REPORT OF THE PROGRAM

Category of the activity : Departmental Activity

Title of the Activity : Three Days Workshop on "Machine Learning

Workshop in Association with INTEL UNNATI"

Date &Time : 12th to 14th September 2024 & 9:30 AM to 3:30 PM

19th to 21th September 2024 & 9:30 AM to 3:30 PM

Duration: 3 Days

Resource Persons :INTEL UNNATI TRAINED FACULTY

1.Dr.K.Suresh	6.Mrs.N.Prameela
2.Dr.A.Lakshman	7.Mrs.K.Swetha
3.Mr.P.Harikrishna	8.Mrs.G.Likitha Reddy
4.Mr.M.Vazralu	9.Mrs.T.Shilpa
5.Mr.R.Chandra Shekhar	10.Mr.P.V.Naresh

No of Students Participants : 261

Mode of Delivery : Offline

Objectives of the Activity :

The core idea of the program was to provide exposure to III B.Tech IT students on the importance of Machine Learning concepts.This workshop provided students with hands-on practice on topics such as machine learning fundamentals, classification algorithms, regression techniques, unsupervised learning, artificial neural networks (ANN), and convolutional neural networks (CNN), using Python libraries in Google Colab.

1.Introduction to Machine Learning and Data Preprocessing

Students gained an understanding of the basics of machine learning, including its definitions, types, and real-world applications.They recognized the importance of data quality and preparation in the machine learning process. Students learned common data preprocessing techniques, such as normalization, handling missing values, and data splitting.

2.Classification Algorithms

Students gained insight into classification tasks and how they are applied across various domains.They learned about popular classification algorithms, including KNN, Logistic regression, and support vector machines.Students understood model evaluation metrics like accuracy, precision, recall, and F1-score, and learned how to interpret these metrics.

3. Regression Algorithms

Students grasped the principles of regression analysis and its use in predicting continuous outcomes. They explored various regression techniques, including simple linear regression, multi linear regression and logistic regression.

4. Unsupervised Learning

Students understood the concept of unsupervised learning and its role in discovering patterns in data.They learned about common unsupervised algorithms, including k-means clustering.Participants explored real-world applications of unsupervised learning, such as students performance clusters.

5. Artificial Neural Networks (ANN) and Convolutional Neural Networks (CNN)

Students gained foundational knowledge of neural networks and their architecture. They learned how artificial neural networks operate, including key concepts like activation functions and backpropagation.Participants understood the structure and purpose of convolutional neural networks.

6. Case Studies on Machine Learning/Deep Learning

Students analyzed real-world case studies to understand how machine learning and deep learning techniques were applied in various industries.They learned how to solve recommender systems and object detection.

Benefits in terms of learning/skill/knowledge obtained:

- Students learned the fundamental concepts and terminology of machine learning.
- Emphasis on data quality highlighted its critical role in successful machine learning applications.
- Familiarity with data preprocessing techniques (normalization, handling missing values, data splitting) equips students to prepare datasets effectively.
- Understanding different classification tasks and their applications across various domains.
- Knowledge of popular algorithms like KNN, logistic regression, and support vector machines empowers students to choose appropriate models.
- Students learned to interpret key metrics (accuracy, precision, recall, F1-score), enhancing their ability to evaluate model performance.
- Grasp of regression principles equips students to predict continuous outcomes.
- Exposure to various regression methods, including simple and multiple linear regression, broadens their analytical toolkit.
- Understanding unsupervised learning fosters skills in identifying patterns and insights from unlabelled data.
- Learning algorithms like k-means clustering prepares students for tasks like customer segmentation and performance analysis.
- Students gained knowledge of neural network architecture, including activation functions and backpropagation.
- Understanding CNNs positions students to tackle complex tasks such as image recognition and processing.
- Analyzing case studies bridges theory and practice, demonstrating the application of ML and DL techniques in various industries.
- Working through case studies on recommender systems and object detection enhances critical thinking and problem-solving abilities.

COORDINATOR   **HOD-IT**
Mr.P.Harikrishna   **Dr. G.Sharada**