MRCET CAMPUS

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS INSTITUTION – UGC, GOVT. OF INDIA)

Department of CSE

(Emerging Technologies)

Data Science& Cyber Security

B.TECH(R-22 Regulation)

(II YEAR – II SEM)

(2024-25)

DATABASE MANAGEMENT SYSTEMS

(R22A0504)

LAB MANUAL

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Recognized under 2(f) and 12(B) of UGC ACT 1956

(Affiliated to JNTUH, Hyderabad, Approved by AICTE-Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2015 Certified)

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Department of Computer Science and Engineering

EMERGING TECHNOLOGIES

DATABASE MANAGEMENT SYSTEMS

(R22A0504)

LAB MANUAL

Prepared by

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Department of Computer Science and Engineering

EMERGING TECHNOLOGIES

Vision

1. "To be at the forefront of Emerging Technologies and to evolve as a Centre of Excellence in Research, Learning and Consultancy to foster the students into globally competent professionals useful to the Society."

Mission

The department of CSE (Emerging Technologies) is committed to:

2. To offer highest Professional and Academic Standards in terms of Personal growth and satisfaction.
3. Make the society as the hub of emerging technologies and thereby capture opportunities in new age technologies.
4. To create a benchmark in the areas of Research, Education and Public Outreach.
5. To provide students a platform where independent learning and scientific study are encouraged with emphasis on latest engineering techniques.

QUALITY POLICY

6. To pursue continual improvement of teaching learning process of Undergraduate and Post Graduate programs in Engineering & Management vigorously.
7. To provide state of art infrastructure and expertise to impart the quality education and research environment to students for a complete learning experiences.
8. Developing students with a disciplined and integrated personality.
9. To offer quality relevant and cost effective programmes to produce engineers as per requirements of the industry need.

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SYLLABUS

M R C E T CAMPUS | AUTONOMOUS INSTITUTION - UGC, GOVT. OF INDIA

II Year B.Tech. CSE(DS) - II Sem **L/T/P/C**
0/-/3/1.5

(R22A0504) DATA BASE MANAGEMENT SYSTEMS

COURSE OBJECTIVES:

1. Introduce ER data model, database design and normalization
2. Learn SQL basics for data definition and data manipulation
3. To enable students to use Non-Relational DBMS and understand the usage of document oriented and distributed databases.
4. To enable the students to use TCL and DCL Commands and perform all states of Transaction operations.
5. To familiarize issues of concurrency control and transaction management

List of Experiments:

1. Concept design with E-R Model
2. Relational Model
3. Normalization
4. Practicing DDL commands
5. Practicing DML commands
6. A. Querying (using ANY, ALL, UNION, INTERSECT, JOIN, Constraints etc.) B. Nested, Correlated subqueries
7. Queries using Aggregate functions, GROUP BY, HAVING and Creation and dropping of Views.
8. Triggers (Creation of insert trigger, delete trigger, update trigger)
9. Procedures
10. Usage of Cursors
11. Installation of MySQL / MongoDB and practicing DDL, commands

COURSE OUTCOMES:

1. Design database schema for a given application and apply normalization
2. Acquire skills in using SQL commands for data definition and data manipulation.
3. Develop solutions for database applications using procedures, cursors and triggers

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S. No	Topic	Sign
1	Introduction SQL-SQL*Plus	
2	Concept design with ER model	
3	Relational model	
4	Normalization	
5	Practicing DDL commands	
6	Practicing DML commands	
7 a.	Querying	
7 b.	Nested queries	
8	Aggregate functions, GROUPBY, HAVING,VIEWS	
9	Triggers	
10	Procedures	
11	Usage of cursors	
12	Installation of Mysql/MongoDB	

Database Management System

This model is like a hierarchical tree structure, used to construct a hierarchy of records in the form of nodes and branches. The data elements present in the structure have Parent-Child relationship. Closely related information in the parent-child structure is stored together as a logical unit. A parent unit may have many child units, but a child is restricted to have only one parent.

The drawbacks of this model are:

The hierarchical structure is not flexible to represent all the relationship proportions,

which occur in the real world.

It cannot demonstrate the overall data model for the enterprise because of the non-availability of actual data at the time of designing the data model.

It cannot represent the Many-to-Many relationship.

Network Model

It supports the One-To-One and One-To-Many types only. The basic objects in this model are Data Items, Data Aggregates, Records and Sets.

It is an improvement on the Hierarchical Model. Here multiple parent-child relationships are used. Rapid and easy access to data is possible in this model due to multiple access paths to the data elements.

Relational Model

Does not maintain physical connection between relations
Data is organized in terms of rows and columns in a table

The position of a row and/or column in a table is of no importance
The intersection of a row and column must give a single value

Features of an RDBMS

The ability to create multiple relations and enter data into them
An attractive query language

Retrieval of information stored in more than one table

An RDBMS product has to satisfy at least Seven of the 12 rules of Codd to be accepted as a full- fledged RDBMS.

Relational Database Management System

RDBMS is acronym for Relation Database Management System. Dr. E. F. Codd first introduced the Relational Database Model in 1970. The Relational model allows data to be represented in a simple row- column. Each data field is considered as a column and each record is considered as a row. Relational Database is more or less similar to Database Management System. In relational model there is relation between their data elements. Data is stored in tables. Tables have columns, rows and names. Tables can be related to each other if each has a column with a common type of information. The most famous RDBMS packages are Oracle, Sybase and Informix.

Simple example of Relational model is as follows :

Student Details Table

Roll_no	Sname	S_Address
1	Rahul	Satelite
2	Sachin	Ambawadi
3	Saurav	Naranpura

Student Marksheet Table

Rollno	Sub1	Sub2	Sub3
1	78	89	94
2	54	65	77
3	23	78	46

Here, both tables are based on students details. Common field in both tables is Rollno. So we can say both tables are related with each other through Rollno column.

Degree of Relationship

One to One (1:1)

One to Many or Many to One (1:M / M: 1)

Many to Many (M: M)

The Degree of Relationship indicates the link between two entities for a specified occurrence of each.

One to One Relationship: (1:1)

1 1

Student Has Roll No.

One student has only one Rollno. For one occurrence of the first entity, there can be, at the most one related occurrence of the second entity, and vice-versa.

One to Many or Many to One Relationship: (1:M/M: 1)

1 M

Course Contains Students

As per the Institutions Norm, One student can enroll in one course at a time however, in one course, there can be more than one student.

For one occurrence of the first entity there can exist many related occurrences of the second entity and for every occurrence of the second entity there exists only one associated occurrence of the first.

Many to Many Relationship: (M:M)

M M

Students Appears Tests

The major disadvantage of the relational model is that a clear-cut interface cannot be determined. Reusability of a structure is not possible. The Relational Database now accepted model on which major database system are built.

Oracle has introduced added functionality to this by incorporated object-oriented capabilities. Now it is known is as Object Relational Database Management System (ORDBMS). Object-oriented concept is added in Oracle8.

Some basic rules have to be followed for a DBMS to be relational. They are known as Codd's rules, designed in such a way that when the database is ready for use it encapsulates the relational theory to its full potential. These twelve rules are as follows.

E. F. Codd Rules

1. **The Information Rule**

   All information must be store in table as data values.

2. **The Rule of Guaranteed Access**

   Every item in a table must be logically addressable with the help of a table name.

3. **The Systematic Treatment of Null Values**

   The RDBMS must be taken care of null values to represent missing or inapplicable information.

4. **The Database Description Rule**

   A description of database is maintained using the same logical structures with which data was defined by the RDBMS.

5. **Comprehensive Data Sub Language**

   According to the rule the system must support data definition, view definition, data manipulation, integrity constraints, authorization and transaction management operations.

6. **The View Updating Rule**

   All views that are theoretically updatable are also updatable by the system.

7. **The Insert and Update Rule**

   This rule indicates that all the data manipulation commands must be operational on sets of rows having a relation rather than on a single row.

8. **The Physical Independence Rule**

   Application programs must remain unimpaired when any changes are made in storage representation or access methods.

9. **The Logical Data Independence Rule**

   The changes that are made should not affect the user's ability to work with the data.The change can be splitting table into many more tables.

10. **The Integrity Independence Rule**

    The integrity constraints should store in the system catalog or in the database.

11. **The Distribution Rule**

    The system must be access or manipulate the data that is distributed in other systems.

12. The Non-subversion Rule

If a RDBMS supports a lower level language then it should not bypass any integrity constraints defined in the higher level.

Object Relational Database Management System

Oracle8 and later versions are supported object-oriented concepts. A structure once created can be reused is the fundamental of the OOP's concept. So we can say Oracle8 is supported Object Relational model, Object - oriented model both. Oracle products are based on a concept known as a client-server technology. This concept involves segregating the processing of an application between two systems. One performs all activities related to the database (server) and the other performs activities that help the user to interact with the application (client). A client or front-end database application also interacts with the database by requesting and receiving information from database server. It acts as an interface between the user and the database.

The database server or back end is used to manage the database tables and also respond to client requests.

Introduction to ORACLE

ORACLE is a powerful RDBMS product that provides efficient and effective solutions for major database features. This includes:

Large databases and space management control
Many concurrent database users

High transaction processing performance
High availability

Controlled availability

Industry accepted standards
Manageable security

Database enforced integrity
Client/Server environment

Distributed database systems
Portability

Compatibility
Connectivity

An ORACLE database system can easily take advantage of distributed processing by using its Client/ Server architecture. In this architecture, the database system is divided into two parts:

A front-end or a client portion

The client executes the database application that accesses database information and interacts with the user.

A back-end or a server portion

The server executes the ORACLE software and handles the functions required for concurrent, shared data access to ORACLE database.

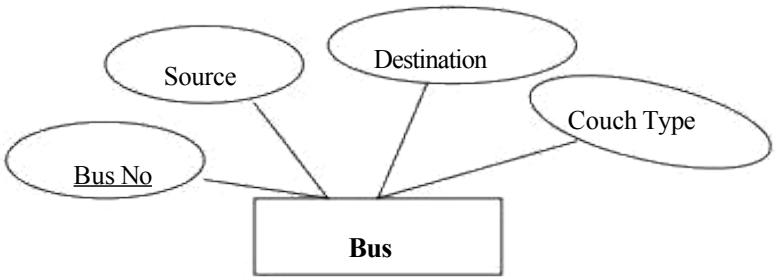
AIM: Analyze the problem and come with the entities in it. Identify what Data has to be persisted in the databases.

The Following are the entities:

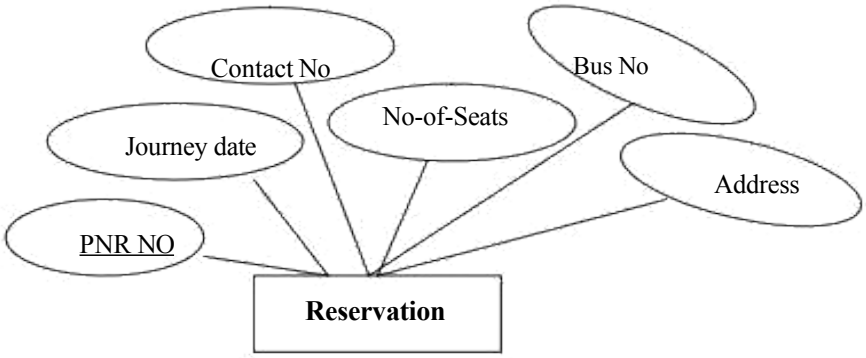
1. **Bus**
2. **Reservation**
3. **Ticket**
4. **Passenger**
5. **Cancellation**

The attributes in the Entities:

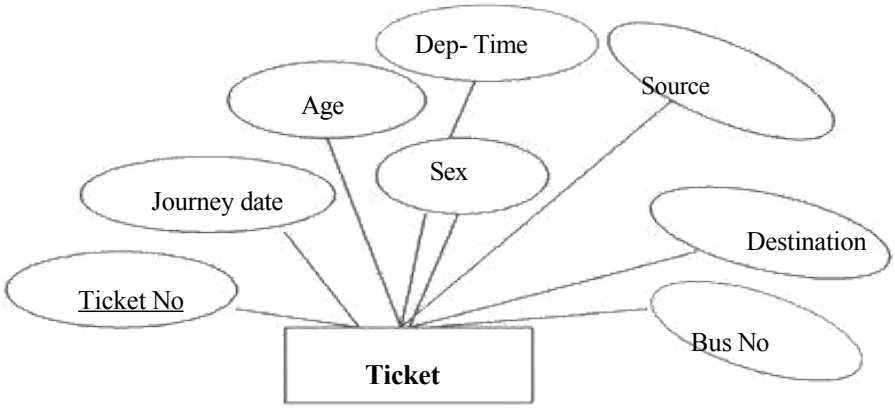
Bus:(Entity)



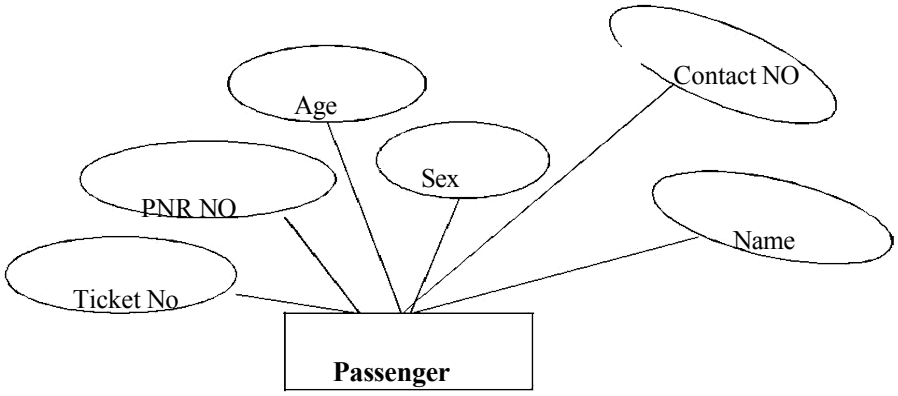
Reservation (Entity)



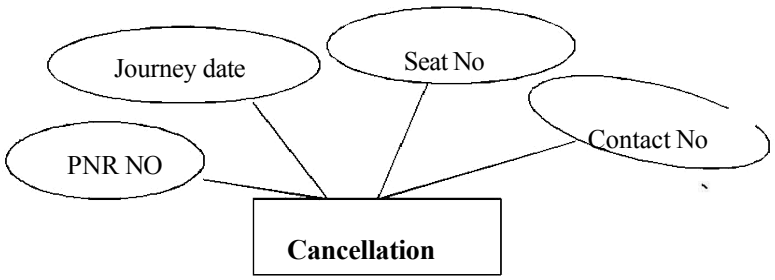
Ticket :(Entity)



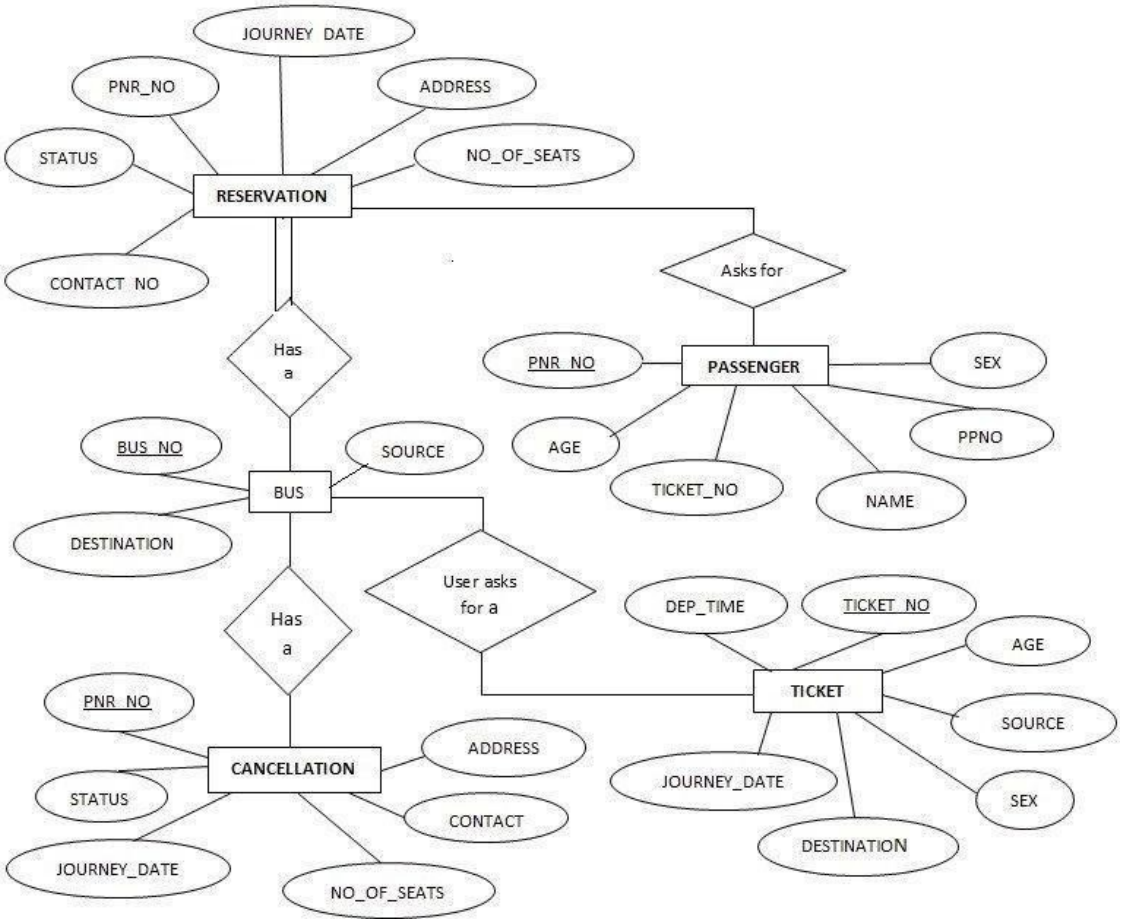
Passenger:



Cancellation (Entity)



1. Concept design with E-R Model:



What is SQL and SQL*Plus

Oracle was the first company to release a product that used the English-based Structured Query Language or SQL. This language allows end users to manipulate information of table(primary database object). To use SQL you need not to require any programming experience. SQL is a standard language common to all relational databases. SQL is database language used for storing and retrieving data from the database. Most Relational Database Management Systems provide extension to SQL to make it easier for application developer. A table is a primary object of database used to store data. It stores data in form of rows and columns.

SQL*Plus is an Oracle tool (specific program) which accepts SQL commands and PL/SQL blocks and executes them. SQL *Plus enables manipulations of SQL commands and PL/SQL blocks. It also performs additional tasks such as calculations, store and print query results in the form of reports, list column definitions of any table, access and copy data between SQL databases and send messages to and accept responses from the user. SQL *Plus is a character based interactive tool, that runs in a GUI environment. It is loaded on the client machine.

To communicate with Oracle, SQL supports the following categories of commands:

1. Data Definition Language

Create, Alter, Drop and Truncate

2. Data Manipulation Language

Insert, Update, Delete and Select

3. Transaction Control Language

Commit, Rollback and Save point

4. Data Control Language

Grant and Revoke

AIM: Installation of MySQL and practicing DDL & DML commands.

1. Steps for installing MySQL

Step1 **1**

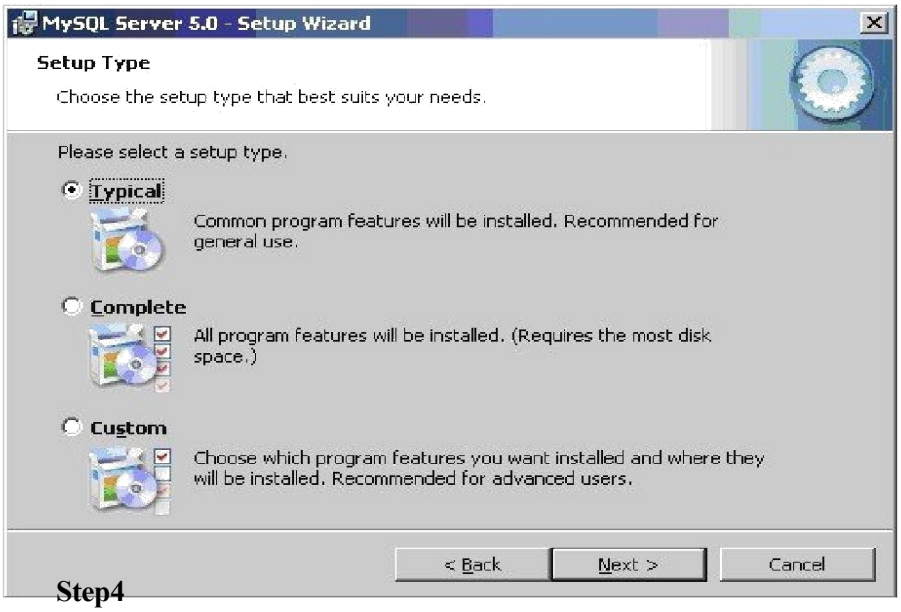
Make sure you already downloaded the **MySQL essential 5.0.45 win32.msi file**. Double click on the .msi file.

Step2 **2**

This is MySQL Server 5.0 setup wizard. The setup wizard will install MySQL Server 5.0 release 5.0.45 on your computer. To continue, click **next.**

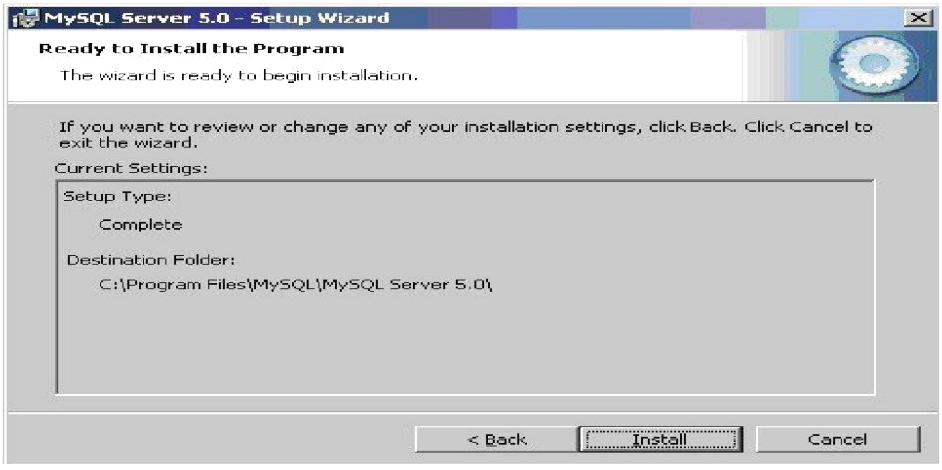
Step3 **3**

Choose the setup type that best suits your needs. For common program features select ***Typical*** and it's recommended for general use. To continue, click **next**.



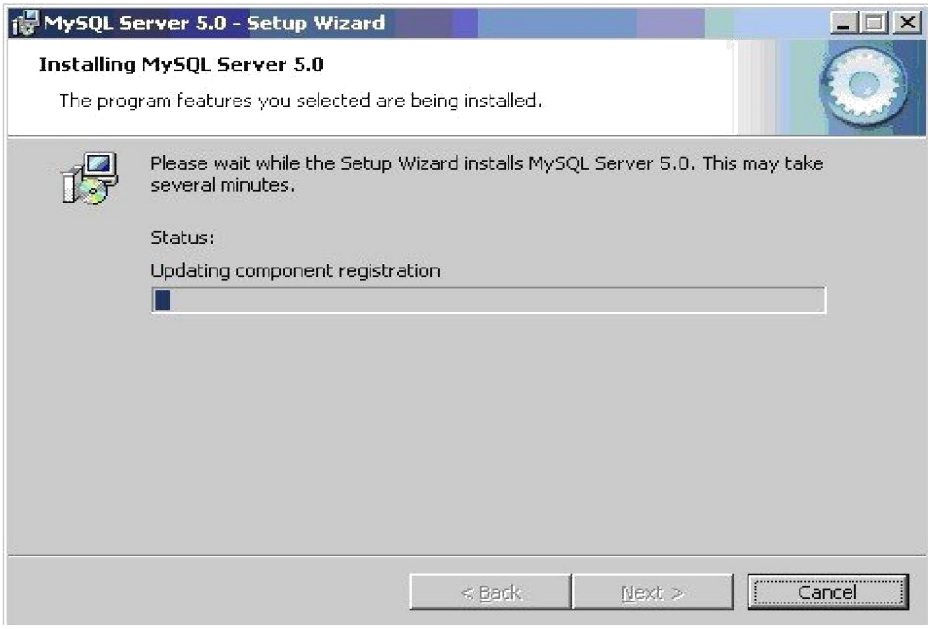
Step4 **4**

This wizard is ready to begin installation. Destination folder will be in **C:\Program Files\MySQL\MySQL Server 5.0**. To continue, click **next**.



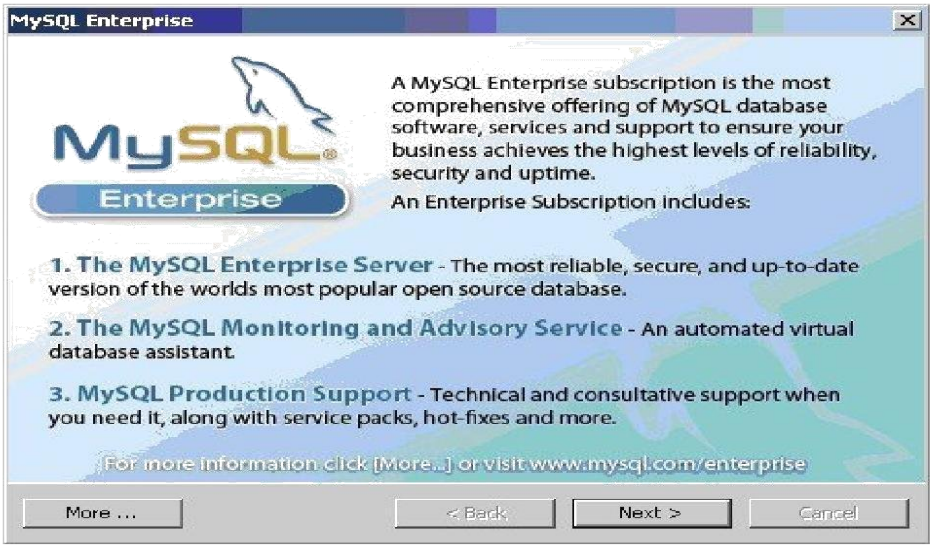
Step5 **5**

The program features you selected are being installed. Please wait while the setup wizard installs MySQL 5.0. This may take several minutes.



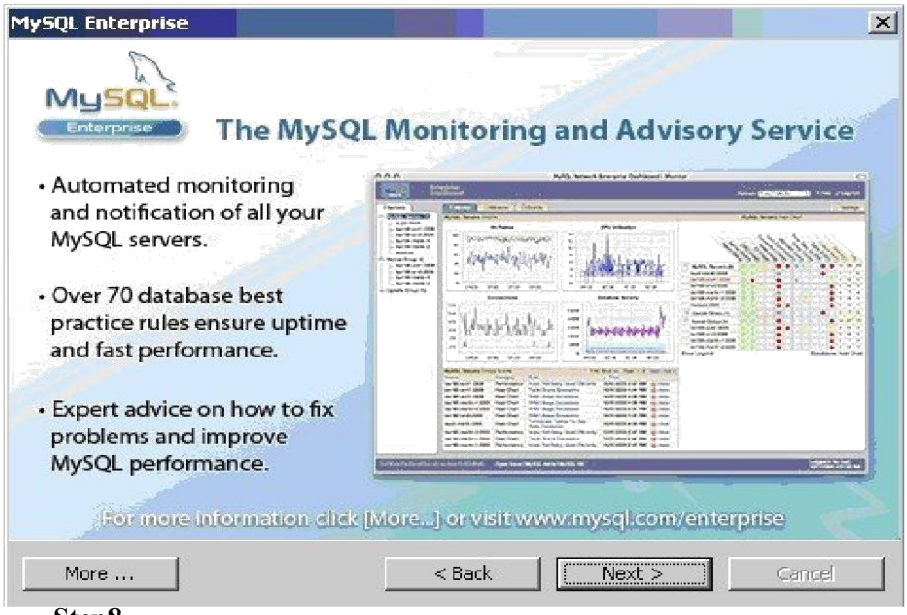
Step6

To continue, click **next**.



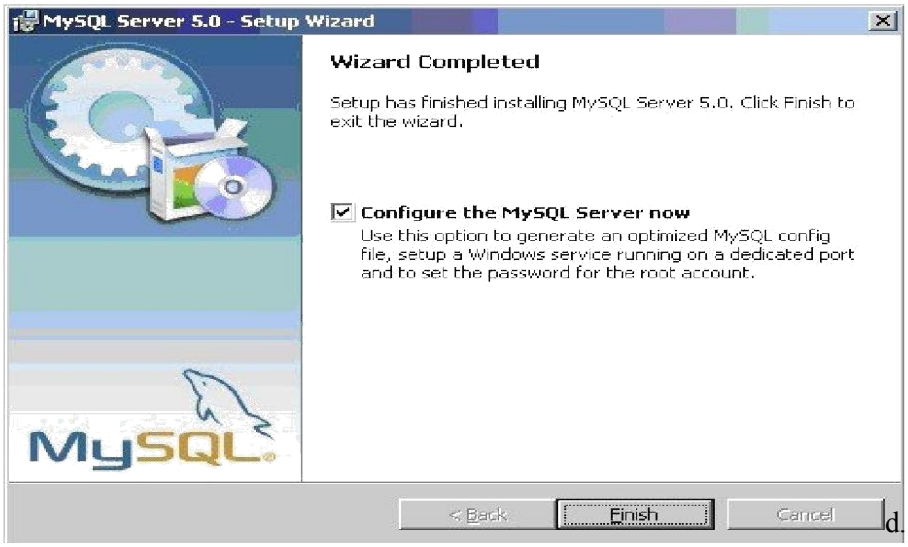
Step7

To continue, click **next**.



Step8

Wizard Completed. Setup has finished installing MySQL 5.0. **Check** the configure the MySQL server now to continue. Click **Finish** to exit the wizard

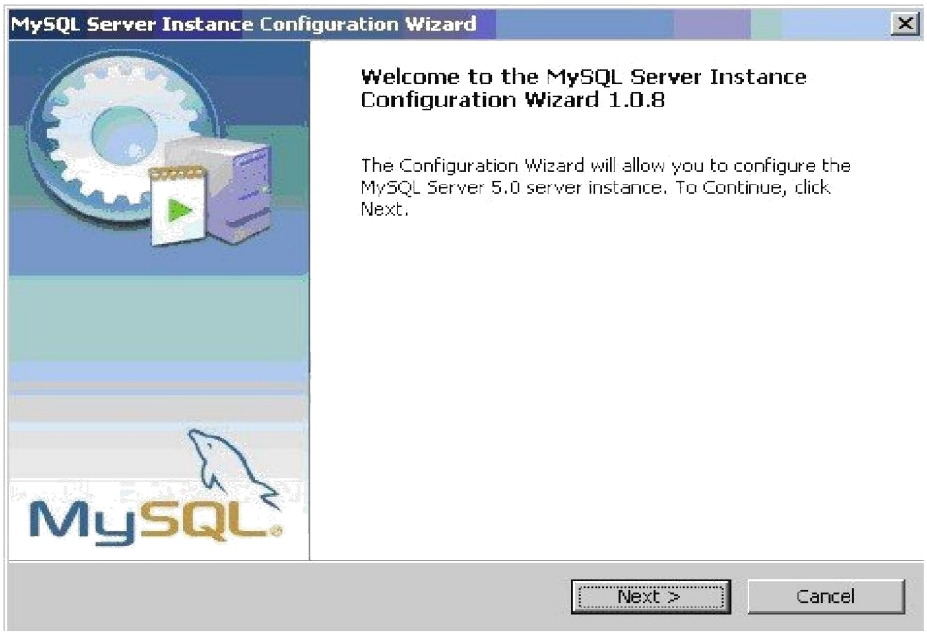


d.

Step9

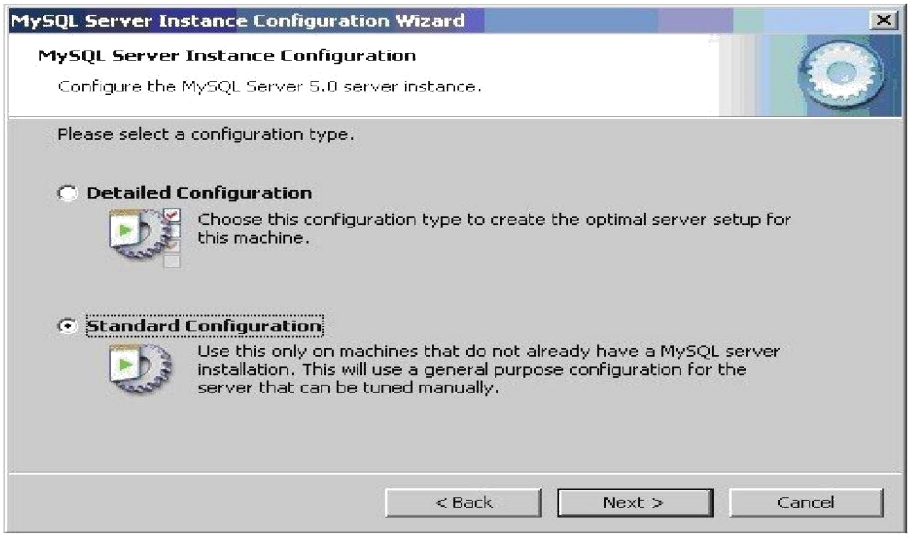
The configuration wizard will allow you to configure the MySQL Server 5.0 server instance.

To continue, click **next**.



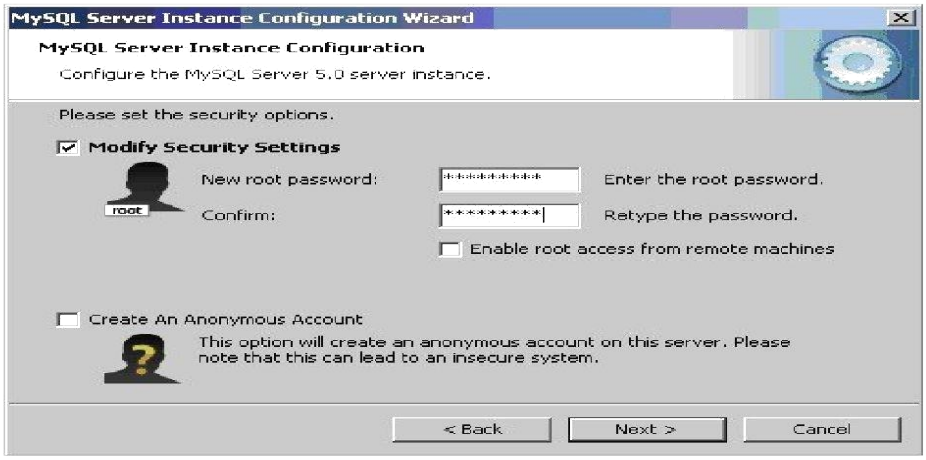
Step10

Select a **standard configuration** and this will use a general purpose configuration for the server that can be tuned manually. To continue, click **next**.



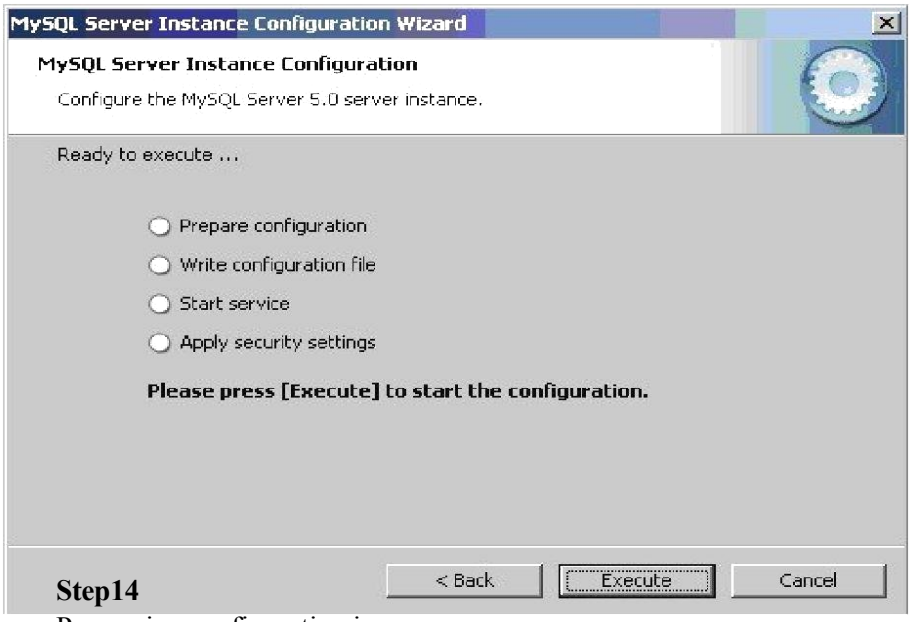
Step11
Check on the install as windows service and include bin directory in windows path. To continue, click next.

Step12
Please set the security options by entering the root password and confirm retype the password. continue, click next.



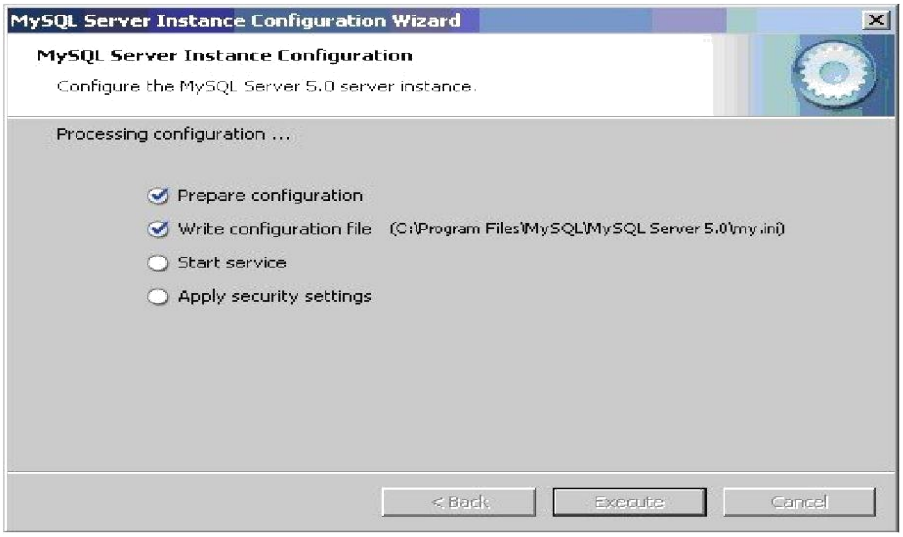
Step13

Ready to execute? Clicks **execute** to continue.



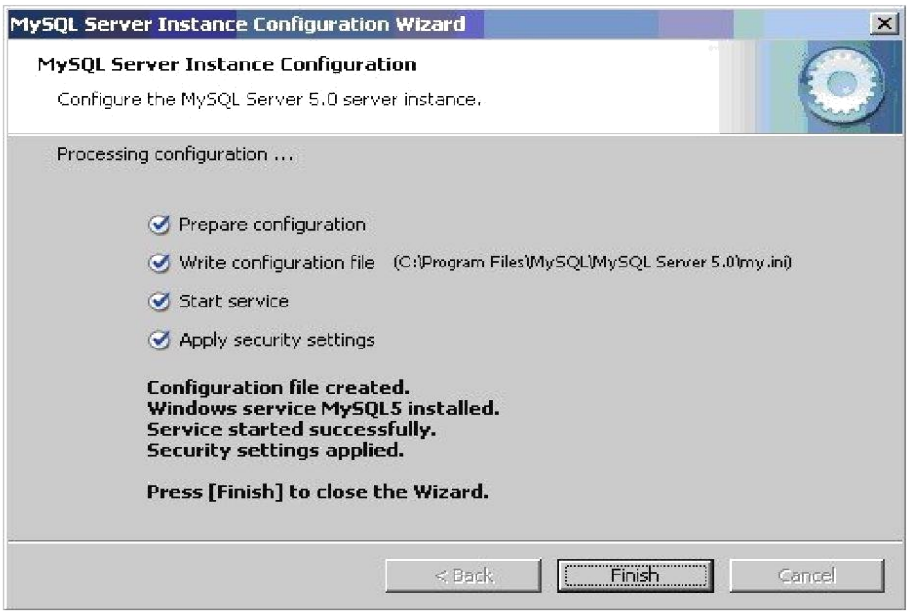
Step14

Processing configuration in progress.



Step15

Configuration file created. Windows service MySQL5 installed. Press **finish** to close the wizard.



CREATION OF TABLES

(RELATIONAL MODEL)

1. Create a table called Employee with the following structure.

Name	Type
Empno	Number
Ename	Varchar2(10)
Job	Varchar2(10)
Mgr	Number
Sal	Number

1. Add a column commission with domain to the Employee table.

2. Insert any five records into the table.

3. Update the column details of job

4. Rename the column of Employ table using alter command.

5. Delete the employee whose Emp no is 105.

SOLUTION:

```
SQL>create table employee (empnonumber,
ename varchar2(10), job varchar2(10), mgr
number, sal number);
```

Table created.

1. Add a column commission with domain to the Employee table.

SQL> alter table employee add

(commission number);

Table altered.

SQL> desc employee;

EMPNONUMBER

ENAME VARCHAR2(10)

JOB VARCHAR2(10)

MGR NUMBER

SAL NUMBER

COMMISSION NUMBER

2. Insert any five records into the table.

SQL> INSERT INTO employee (empno,'ename','job', mgr, sal,'commission') VALUES ('101', 'abhi', 'manager',50000,10000);

Repeat above query 4 times.

3. Update the column details of table.

SQL> update employee set sal=90000 where empno=101;

4. Rename the column of Employ table using alter command.

SQL> ALTER TABLE employee RENAME

COLUMN empno TO employ_id;

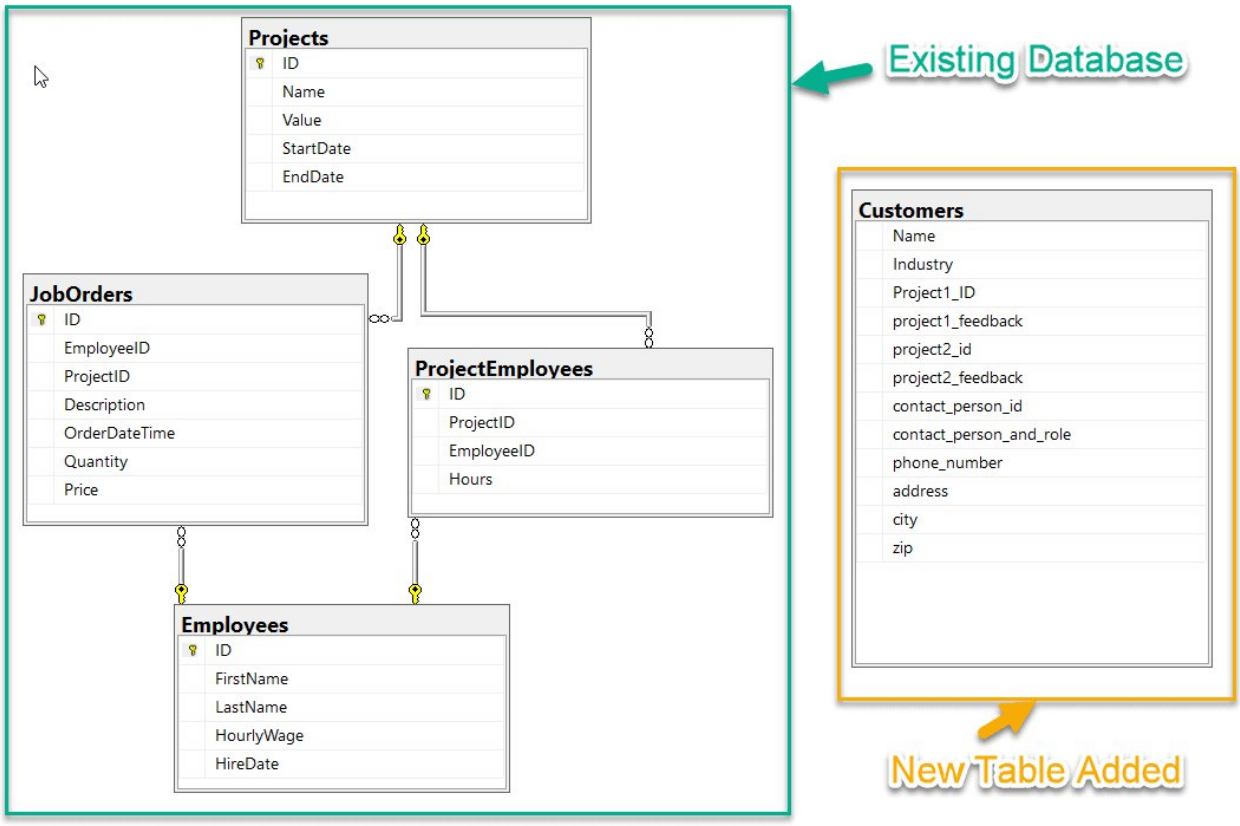
5. Delete the employee whose Emp no is

SQL> DELETE FROM employee WHERE employ_id=105;

PRACTICE QURIES:

NORMALIZATION:

Let us consider the following database schema. As you can see in Fig 1, there are four tables (Existing Database) - Projects, Employees, ProjectEmployees, and JobOrders. Recently, the Customers table has also been added to the database to store the customers' information. As you can see in the diagram below, the Customers table has not been designed in a proper way to support the normal forms, let's go ahead and fix it.




```
CREATE TABLE Projects(
[ID] INT PRIMARY KEY IDENTITY,
[Name] VARCHAR(100),
[Value] DECIMAL(5,2),
StartDate DATE,
EndDate DATE
)
GO
CREATE TABLE Employees(
[ID] INT PRIMARY KEY IDENTITY,
```

```
[FirstName] VARCHAR(50),
[LastName] VARCHAR(50),
[HourlyWage] DECIMAL(5,2),
[HireDate] DATE
)
GO
CREATE TABLE
ProjectEmployees( [ID] INT
PRIMARY KEY IDENTITY,
[ProjectID] INT,
[EmployeeID] INT,
[Hours] DECIMAL(5,2),
CONSTRAINT FK_ProjectEmployees_Projects FOREIGN KEY ([ProjectID])
REFERENCES  [Projects] ([ID]),
CONSTRAINT FK_ProjectEmployees_Employees FOREIGN KEY ([EmployeeID])
REFERENCES  [Employees] ([ID])
)
GO
CREATE TABLE JobOrders(
[ID] INT PRIMARY KEY IDENTITY,
[EmployeeID] INT,
[ProjectID] INT,
[Description] TEXT,
[OrderDateTime] DATETIME,
[Quantity] INT,
[Price] DECIMAL(5,2),
CONSTRAINT FK_JobOrders_Projects FOREIGN KEY ([ProjectID]) REFERENCES
[Projects] ([ID]),
CONSTRAINT FK_JobOrders_Employees FOREIGN KEY ([EmployeeID]) REFERENCES
[Employees] ([ID])
)
GO

CREATE TABLE Customers
    ( [Name] VARCHAR(100),
    [Industry] VARCHAR(100),
    [Project1_ID] INT,
    [Project1_Feedback] TEXT,
```

```
    [Project2_ID] INT,
```

```
    [Project2_Feedback] TEXT,
    [ContactPersonID] INT,
    [ContactPersonAndRole] VARCHAR(255),
    [PhoneNumber] VARCHAR(12),
    [Address] VARCHAR(255),
    [City] VARCHAR(255),
    [Zip] VARCHAR(5)
  )
GO
```

OUTPUT:

AIM: PRACTICING DDL COMMANDS

Create a Table:

SQL> create table Cancellation (PNR_NO Number(9), No_of_seats Number(8), Address varchar(50), Contact_No Number(9), Status char(3));

Table created.

SQL> desc Cancellation

Name	Null?	Type
PNR_NO		NUMBER(9)
NO_OF_SEATS		NUMBER(8)
ADDRESS		VARCHAR2(50)
CONTACT_NO		NUMBER(9)
STATUS		CHAR(3)

Test Output:

Ticket Table:

SQL> create table Ticket(Ticket_No number(9) primary key, age number(4), sex char(4) Not null, source varchar(2), destination varchar(20), dep_time varchar(4));

Table created.

SQL> desc Ticket

Name	Null?	Type
TICKET_NO	NOT NULL	NUMBER(9)
AGE		NUMBER(4)
SEX	NOT NULL	CHAR(4)
SOURCE		VARCHAR2(2)
DESTINATION		VARCHAR2(20)
DEP_TIME		VARCHAR2(4)

Test Output:

Alteration of Table

Addition of Column(s)

Addition of column in table is done using:

SQL> alter table Ticket modify tiketnonumber(10);
Table altered.

Test ouput:

Deletion of Column

Alter table <table_name> drop column <column name>;

SQL>Alter Table Emp_master drop column comm;

Test output:

Alter table <table_name> set unused column <column name>;

For Example,

SQL>Alter Table Emp_master set unused column comm;
Test output:

Alter table <table_name> drop unused columns;

Test output:

Alter table <table_name> drop (Column1, Column2, _);

Test output:

Modification in Column

Modify option is used with Alter table_ when you want to modify any existing column.

Alter table <table name> modify (column1 datatype, _);

.

SQL> Alter table emp_master modify salary number(9,2);

Table altered.

Test output:

Truncate Table

Truncate table <table name> [Reuse Storage];

Example

SQL>Truncate Table Emp_master;

Or

SQL>Truncate Table Emp_master Reuse Storage;

Table truncated.

Test output:

AIM: PRACTICING DML COMMANDS

1. Insert command

Insert into <table name> values (a list of data values);

Insert into <table name>(column list) values(a list of data);

SQL> insert into emp_master (empno,ename,salary) values (1122,‘Smith’,8000);

1row created.

Adding values in a table using Variable method.

SQL> insert into Passenger values (&PNR_NO, &TICKET_NO, '&Name', &Age, '&Sex', '&PPNO');
Enter value for pnr_no: 1
Enter value for ticket_no: 1
Enter value for name: SACHIN
Enter value for age: 12
Enter value for sex: m
Enter value for ppno: sd1234

old 1: insert into Passenger values(&PNR_NO,&TICKET_NO, '&Name', &Age, '&Sex',

'&PPNO')

new 1: insert into Passenger values(1,1,'SACHIN',12,'m','sd1234')

1 row created.

SQL> /

SQL>/

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SQl>/


SQL>/


SQL> insert into Bus values('&Bus_No','&source','&destination');
Enter value for bus_no: 1
Enter value for source: hyd
Enter value for destination: ban
old  1: insert into Bus values('&Bus_No','&source','&destination')
new  1: insert into Bus values('1','hyd','ban')
1 row created.

SQL> /


SQL> /
```

2. Simple Select Command

Select <column1>,<column2>,_,<column(n)> from <table name>;

SQL> select * from emp_master;
Test Output:

Exercise: Display the all column of University Database of Department.

SQL> select empno, ename, salary from emp_master;
Test Output:

SQL> select * from Passenger;
Test Output:

Exercise: Display the all column of University Database of project table

Distinct Clause

SQL> select distinct deptno from emp_master;
Test Output:

Exercise: Display the all column of University Database of project table by using distinct clause.

Select command with where clause:

Select <column(s)> from <table name> where [condition(s)];

Example

SQL> select empno, ename from emp_master where hiredate = '1-jan- 00';

Test Output:

SQL> update Passenger set age='43' where PNR_NO='2';
Test Output:

SQL>Select*from passenger;
Test Output:

DROP Table

SQL> drop table Cancellation;
Table dropped.

Test Output:

Select command with DDL and DML command.

Example 1:

Table Creation with select statement

create table <table name> as select <columnname(s)> from <existing table name>;

Example 2:

Insert data using Select statement

Syntax:

Inert into <tablename> (select <columns> from <tablename>);

Example 3:

SQL> insert into emp_copy (select * from emp_master);

Test Output:

Example 4:

SQL> insert into emp_copy(nm) (select name from emp_master);
Test Output:

Change Table Name

One can change the existing table name with a new name.

Syntax

Rename <OldName> To <NewName>;

Example:

SQL> Rename emp_master_copy1 To emp_master1;

Table Renamed.

Test Output:

PRACTICE QUERIES:

Aim: **Practice queries using ANY, ALL, IN, EXISTS, UNION, INTERSECT, JOIN**

SQL> select order_no from order_master;

Test Output:

SQL> select order_no from order_detail;

Test Output:

Example:

SQL>select order_no from order_master union select order_no from

order_detail;

Test Output:

Union All :

Example:

SQL> select order_no from order_master union all select order_no from

order_detail.

Test Output:

Intersect :

Example:

SQL> select order_no from order_master intersect select order_no from

order_detail;

Test Output:

Minus :
Example:

SQL> select order_no from order_master minus select order_no from order_detail;
Test Output:

PRACTICE QUERIES ON JOINS:

AIM: Implement Sub Queries:

Subquery

Example:

SQL> select * from order_master where order_no = (select order_no from order_detail where order_no = ‘O001’);

Test Output:

Example:

SQL> select * from order_master where order_no = (select order_no from order_detail);

Test Output:

Example:

SQL>Select * from order_master where order_no = any(select order_no from order_detail);

Test Output:

SQL> select * from order_master where order_no in(select order_no from order_detail);

Test Output:

AIM: Practice Queries using Aggregate functions, Group By, Having Clause and Order Clause.

1. **Avg (Average):** This function will return the average of values of the column specified in the argument of the column.

Example:

SQL> select avg(comm) from emp_master;
Test Output:

2. Min (Minimum):
Example:

SQL>Select min(salary) from emp_master;
Test Output:

3. Max (Maximum):
Example:

SQL>select max(salary) from emp_master;

Test Output:

4. Sum:

Example:

SQL>Select sum(comm) from emp_master;
Test Output:

5. Count:

Syntax: Count(*)

Count(column name)

Count(distinct column name

Example:

SQL>Select count(*) from emp_master;
Test Output:

Example:
SQL> select count(comm) from emp_master;
Test Output:

Group By Clause
Example:

SQL>select deptno,count(*) from emp_master group by deptno;

Test Output:

Having Clause
Example

SQL> select deptno,count(*) from emp_master group by deptno having Deptno is not null;

Test Output:

Order By Clause
Select<column(s)>from<Table Name>where[condition(s)][order by<column name>[asc /] desc];

Example:

SQL> select empno,ename,salary from emp_master order by salary;

Test Output:

SQL> select empno,ename,salary from emp_master order by salary desc;

Test Output:

SQL *Plus having following operators.

Example

SQL> select salary+comm from emp_master;
Salary+comm
Test Output:

Example:

SQL> select salary+comm net_sal from emp_master;

Test Output:

SQL> Select 12*(salary+comm) annual_netsal from emp_master;

Test Output

Comparison Operators:

Example:

SQL> select * from emp_master where salary between 5000 and 8000;

Test Output:

IN Operator:

SQL>Select * from emp_master where deptno in(10,30);

Test Output:

LIKE Operator:

SQL>select*From emp_master where job like ‘M%’;

Test Output:

Logical operator:

SQL>select*From emp_master where job like „_lerk";
Test Output:

AND Operator:

SQL> select * from emp_master where salary > 5000 and comm < 750 ;
Test Output:

OR Operator:

SQL>select * from emp_master where salary > 5000 or comm < 750;

Test Output:

NOT Operator:
SQL>select*from emp_master where not salary=10000;Test Output:

AIM : Implement Views:

Views
Syntax: Create View <View_Name> As Select statement;
Example:
SQL>Create View EmpView As Select * from Employee;
View created.
Syntax: Select columnname,columnname from <View_Name>;
Example:

SQL>Select Empno,Ename,Salary from EmpView where Deptno in(10,30);
Test Output:

Updatable Views:
Syntax for creating an Updatable View:

Create View Emp_vw As
Select Empno,Ename,Deptno from Employee;

View created.

SQL>Insert into Emp_vw values(1126,'Brijesh',20);

SQL>Update Emp_vw set Deptno=30 where Empno=1125;

1 row updated.

SQL>Delete from Emp_vw where Empno=1122;

View defined from Multiple tables (Which have no Referencing clause):

For insert/modify:

Test Output:

For delete:

Test Output:

View defined from Multiple tables (Which have been created with a Referencing clause):

Syntax for creating a Master/Detail View (Join View):

SQL>Create View EmpDept_Vw As

Select a.Empno,a.Ename,a.Salary,a.Deptno,b.Dname From Employee a,DeptDet b

Where a.Deptno=b.Deptno;

View created.

Test Output:

SQL>Update EmpDept_Vw set salary=4300 where Empno=1125;

Test Output:

SQL>Delete From EmpDept_Vw where Empno=1123;
Test Output:

PRACTICE QUERIES

Aim: Writing triggers

Example

Create or replace trigger upperdname before insert or update

on dept for each row

Test Output:

Example

Create or replace trigger emp_rest before insert or update or delete on

Emp.

Test Output:

Example

Create or replace trigger find_tran before insert or updateor delete on dept for each row
Test Output:

Examples:

Create of insert trigger, delete trigger and update trigger.

Test Output:

b) Create Trigger updchek before update on Ticket For Each Row

Test Output:

b) CREATE OR RELPLACE TRIGGER trig1 before insert on Passenger for each row

Test Output:

AIM : Implement Cursors:

Example

Aim: Implement the %notfound Attribute Write a

cursor by using the %notfound Attribute

Aim; Implement the %found Attribute
Write a cursor program by using The % found Attribute

Aim: Implement The %rowCount Attribute:

Write a cursor program by using the %rowCount Attribute:

Test Output: