HINDUSTHAN INSTITUTE OF TECHNOLOGY
(An Autonomous Institution)
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai,
Accredited with "A" Grade by NAAC and Accredited by NBA (Aero, CSE, ECE, IT & MECH.)
Valley Campus, Pollachi Main Road, Coimbatore 641 032.

PROBLEM BASED LEARNING PEDAGOGY REPORT

Pedagogy Type: Problem Based Learning (Mini project)

Activity Title: Comparative Study of Machine Learning Models

Course: 22AD405–Machine Learning

Faculty Name: Ms. N. Abinaya, Assistant Professor, CSE

Class / Section: III Year – CSE – Section C

1. Objective of the Pedagogy

- To provide hands-on experience in solving real-world problems using Machine Learning techniques.
- To enable students to design and implement supervised learning models.
- To help students compare the performance of different Machine Learning models.
- To promote analytical thinking, problem-solving, and self-learning through project work.

2. Description of the Activity

As part of problem-based learning, a mini project was assigned to all students to compare the performance of different Machine Learning models on a given problem dataset. Students were required to identify a suitable dataset, preprocess the data, and apply multiple supervised learning algorithms.

Each student implemented and compared models such as Linear Regression, Logistic Regression, Decision Tree, K-Nearest Neighbors, and Support Vector Machine based on evaluation metrics like accuracy, precision, recall, and execution time. Students analyzed the results to identify the best-performing model for the selected problem.

Provided guidance during project hours and reviewed progress at different stages. This activity helped students connect theoretical concepts with practical implementation and industry-relevant problem-solving approaches.

3. Tools and Platforms Used

Tool / Platform	Purpose
Jupyter Notebook/ Google Colab	Coding and Experimentation
Python	Model implementation and evaluation
Scikit-learn	Machine Learning algorithms
Pandas and Numpy	Data Preprocessing

Matplotlib / Seaborn	Performance Visualization
Laptop / Mobile Devices	Accessing Colab notebooks

4. Course Outcome Mapping

CO	Statement	Mapped POs	Mapped PSOs	Justification
CO2	Design supervised learning models to predict and classify problems in real-time applications.	PO3, PO5	PSO1, PSO2	Students designed, implemented, and compared multiple Machine Learning models using modern tools, applying programming skills and integrating software components to solve real-world problems.

5. Learning Outcomes

- Students gained hands-on experience in implementing supervised learning models.
- Students learned to compare and evaluate Machine Learning models using performance metrics.
- Improved understanding of model selection for real-world applications.
- Enhanced problem-solving and analytical skills.

6. Proof of Implementation

HINDUSTHAN INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

22AD405 – MACHINE LEARNING

SOIL CLASSIFIER

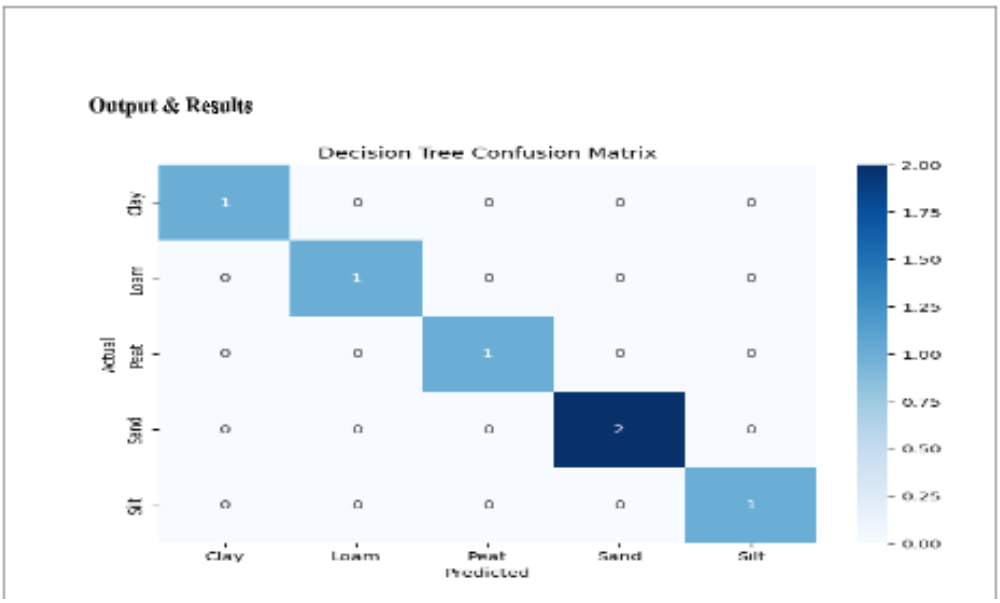
A MINI PROJECT REPORT

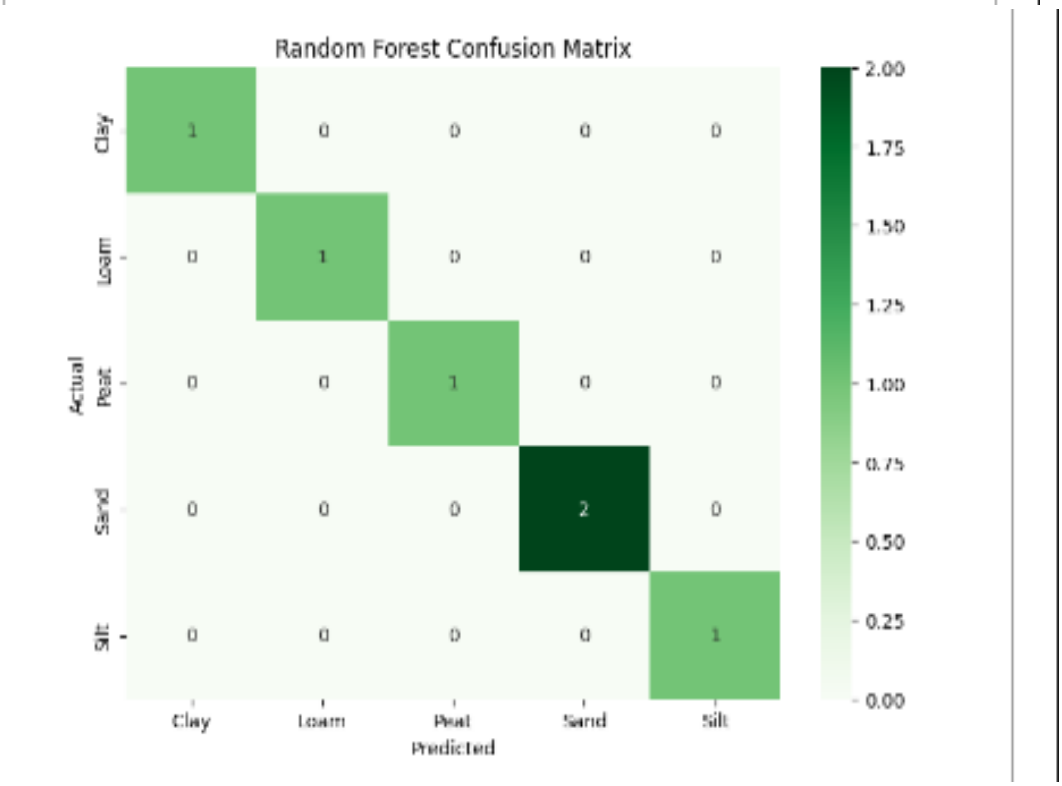
Submitted by

720823103133 – SAHADEVAN G
720823103177 - VIMANITHAN R

NOV 2025

Output & Results





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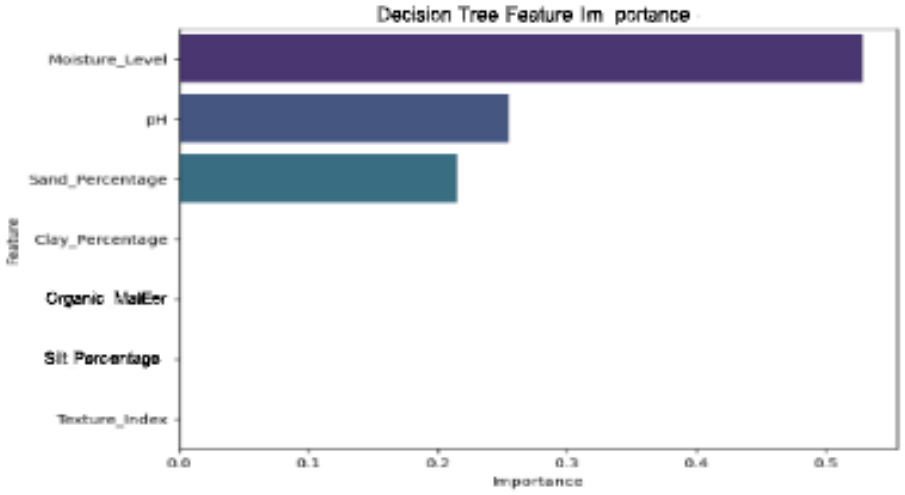
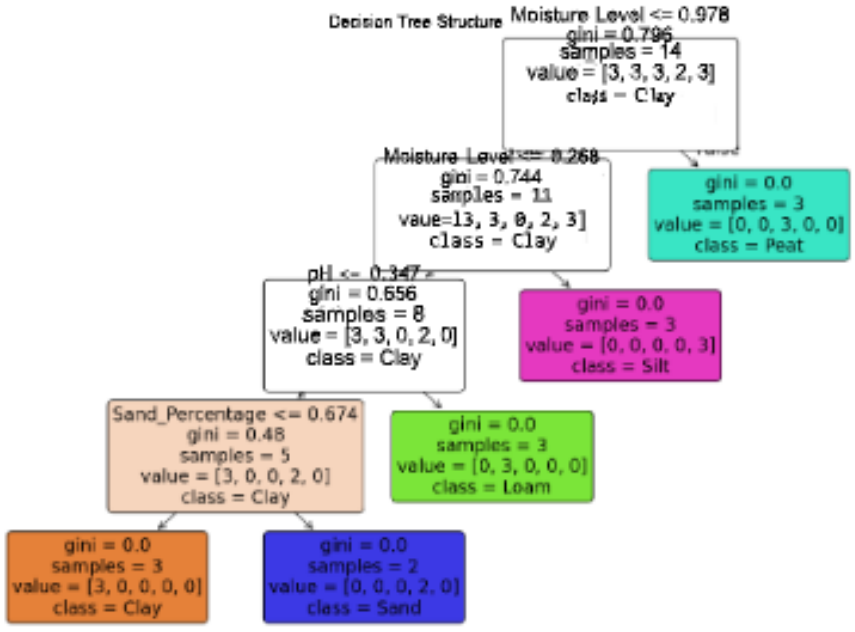
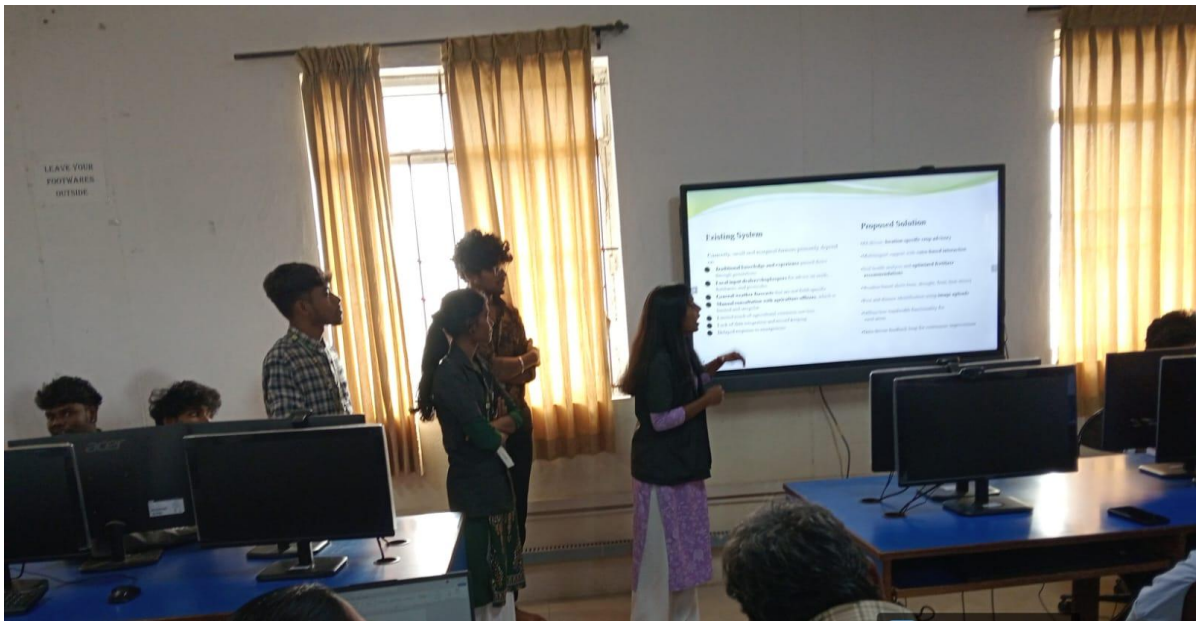




Evidence: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FOOTWARES
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Proposed Solution