NED University of Engineering and Technology,
Karachi-75270, Pakistan

DEPARTMENT OF MECHANICAL ENGINEERING

AI AND INTERNET OF THINGS (ME-438)

Assignment No. 01

(Report Submission Due Date: 13th Jan 2023)

A. Problem Statement

This complex engineering problem aims to reduce the carbon footprint of car emissions. The dataset contains the details of CO_2 emissions by a vehicle which can vary with the different features.

B. Tasks

I. Data Pre-processing, Visualization And Descriptive Analysis (CLO 3, 7 Marks)

Descriptive Analysis

1. Do data visualization, prepare useful graphs, and extract 3 to 5 useful insights from the data.
2. Build a dashboard out of those insights with cross interactivity and filters.
3.

Data Pre-processing

1. Import the dataset and eliminate columns that you think are redundant.
2. Check rows for null values.
3. Apply categorical encoding where necessary
4. Save the transformed data as a CSV file

II. Apply AI / ML algorithms for Predictive Analysis (CLO 2, 3 Marks)

Predictive Analysis

1. Apply a machine learning algorithm to predict CO_2 emissions.
2. State the test accuracy of your model.
3. Predict the CO_2 emissions of two (2) data points.

C. Deliverables

1. Submission of following
    a. Cleaned data CSV file.
    b. Tableau workbook.
    c. Jupyter Notebook file.
    d. Report in soft and hard format. The report should include screenshots of tableau graphs/dashboards, Python code, screenshots of test accuracy, and predictions on at least two datapoints.
2. Make a poster as per provided guidelines.