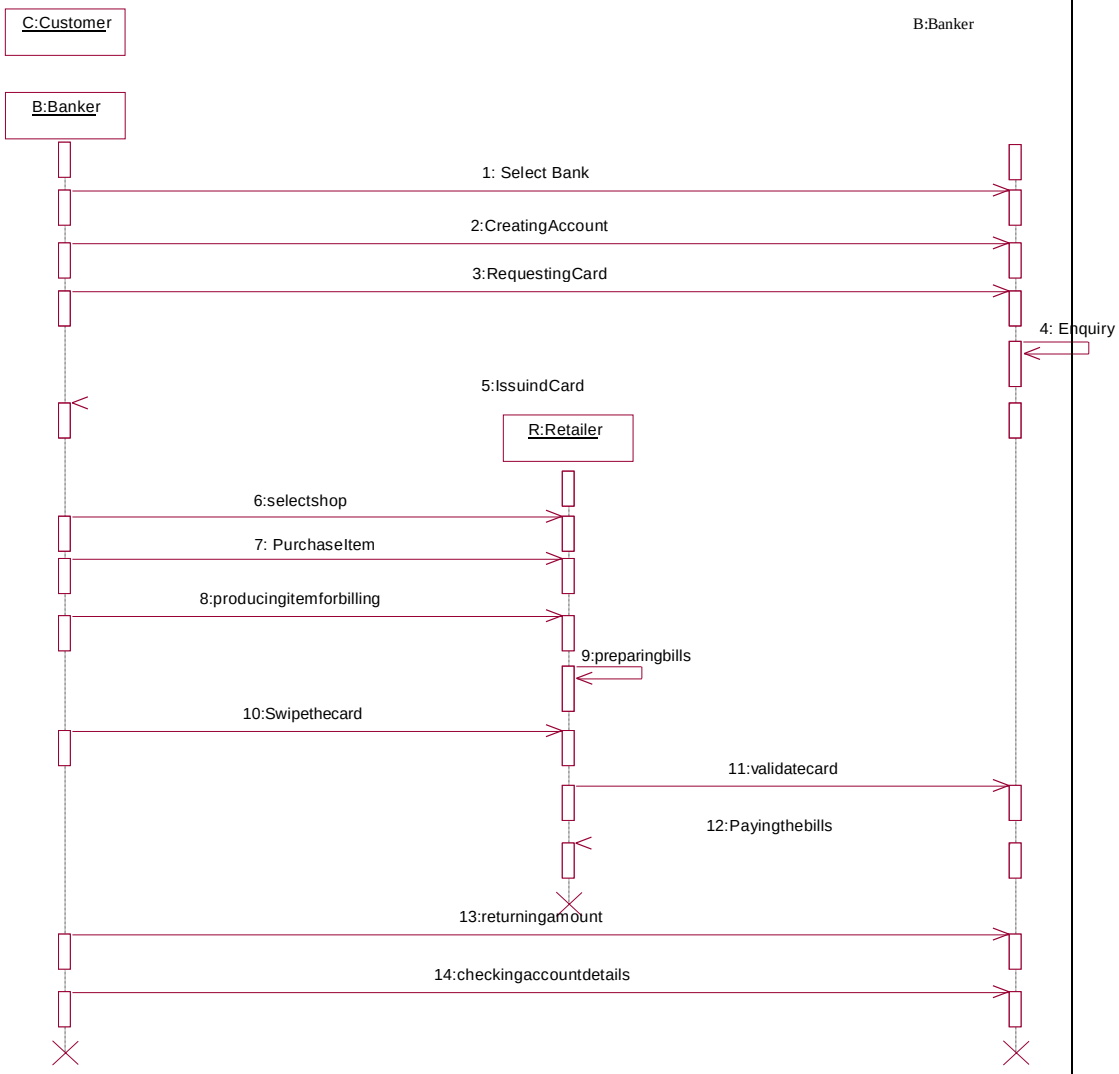


Fig.58.SEQUENCE DIAGRAM

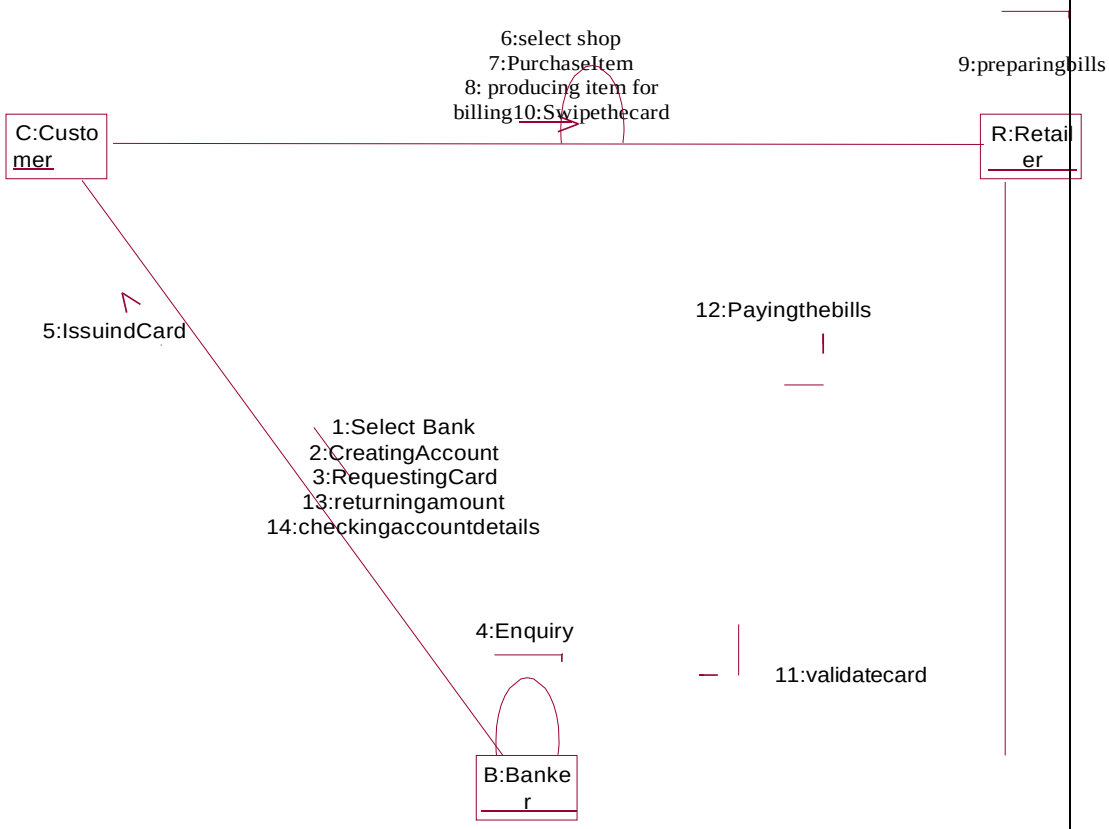


Fig.59. COLLABORATION DIAGRAM

State chart Diagram:

- States of object are represented as rectangle with round corner, the transaction between the different states.
- A transition is a relationship between two state that indicates that when an event occur the object moves from the prior state to the subsequent.

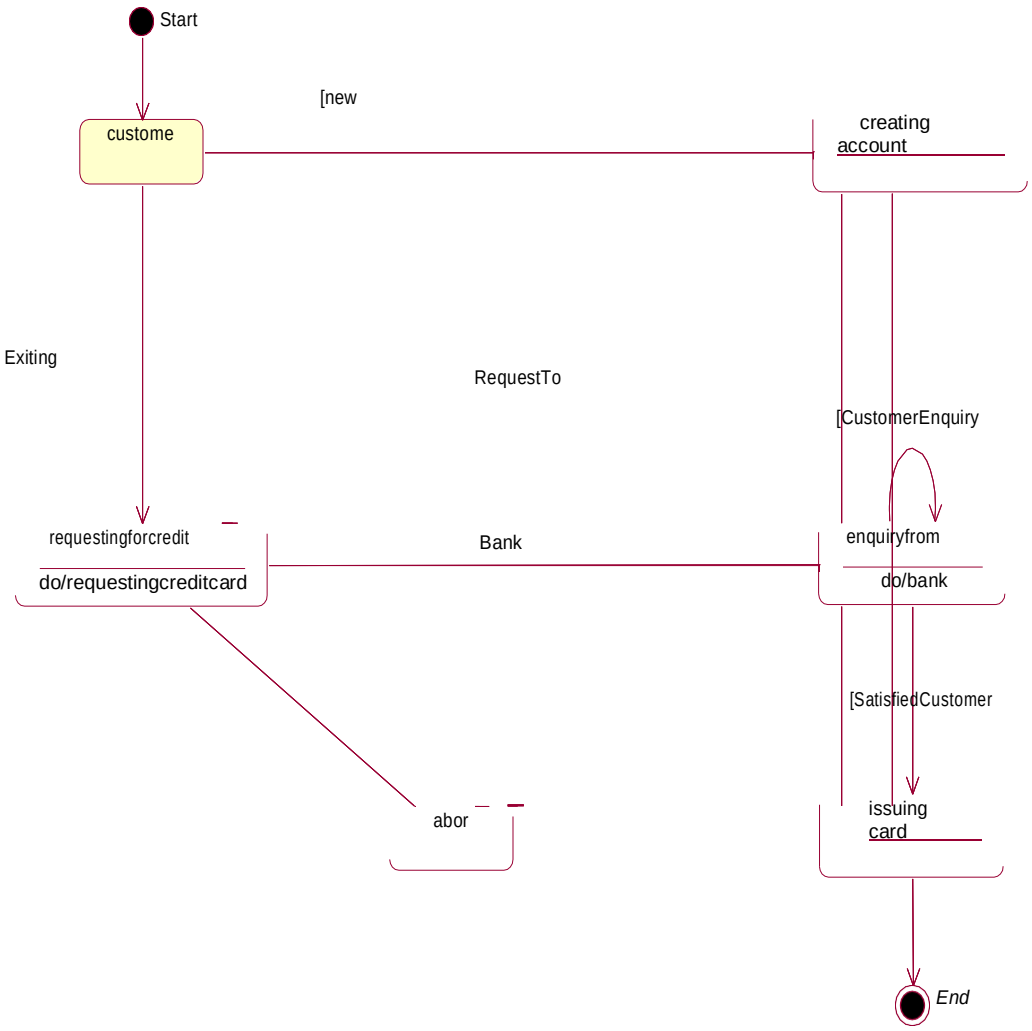


Fig.60. STATE CHARTDIAGRAM

DEPLOYMENTDIAGRAMAND COMPONENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

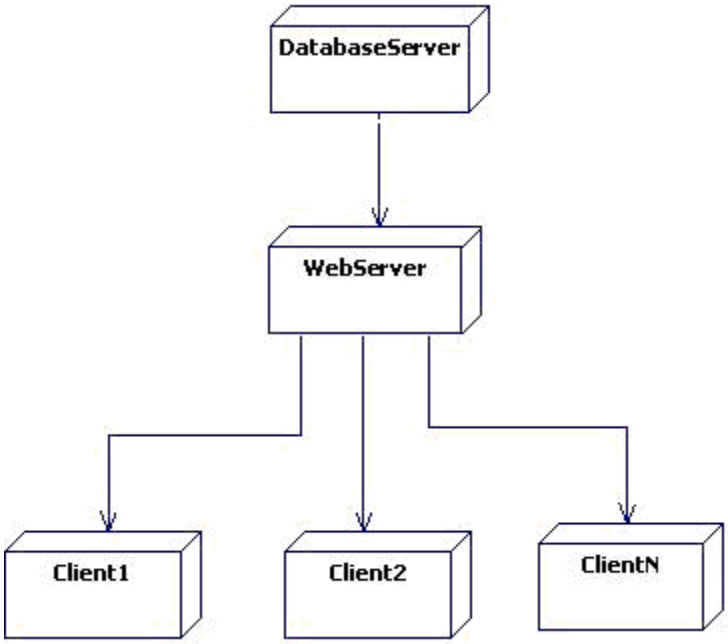


Fig.6.1.DEPLOYMENTDAIGRAM

Component diagrams are used to visualize the organization and relationships among components in a system.

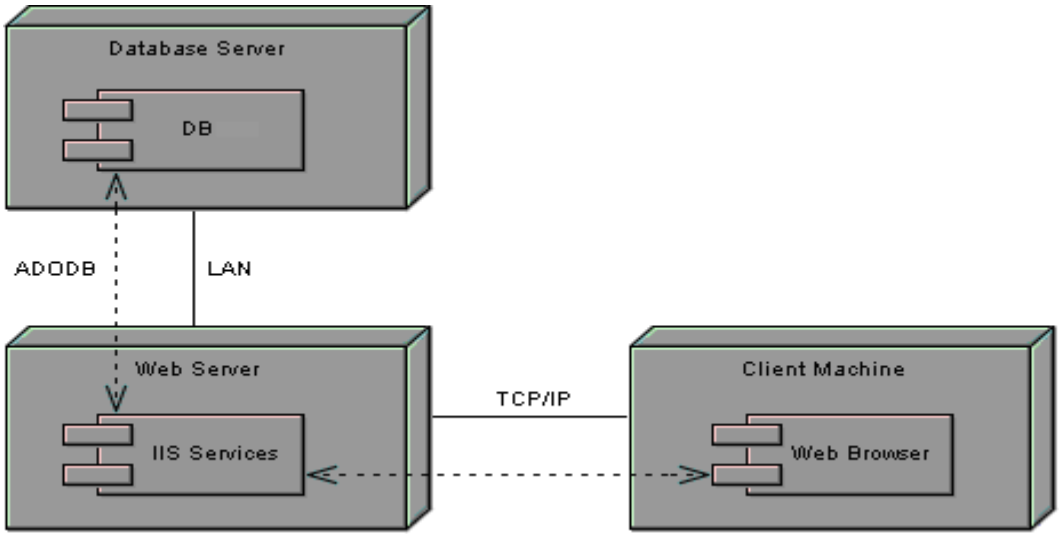


Fig.62.COMPONENTDIAGRAM

AIM: To create a system to perform E-book Management System.

(I) PROCEDURE: PROBLEM STATEMENT:

EBook process is well organized online buying and selling of books. This system is well developed in various resources, for example Amazon site deals more about e-booking concept. This process has various issues in the basics of maintenance of database and updating in sites, and virus problem in pdf books, so we have many issues in this process. The process of e-books is fully based on online, and the process for this mainly interaction between buyer and seller, buyer who enter the site for purchase of book will use search engine for book to purchase, the search engine will mainly focused on the database process, it used to search book for the buyer who mentioned the book name, author name, edition, publication details in the site, so that the search engine will show many books. There will be a payment option and option for pdf file or hardcopy delivery to home, the user should decide whether he want which one. Whether he choice hardcopy means, full detail address, driving license no, and then he should login with his username and password, and then payment through atm debit or credit card applicable.

(II) SOFTWARE RESOURCE SPECIFICATION*:*

INTRODUCTION

E-Book is the interface between the students and Librarian. It aims at improving the efficiency in the Issue of books or magazines and reduces the complexities involved in it to the maximum possible extent

If the entire process of 'Issue of Books or Magazines' is done in a manual manner then it would take several months for the books or magazines to reach the applicant. Considering the fact that the number of students for Book Bank is increasing every year, an Automated System becomes essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process. The system has been carefully verified and validated in order to satisfy it.

SCOPE

The System provides an online interface to the user where they can fill in their personal details and submit the necessary documents (may be by scanning). The authority concerned with the issue of books can use this system to reduce his workload.

DEFINITIONS,ACRONYMS AND THE ABBREVIATIONS

- **E-bookmanager**

  Refers to the super user who is the Central Authority who has been vested with the privilege to manage the entire system.

- **User**

  One who wishes to obtain the Books or Magazines.

- **Visitor**

One who visits to obtain Books or Magazines.

- **Administrator**

One who manages and maintain Books or Magazines.

IEEE Software Requirement Specification format

TECHNOLOGIESTO BEUSED

HTML-Markup Language used for creating web pages.

J2EE-Java2Enterprise Edition is a programming platform and it is the part of the java platform for developing and running distributed java applications.

HTTP-Hyper Text Transfer Protocol

TCP/IP-Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TOOLS TO BE USED

Eclipse IDE (Integrated Development Environment Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements.

Overall description will describe major role of the system components and inter-connections.

Specific requirements will describe roles &function soft he actors.

OVERALLDESCRIPTION

It will describe major role of the system components and inter-connections.

PRODUCTPERSPECTIVE

The ORS acts as an interface between the user and the' e-book manager'. This system tries to make the interface as simple as possible and at the same time not risking the security of data stored in. This minimizes the time duration in which the user receives the books or magazines.

SOFTWARE

INTERFACE

Front End

Client

The Student and Librarian online interface is built using JSP and HTML. The

Librarians local interface is built using Java.

Web Server

Apache Tomcat application server(Oracle Corporation).

BackEnd

Oracle11gdatabase

HARDWAREINTERFACE

The server is directly connected to the client systems. The client systems have access to the database in the server.

SYSTEM FUNCTIONS

Secure Registration of information by the Students.

Librarian can generate reports from the information and is the only authorized personnel to add the eligible application information to the database.

USER CHARACTERISTICS User

They are the people who desire to obtain the books and submit the information to the database**.**

Visitor

They are the person who visits the E-book system

Administrator

He has the certain privileges to add the books and to approval of the reservation of books.

CONSTRAINTS

The Students require a computer to submit their information.

Although the security is given high importance, there is always a chance of intrusion in the web world which requires constant monitoring.

The user has to be careful while submitting the information. Much carries required.

ASSUMPTIONSANDDEPENDENCIES

The user and e-book manager must have basic knowledge of computers and English Language. The user may be required to scan the documents and send.

(III) USE-CASEDIAGRAM:

The E-book use cases in our system are:

1. Login
2. Register
3. Search book
4. Download
5. Payment

6. Publisher
7. Update

Actors involved:

1. Register User
2. Visitor
3. Administrator

1. Add:

A student record. Each student should have following attributes.

->Student id

->Name

->Address

->Phoneno

2. Update:

The record would be selectedusingthestudentid.Theup datescanbemadeon full itemsonly.

->name

->address

->phoneno

3. Addto book item:

Eachbookshould have followingattribute

->callno

->title

->ISBN

->Authorname

4. Query the book database:

The product shall let librarian query tools books detail information by their ISBN number (or)author (or)title.

The search result would produce a list of books, which match the search parameters.

5. Checkout a book:

Librarians and member of the library can check out can be initialized from a previous search operation where user has selected a set of books.

6. Check in a book:

Librarians and member of the library can check in a book using its call no.

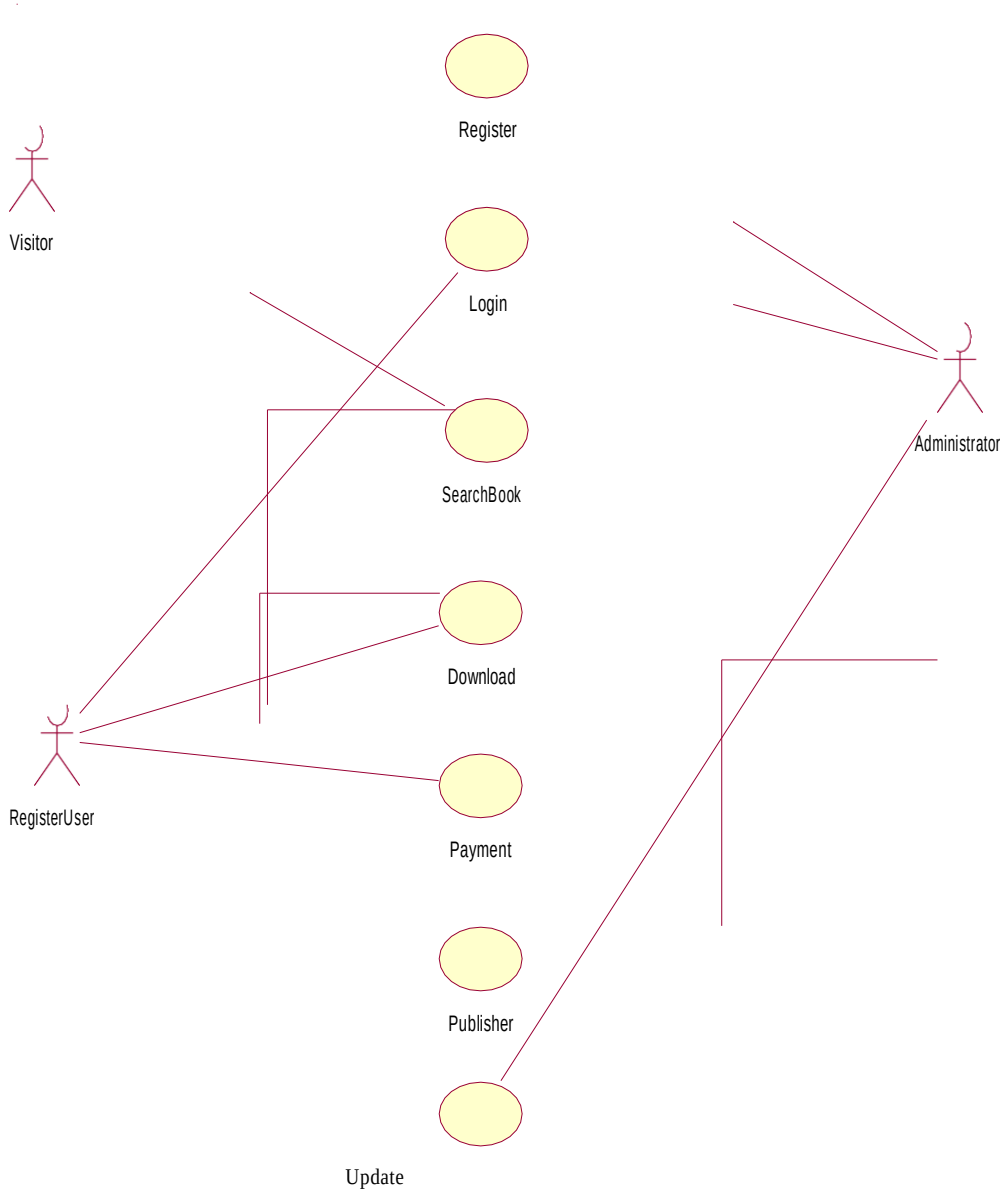


Fig.63.USE-CASE DIAGRAM

ACTIVITYDIAGRAM:

The activity diagram shows the activity of the process here first login is done when the user is valid then the welcome page appears .Here fork is used where two transaction line may be got search book and online reading .search book can be used to search book and online reading can allow user to learn online and when any of these two process is selected a join is used where download occurs, in this download of book is done then finally cost of book is paid online.

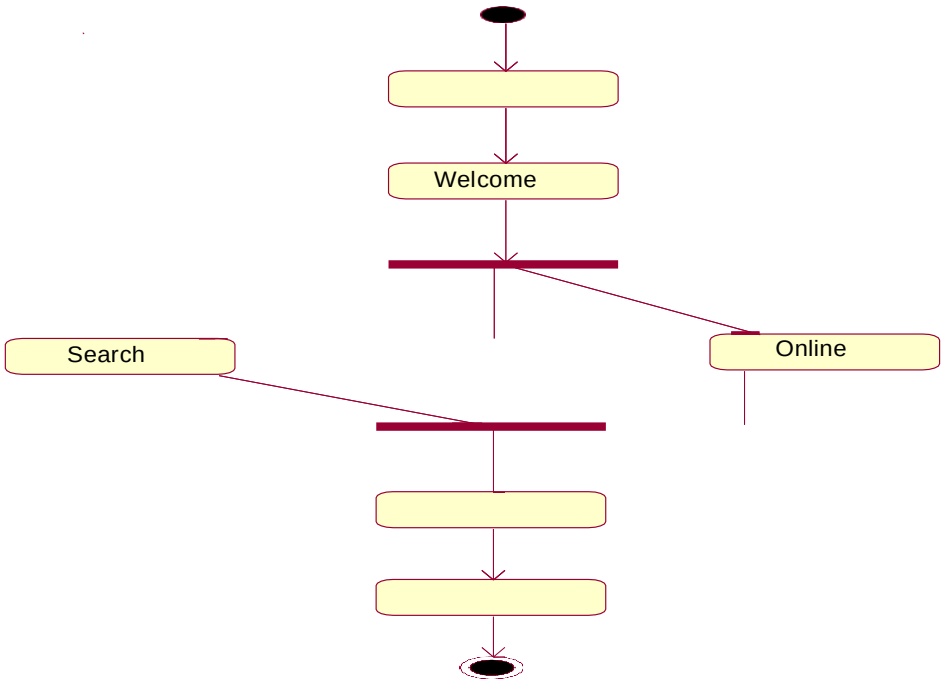


Fig.64. ACTIVITY DIAGRAM

CLASS DIAGRAM

The class diagram, also referred to as object modeling is the main static analysis diagram. The main task of object modeling is to graphically show what each object will do in the problem domain. The problem domain describes the structure and the relationships among objects.

The E-book Management system class diagram consists of five classes:

1 .Login
2. Registered User
3. Administrator
4. Book
5. Visitor
6. Download
7. Logout

1) **Login:** Login to the system

2) **Registered User:** It consists of six attributes and four operations. The attributes are user id, name, password, email id, phone no, security question. The operation s of this class are download(), login(), search(), register().

3) **Administrator:** It consists of four attributes and two operations. The attributes are name, password, email id, admin id. The operations of this class are update(), record().

4) **Book:** It consists of four attributes and two operations. The attributes are book id, book name, author , and price. The operations of this class are update(),add().

5) **Visitor:** It consists of two attributes and two operations. The attributes are user name, email id. The operations of this class are search book(), read book().

6) **Download:** It consists of two attributes and two operations. The attributes are user id, book id, date, and amount. The operations of this class are search download().

7) **Logout:**

Logout from the system.

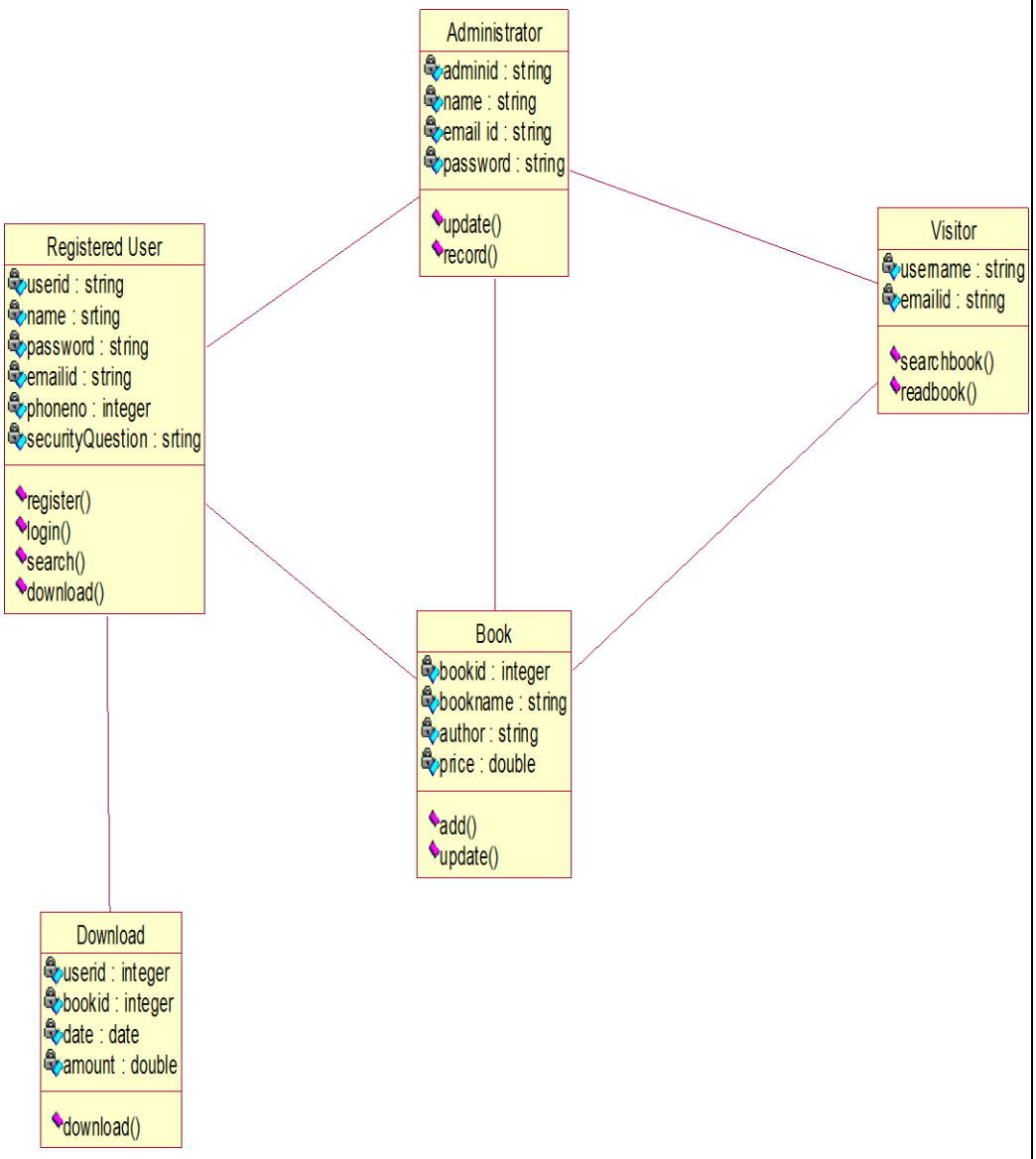


Fig.65. CLASS DIAGRAM

INTERACTION DIAGRAM:

- A sequence diagram represents the sequence and interactions of a given USECASE or scenario. Sequence diagram scan capture most of the information about the system. Most object to object interactions and operations are considered events and events includesignals,inputs,decisions,interrupts,transitionsandactionstoorfro musers or external devices.
- An event also is considered to be any action by an object that sends information. The event line represents a message sent from one object to another, in which the " form" object is requesting an operation be performed by the "to" object. The "to" object performs the operation using a method that the class contains.
- It is also represented by the order in which things occur and how the objects in the system send message to one another.
- The two sequence diagram and two collaboration diagram one for Registered user and another for visitor are given below.

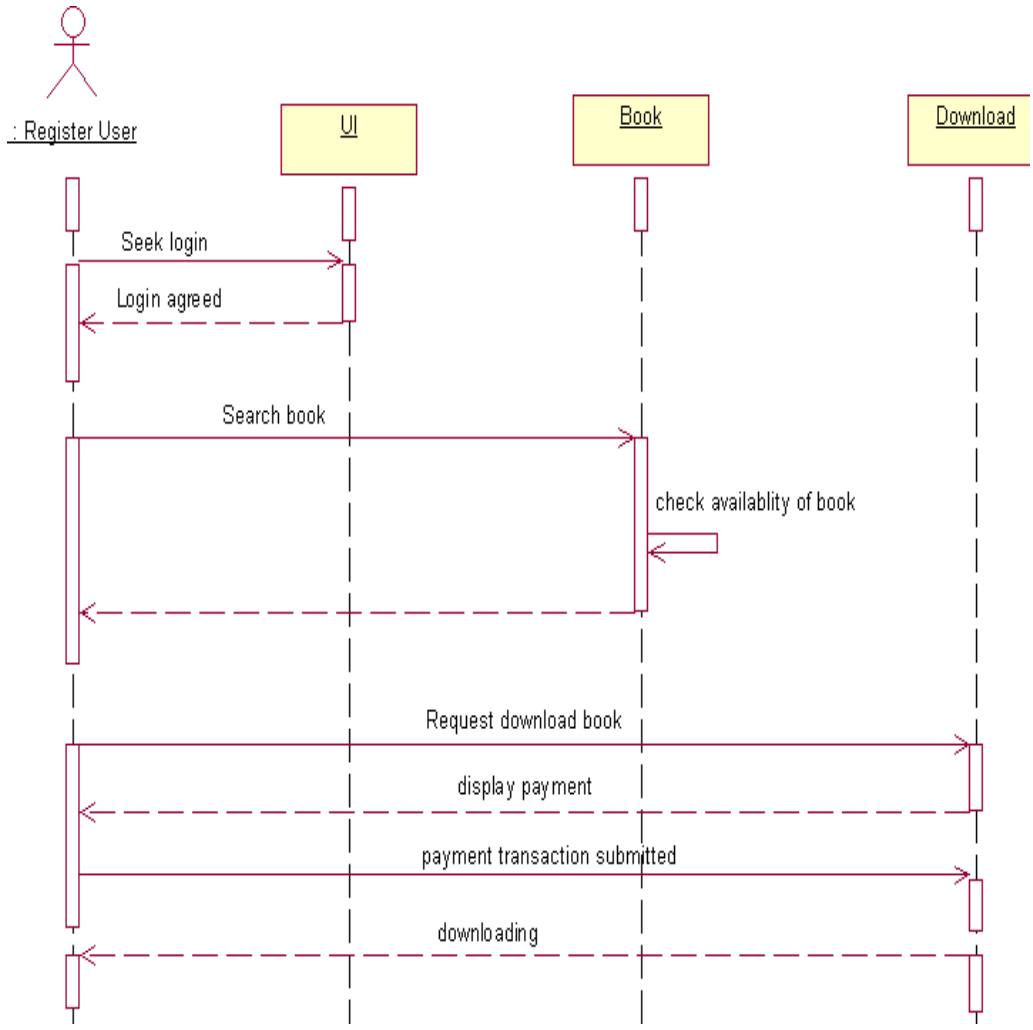


Fig.66.SEQUENCEDIAGRAMFOR REGISTEREDUSER

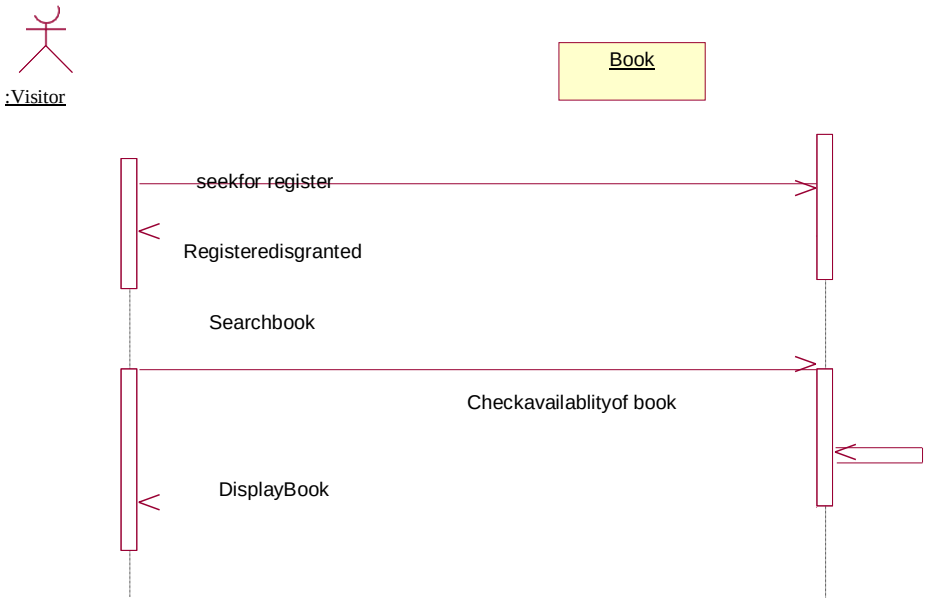


Fig.67.SEQUENCEDIAGRAMFORVISITOR

Fig.68.COLLABORATIONDIAGRAMFORREGISTEREDUSER

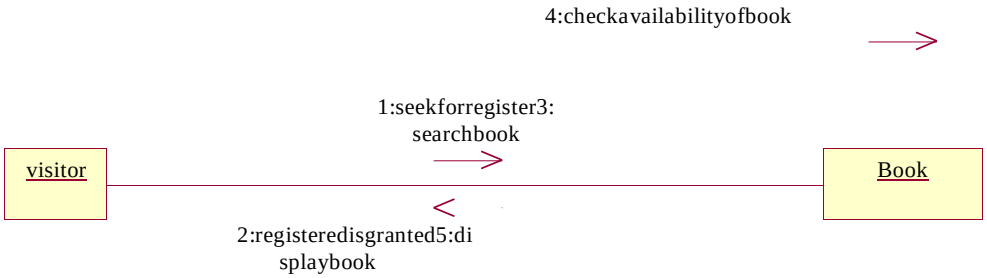
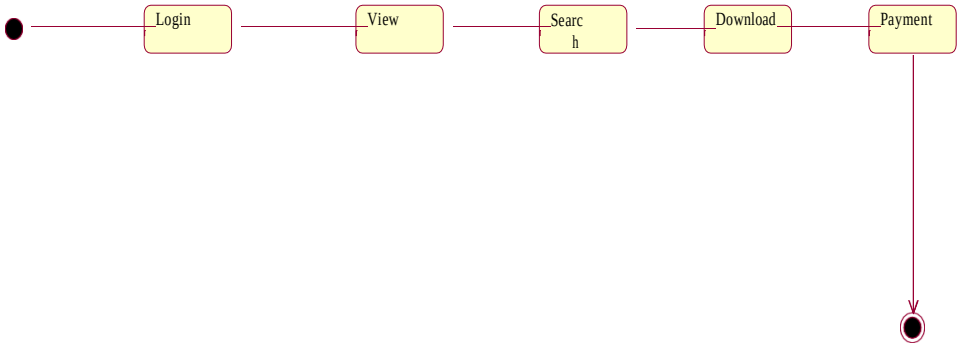


Fig.69. COLLABORATION DIAGRAM FOR VISITOR

The diagrams show first login to the system and the pin no is entered and check the pin. Get no and valid at e password check the condition based on condition book issue and return is done. Pay the online and renewed finally logout from the system.

STATECHARTDIAGRAM:

The diagrams show first login to the system and view the books and search for required book is done and then required book is downloaded and amount paid in online. Finally logout from the system.



DEPLOYMENTDIAGRAMANDCOMPONENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

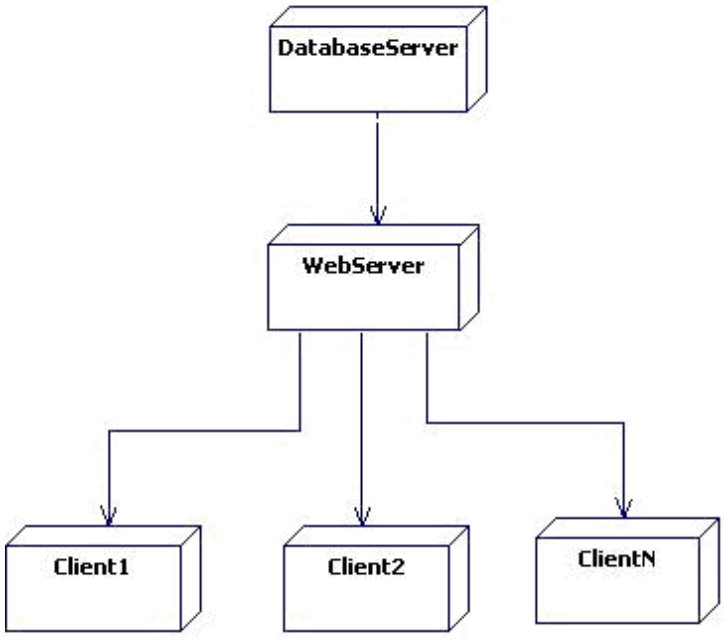
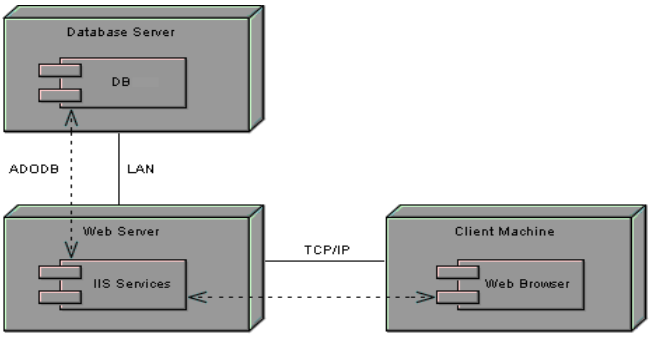


Fig.71DEPLOYMENTDIAGRAM

COMPONENTDIAGRAM

Component diagrams are used to visualize the organization and relationships among components in a system.



TASK10: RECRUITMENT SYSTEM

AIM: To create an automated system to perform the Recruitment System Process.

(I) PROCEDURE: PROBLEM STATEMENT:

The recruitment system allows the job seeker overview the job opportunity through Advertisement and helps to apply for the job. The organization short lists the applicants for the interview. The shortlisted applicants undergo through a process of Test and Interview. The HR department selects the Applicant based on the performance in the Test and Interview. Finally the recruited applicants are informed. This system makes the task of the job seeker easier rather than waiting in queue for enrollment. This also reduces the time consumption for both for the job seeker and organization.

(II)SOFTWAREREQUIREMENTSPECIFICATION:

INTRODUCTION

Recruitment System is an interface between the Applicant and the Organization responsible for the Recruitment. It aims at improving the efficiency in the Recruitment process and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of 'Recruitment' is done in a manual manner then it would takes several days for the recruitment. Considering the fact that the number of applicants for recruitment is increasing every year, an Automated System become essential to meet the demand. So this system use several

Programming and database techniques to elucidate the work involved in this process.

SCOPE

- The System provides an online interface to the user where they can fill in their personal details and apply for the job.
- The Organization (HR-Department) concerned with their recruitment process can make use of this system to reduce their workload and process the application in a speedy manner.
- ProvideacommunicationplatformbetweentheApplicantandtheOrganization.

DEFINITIONS,ACRONYMSAND THE ABBREVIATIONS

- **Organization**

  Refers to the super user who is the Central Authority with the privilege to manage the entire system. It can be any higher official in the HR department.

- **Applicant**

  One who wishes to apply for the job

- **RS**

  Refers to this Recruitment System.

- **HTML**

  Markup Language used for creating web pages.

- **J2EE**

  Java2 Enterprise Edition is a programming platform java platform for developing and running distributed java applications.

- **HTTP**

  Hyper Text Transfer Protocol.

- **TCP/IP**

  Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

TECHNOLOGIESTO BEUSED

- HTML
- JSP
- JavaScript
- Java

TOOLSTOBEUSED

- Eclipse IDE(Integrated Development Environment)
- Rational Rose tool(for developing UML Patterns)

OVERVIEW

SRS includes two sections overall description and specific requirements

Overall Description will describe major role of the system components and inter-connections.

Specific Requirements will describe roles &functions of the actors.

OVERALL DESCRIPTION

PRODUCT PERSPECTIVE

The SRS acts as an interface between the "Applicant and the 'Organization'. This system tries to make the interface as simple as possible and at the same time not risking the security of data stored in. This minimizes the time duration for recruitment process.

SOFTWAREINTERFACE

- **Front End Client**–The Applicants and Organization online Interface is built using JSP and HTML. The Administrators' local interface is built using Java.
- **Web Server-** Glass fish application server (SQL Corporation).
- **Back End** –SQL database.

HARDWARE INTERFACE

These are directly connected to the client systems. The client systems have access to the database in the server.

SYSTEM FUNCTIONS

- The applicant views the jobs through Advertisement.
- Applicants apply for the job.
- Test and Interview are conducted.
- Recruited Applicants are informed.
- HR Manager can generate reports from the information and he/she is the only authorized personnel to add the eligible application information to the database.

USERCHARACTERISTICS

- **Applicant**

  These are the persons who desire to apply for the job.
- **Organization**

  These are the person with certain privileges to announce recruitment depending upon the organization need. He/She may contain a group

Of persons under him/her to publish advertisement and give suggestion whether or not to approve the recruitment.

- **HR**

  He/ She is the person who upon receiving intimation from the RS, perform a personal verification of the applicants and see if he/she has eligibility for the advertised job through a process of Test and Interview.

CONSTRAINTS

- The Applicants require a computer to submit their information.

ASSUMPTIONSANDDEPENDENCIES

- The Applicants and HR must have basic knowledge of computers and English Language.

(III)USECASEDIAGRAM:

The Recruitment system use cases are:

1. Advertisement
2. Apply for job
3. Test
4. Interview
5. Recruit Applicants

ACTORS INVOLVED:

Actors are as follows:

1. Applicant
2. Organization
3. HR

ACTORSDOCUMENTATION:

- **Applicant**

  Applicant is an actor who applies for the job vacancy. If he/she gets selected then HR department sends the Interview call letter.

- **HR**

  HR is an actor who informs about the vacancy to their Organization.HR recruits the applicants based on the required skill for the vacant position and short list them. HR is also responsible for Interview Scheduling.

- **Organization**

  Organization is an actor who announces the Advertisement for vacancy.

USE-CASENAME: ADVERTISEMENT

Description: This Use Case is initiated by Organization. Notifies about the required job vacancies

Flow of Events:

1. HR informs about vacancy to Organization.
2. Organization announces the Advertisement.

Pre-Condition: Vacancy must exist.

Post-Condition: Details about the vacancy are informed.

USECASE: APPLY FORJOB

Description: This Use Case is initiated by Applicants. Online forms are filled by the Applicants and submitted to the organization.

FlowofEvents:1. HR processes the filled forms.

2. HR selects the list of eligible Applicants.

Pre-Condition: Online form must exist.

Post-Condition: Forms filled are stored in an Information System for processing. The filled forms are sent to the HR. The HR produces the list of eligible Applicants.

USECASE: SELECT APPLICANTS FOR INTERVIEW

Description This Use Case is initiated by HR. The lists of selected Applicants are Informed .The Test and Interviews are conducted by the HR of the region that has the vacancy.

FlowofEvents:1. HR schedules the interview process.

2. HR conducts test and interview for the applicant via online system.
3. Who clear the interview process are selected.

Pre-Condition: Applicants must meet eligibility criteria.

Post Condition: Applicants clears interview process OR doesn't clear interview process.

USECASE: TEST

Description: This Use Case is initiated by the HR. A test will be conducted by the HR

Flow of Events

- The applicants undergo the Test process.
- He/ She clear or not clear the Test.
- **Pre-Condition:** Applicant is selected for the Test.
- **Post-Condition:** Applicant clear or not clear the Test.

USECASE: INTERVIEW

Description: This Use Case is initiated by the HR. An Interview will be conducted by the HR

Flow of Events 1.The applicants undergo the Interview process.

2.He/She clear or not clear the Interview.

Pre-Condition: Applicant is selected

for the Interview.

Post-Condition: Applicant clear or not

clear the Interview.

USE CASE:

RECRUITEDAPPLICANTS

Description: This Use Case is initiated by the HR. The selected applicants are recruited by HR.

Flow of Events: 1. The applicants clear the Test.

2. The applicants clear the Interview.

Pre-Condition: Applicant is selected for the Test and Interview.

Post-Condition: Applicant clears Test and Interview.

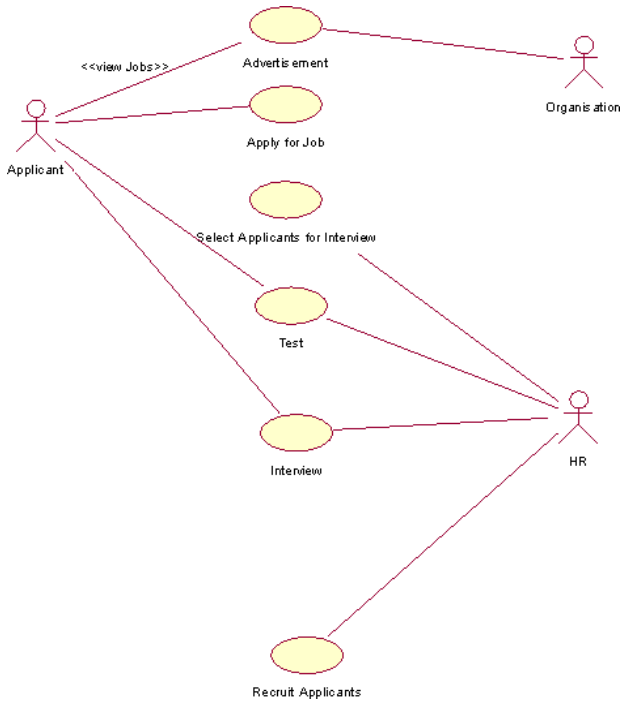


Fig73. USECASE DIAGRAM FOR RECRUITMENT SYSTEM

ACTIVITYDIAGRAM:

The activity diagram represents the series of activities that are occurring between the objects. Following is activity diagram which represents there recruitment process .

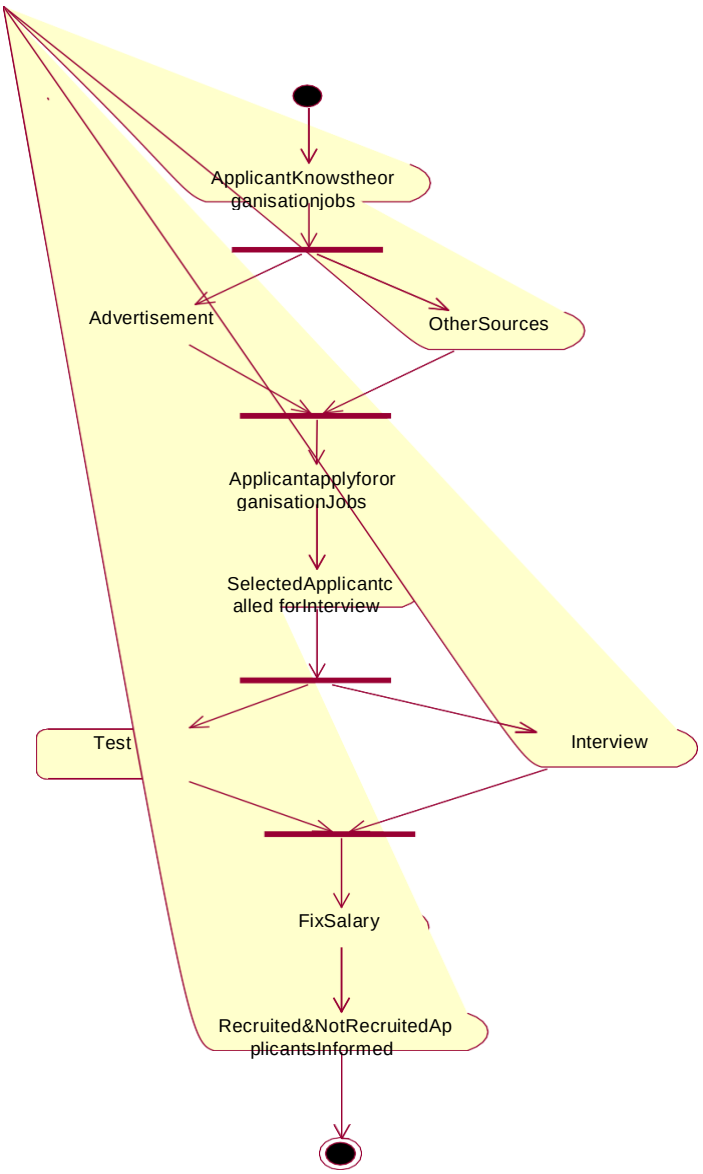


Fig.74 ACTIVITY DIAGRAM FOR RECRUITMENT SYSTEM

CLASSDIAGRAM:

The UML class diagram illustrates class interfaces and their actions. They are used for static object modeling. The problem domain describes the structure and the relationships among objects.

The Recruitment system class diagram consists of five classes

1. Applicant class
2. Organization class
3. HR Department class
4. Advertisement class
5. Recruitment class

APPLICANTCLASS:

It consists of eight attributes and two operations. The attributes areAppl-id,Appl-name,Appl-DOB,Appl-Gender,Appl-Qualification,Appl-phone, Appl-email id, Appl-addr. The operation of this class are view jobs ( )and Apply ().

ORGANIZATION CLASS:

The attributes of this class are Org-name, Org-Ph-No, and Org-Addr. The operation of this class are HR-Dept(), Mkt-Dept() and Account-Dept( ).

HR DEPARTMENT CLASS

The attributes of this class are Emp-id, Emp-name, Emp-DOB, Emp-Gender, Emp-Phone, Emp-email id, Emp-addr. The operation are Planning( ), Policies ( ),Strategies()

The attributes of this class are Adv-No, Adv-Name and Adv-description. The operation is display ( ).

RECRUITMENTCLASS

The attributes are Rec-Designation and Rec-Total candiate.The operation is recruit( ).

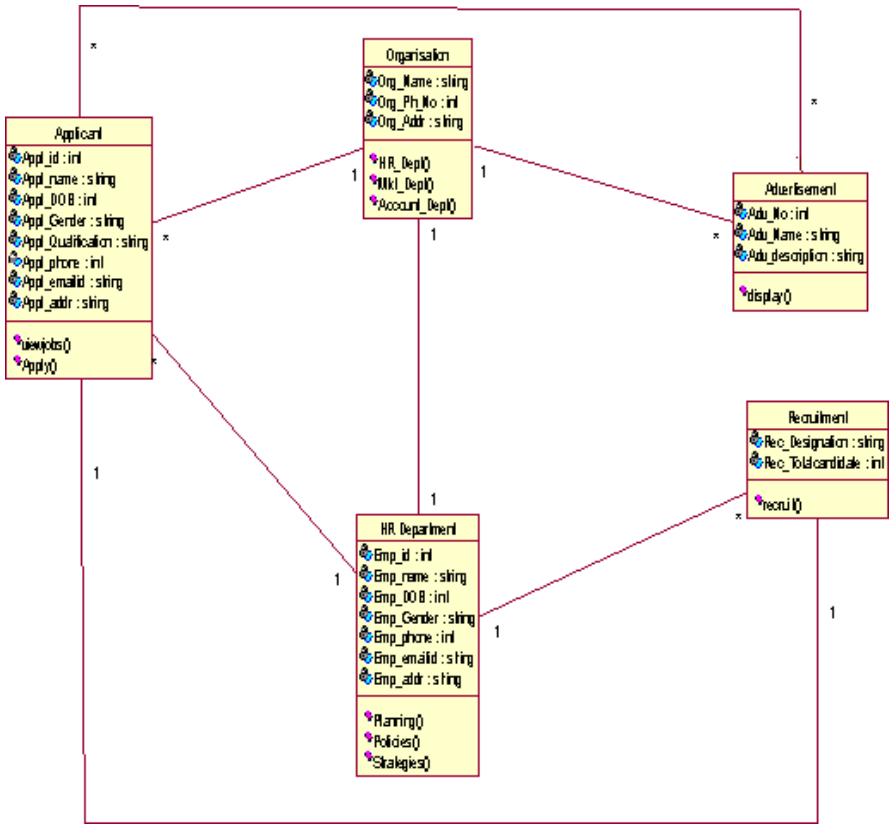


Fig.75.CLASS DIAGRAM FOR RECRUITMENT SYSTEM

- A sequence diagram illustrates a kind of format in which each object interacts via message. It is generalize between two or more specialized diagram.

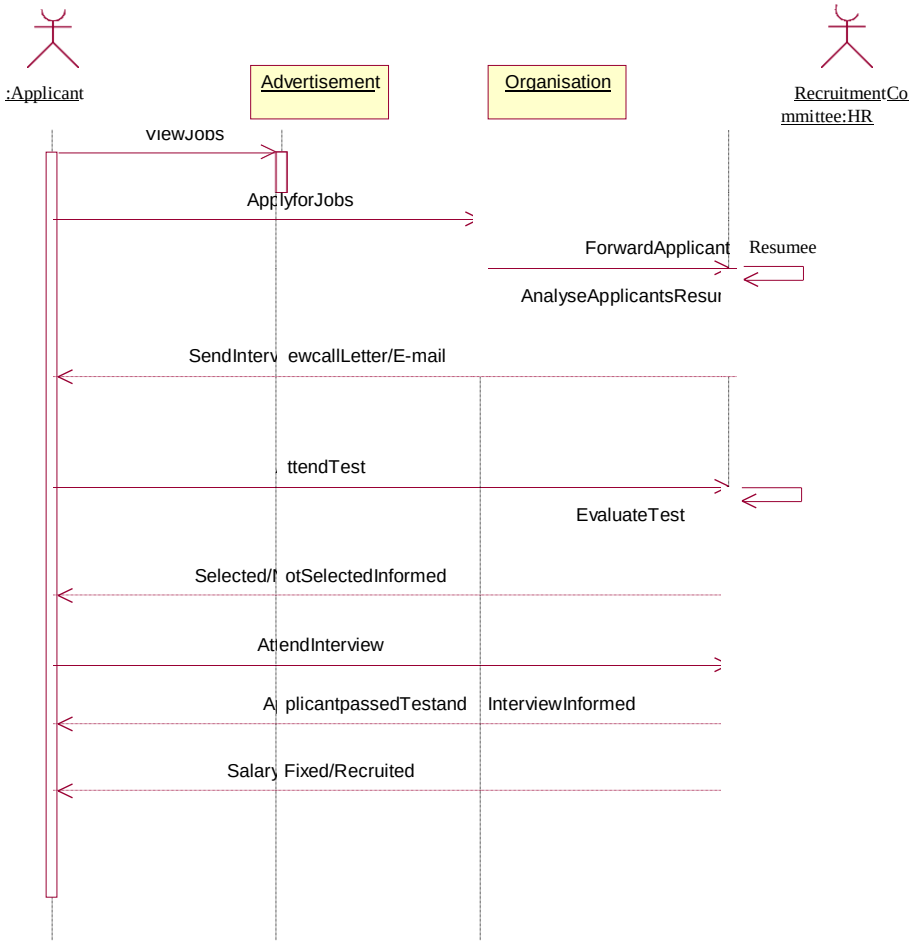


Fig76 SEQUENCE DIAGRAM FOR RECRUITMENT SYSTEM

- Communication diagram illustrate that object interact on a graph or network format. In collaboration diagram the object can be placed in any where on the diagram. The collaboration comes from sequence diagram.

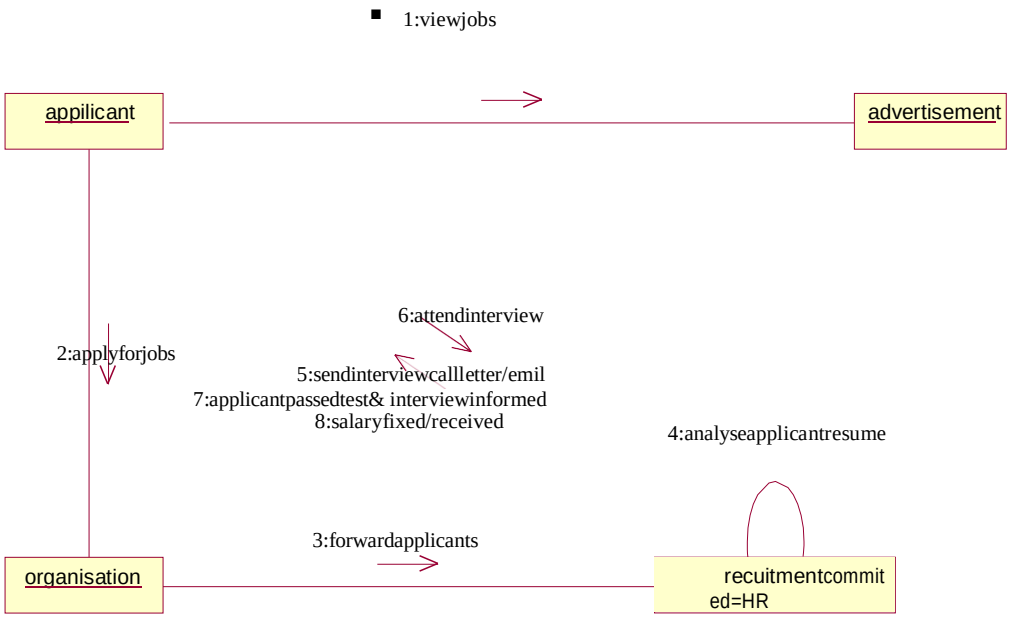


Fig77 COLLOBORATION DIAGRAM FOR RECRUITMENT SYSTEM

STATECHARTDIAGRAM:

- Every object undergoes through some state and on receiving some event the state gets changed. This transition of the state can be represented by the state transition diagram.

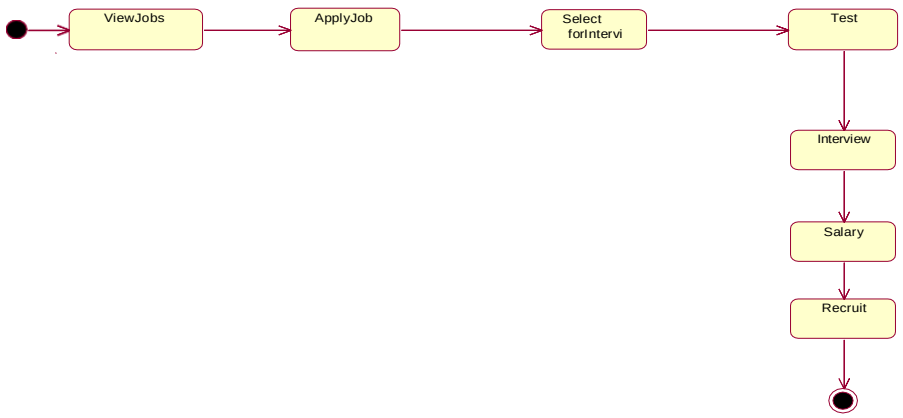


Fig.78.STATECHARTDIAGRAMFORR ECRUITMENTSYSTEM

DEPLOYMENTDIAGRAM

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.

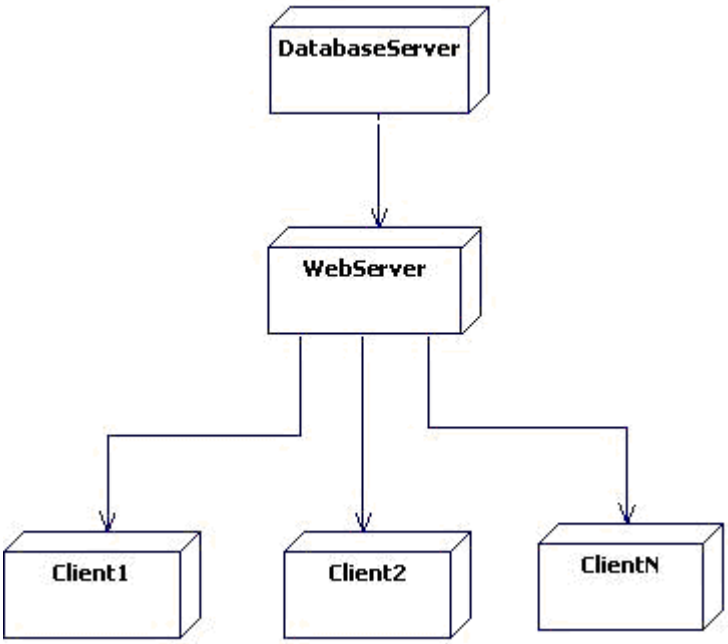


Fig.79.DEPLOYMENT DIAGRAM

COMPONENTDIAGRAM

Component diagrams are used to visualize the organization and relationships among components in a system.

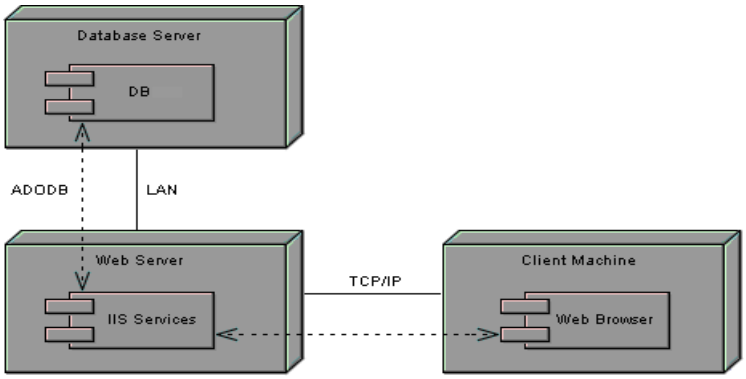


Fig.80..COMPONENT DIAGRAM