MALNAD COLLEGE OF ENGINEERING, HASSAN
(An Autonomous Institute Affiliated to VTU, Belagavi)
Under the auspices of the MTES®, Hassan

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

Date: 11/09/2024

Report
On
Machine Learning (Value added course)

Objective:

The primary objective of the event is to equip final-year Information Science and Engineering students with essential knowledge of Machine Learning through a value-added course.

Training Description:

Sachin R. from the 7th semester welcomed the trainers for the training session by presenting them with flowers. After the welcome, the sessions commenced as scheduled. Organized by Seminar Room Company, the sessions were held in the ISE department from September 17th to September 23rd, 2024. Students from Section 7A attended sessions in the ISE programming laboratory with trainer Ms Bhavani, while Section 7B students participated in sessions in the Civil Department's CAD laboratory with trainer Mr Rakesh.

Key points covered during the training:

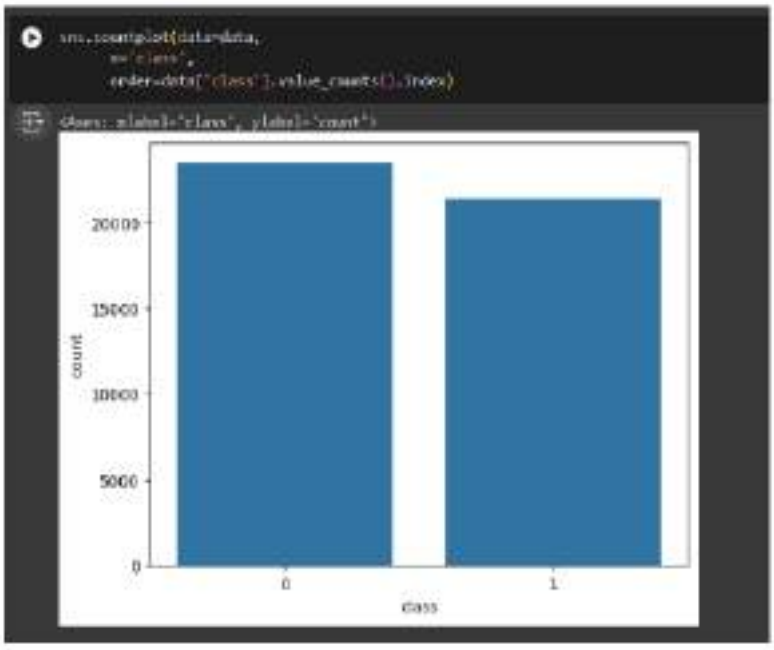
Day	Topics
Day-1 : **Tuesday (17/09/2024)**	**Introduction to Machine Learning and Practical Applications** Introduction to the basics of machine learning, explaining its core concepts and real-world applications. The session covered key terms such as features, labels, and models, providing an overview of how machine learning is transforming industries. **Practical-Application:** Participantsimplemented a Simple Linear Regression model using Python, focusing on predicting house prices based on data like house size, location, and number of rooms. Using Python libraries like scikit-learn, participants learned how to split data into training and testing sets.

Day-2 : **Wednesday (18/09/2024)**	**<u>Supervised and Unsupervised Learning</u>** On the second day, participants delved deeper into Supervised and Unsupervised Learning techniques. The differences were explained as follows: **Supervised Learning:** Models trained on labelled data where the output is known (e.g., classification and regression). **Unsupervised Learning:** Models trained on unlabeled data, discovering patterns and groupings (e.g., clustering and association).
Day-3 : **Thursday (19/09/2024)**	**<u>Common Machine Learning Algorithms and Neural Networks</u>** This session focused on three key machine learning algorithms: Decision Trees, k-NN, and Support Vector Machines (SVM). Each algorithm was explained with practical use cases and exercises to solidify understanding.
Day-4 : **Friday (20/09/2024)**	**<u>Neural Networks and Deep Learning</u>** The day began with an introduction to Neural Networks, which mimic the functions of the human brain. Topics included activation functions, back propagation, and gradient descent.
Day-5 : **Saturday (21/09/2024)**	**<u>Advanced Machine Learning Techniques</u>** The participants delved into ensemble learning methods such as Bagging, Boosting, and Random Forests. Additionally, they gained insights into Support Vector Machines (SVM) and their real-world applications in text and image classification, along with an introduction to Reinforcement Learning and its practical uses.
Day-6 : **Sunday (22/09/2024)**	**<u>Practical Applications of Machine Learning</u>** The session focused on using machine learning for Natural Language Processing (NLP) and Time Series Forecasting. Participants learned how machine learning models analyze text data and predict future values based on historical data.
Day-7: **Monday (23/09/2024)**	The final day was dedicated to clearing doubts and discussing projects. Participants received guidance on applying machine learning concepts to Presenting and Discussing Capstone Projects.

Details of Sample Project Assignments Provided by Trainers to Students

SN	Project Assignment Details
1	Title : Fake News Detection
2	<u>Details of students :</u> 1. Abhiram Kothwal (4MC21IS002) 2. Bhuvan Chandra K N (4MC21IS022) 3. Chandan D R (4MC21IS025) 4. Manoj Kumar V (4MC21IS064)
3	<u>Details of project Assignment</u> A fake news detection project aims to identify and filter out false or misleading news articles. It uses Machine Learning techniques to analyze the content of news articles and determine whether they are true or fake by looking at patterns in language, sources, and other features.

Screen shot Screen shot related to Project Assignments



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<tr><td></td><td> 
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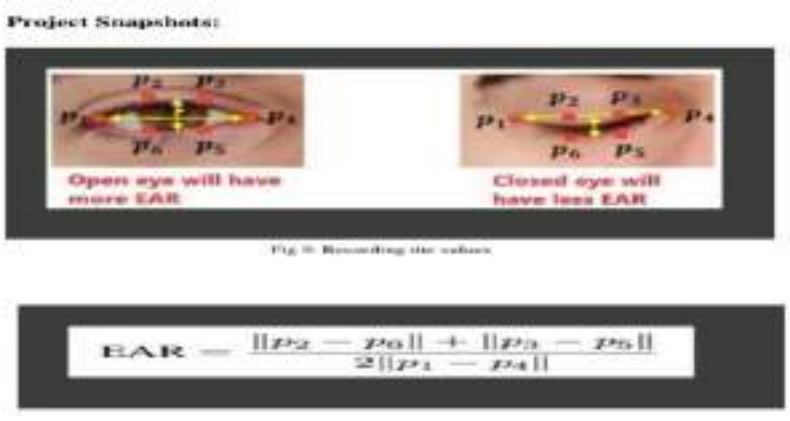
<tr><td>4</td><td>Title : Drowsiness Detection</td></tr>
<tr><td>5</td><td><u>Details of students :</u>
1.Nisarga G D- (4MC21IS071)
2.Nischitha H (4MC21IS073)
3.Pooja AB (4MC21IS078)
4.Rifa Eram (4MC21IS087)</td></tr>
<tr><td>6</td><td><u>Details of project Assignment</u>
Drowsiness detection using machine learning involves creating a system that can identify when a person is feeling sleepy or tired, especially while driving or working. The system uses data from cameras or sensors to monitor signs of drowsiness, such as eye movement and blinking patterns. When it detects that someone is getting drowsy, it can alert them to stay awake, helping to prevent accidents and improve safety.</td></tr>
<tr><td>7</td><td>Screen shot Screen shot related to Project Assignments
 
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Photo Gallery

Machine Learning (Value added course)

Outcome:

Throughout the Machine Learning certification program, participants developed a strong understanding of core concepts, algorithms, and real-world applications. Through practical exercises and assessments, they honed their skills in building predictive models, implementing machine learning techniques, and handling real-world data. The program concluded with valuable feedback, ensuring continuous improvement in the learning process for future cohorts.

On the final day, the program concluded, and students shared their feedback on the seven-day Machine Learning course. The trainers wrapped up the session on a positive note.