

# Assignment for AI/ML :- Predicting Housing Prices

## Objective

Develop a simple machine learning model to predict housing prices based on various features. This task aims to familiarise you with the basics of data preprocessing, model training, and evaluation in machine learning.

## Requirements

### 1. Data Collection:

- Use a publicly available dataset such as the Boston Housing dataset or the California Housing dataset.
- Your column names include `column_names = ['CRIM', 'ZN', 'INDUS', 'CHAS', 'NOX', 'RM', 'AGE', 'DIS', 'RAD', 'TAX', 'PTRATIO', 'B', 'LSTAT', 'MEDV']` (this is in same order as that of csv file attached in email)

### 2. Data Preprocessing:

- Load the dataset and inspect the data.
- Handle missing values, if any.
- Perform feature scaling and normalisation.
- Split the data into training and testing sets.

### 3. Model Development:

- Implement a simple model to predict housing prices.
- Train the model on the training dataset.
- Evaluate the model on the testing dataset using appropriate metrics (e.g., Mean Absolute Error, Mean Squared Error).

### 4. Model Evaluation:

- Visualise the model's performance using plots (e.g., actual vs. predicted prices).
- Interpret the model's coefficients and understand the impact of different features on housing prices.

### 5. Documentation:

- Document your code with comments and provide a clear explanation of each step.
- Include a brief report summarising your findings, the model's performance, and any challenges you faced.

## Deliverables

### 1. Source Code:

- A Jupyter notebook or Python script containing the complete code for data preprocessing, model training, and evaluation.
- Ensure the code is well-documented and easy to follow.

### 2. Report:

- A brief report (1-2 pages) summarising:
  - The dataset and its features.

- Data preprocessing steps.
- Model training and evaluation results.
- Interpretation of the model's performance and coefficients.
- Any challenges faced during the task.

**3. Visualisation:**

- Include visualisations (plots/graphs) in the notebook/report to illustrate the model's performance and data insights.

As the deadline for your assignments is **21st July 2024**, please find below the submission links for the respective positions you have applied for. Kindly ensure that you submit your completed assignments through the appropriate link by **21st July 2024**.

**Submission Links:**

- **Node.js Developer Position:**  
[Submit Assignment](#)
- **AI/ML Position:**  
[Submit Assignment](#)
- **React.js Developer Position:**  
[Submit Assignment](#)

Please ensure that you adhere to the deadline and submit your assignments only through the provided links.

NOTE : We are committed to maintaining the highest standards of integrity and originality in our selection process. Therefore, if we identify any similarities between your code submissions and those of others, both the original and copied entries will be disqualified. This will also result in the termination of any further submissions and interviews.

We appreciate your understanding and cooperation in upholding these standards.