**Case Study Scenario: Predicting House Prices Based on Size**

**Background:** You are working as a data analyst for a real estate company. The company is inter–ested in building a simple model to predict house prices based on the size (in square feet) of the house. They provide you with a dataset that includes house sizes and their corresponding selling prices. The goal is to find a relationship between house size and price using **Simple Linear Regression** and use it to predict the price of houses that are not in the dataset.

**Problem:**

You are given the following dataset:

| **House Size (sq ft)** | **Price ($)** |
| --- | --- |
| 1500 | 300,000 |
| 1700 | 320,000 |
| 2100 | 340,000 |
| 2400 | 360,000 |
| 3000 | 400,000 |

The company wants you to:

1. **Build a Simple Linear Regression model** using this dataset.
2. **Calculate the slope** and **intercept** of the best fit line.
3. **Use the model to predict** the price of a house with 2500 sq ft.
4. **Plot** the data points and the best fit line to visualize the relationship.
5. **Interpret** the results:
   * What does the slope indicate?
   * What does the intercept indicate?

**Expected Outcome:**

* You should be able to create a **linear regression model** that reasonably predicts house prices based on size.
* You’ll interpret the **relationship** between house size and price, providing insights to the real estate company.
* The **slope** will give insight into how much the price increases with each additional square foot, and the **intercept** will provide a base price estimate (although, in this case, it may not be meaningful since a house with 0 sq ft doesn’t exist).