

## Task 3: Linear Regression

- **Objective:** Implement and understand simple & multiple linear regression.
- **Tools:** Scikit-learn, Pandas, Matplotlib

### Hints/Mini Guide:

1. Import and preprocess the dataset.
2. Split data into train-test sets.
3. Fit a Linear Regression model using `sklearn.linear_model`.
4. Evaluate model using MAE, MSE,  $R^2$ .
5. Plot regression line and interpret coefficients.

**Dataset:** You can use any dataset relevant to the task, e.g., House Price Prediction Dataset  
link to download: [click here to download dataset](#)

**What You'll Learn :** Regression modeling, evaluation metrics, model interpretation.

### Interview Questions:

1. What assumptions does linear regression make?
2. How do you interpret the coefficients?
3. What is  $R^2$  score and its significance?
4. When would you prefer MSE over MAE?
5. How do you detect multicollinearity?
6. What is the difference between simple and multiple regression?
7. Can linear regression be used for classification?
8. What happens if you violate regression assumptions?

### Submit Here:

After completing the task, paste your GitHub repo link and submit it using the link below:

-  [\[Submission Link\]](#).

## 📌 Task Submission Guidelines

- 🕒 **Time Window:**

You can complete the task anytime between 10:00 AM to 10:00 PM on the given day. Submission link closes at 10 :00 PM

- 🔍 **Self-Research Allowed:**

You are free to explore, Google, or refer to tutorials to understand concepts and complete the task effectively.

- 🛠️ **Debug Yourself:**

Try to resolve all errors by yourself. This helps you learn problem-solving and ensures you don't face the same issues in future tasks.

- 💰 **No Paid Tools:**

If the task involves any paid software/tools, do not purchase anything. Just learn the process or find free alternatives.

- 📁 **GitHub Submission:**

Create a new GitHub repository for each task.

Add everything you used for the task — code, datasets, screenshots (if any), and a **short README.md** explaining what you did.

- 📁 **Submit Here:**

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- 🖱️ [[Submission Link](#)].

Best  
of  
Luck

