

# AI LAB TEST 2 -

## Group 5

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## **Project Objectives**

- To clean and preprocess the dataset by handling missing and inconsistent

values.

- To engineer new features that could improve the model's performance.
- To train and evaluate machine learning models on both the original and enhanced datasets.
- To compare model results and determine which feature set performed better.
- To generate visual insights that explain model performance and data

relationships.

# Summary of Approach and Results

- The dataset was cleaned by filling missing numeric values with the mean, and text values with the most common entry.
- Additional features were created to enhance model performance.
- Two models were trained and compared, one on the original dataset and

another on the new feature-enhanced dataset.

- The second model with new features showed an improved  $R^2$  score and better evaluation metrics.
- Visualizations were created to show trends, feature importance, and model comparison results.
- The overall improvement confirmed that the added features increased accuracy and predictive strength.

# Instructions on How to Run the Code

- Download or clone the repository from GitHub.
- Open the project folder in Jupyter Notebook.
- Make sure the required libraries in the *requirements.txt* file are installed.
- Open the notebook file inside the **notebooks** folder.
- Run each cell in order to carry out the data



preprocessing, feature engineering, model training, and evaluation.

- The final report and results can be viewed inside the **reports** folder.

