🏠 AI/ML Project: House Price Prediction

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📌 Project Overview

This project demonstrates a simple **Machine Learning (ML)** model that predicts **house prices** based on the **size of the house (in square feet)**.
It uses **Linear Regression**, one of the most fundamental ML algorithms.

🎯 Objectives

- Learn how to apply Linear Regression in a real-world scenario.
- Train a model to understand the relationship between **house size** and **price**.
- Evaluate the accuracy of the model using standard metrics.

📊 Dataset

The dataset is **manually created** for demonstration purposes and contains:

- **House Size (sqft)** → Feature (input variable)
- **Price ($1000s)** → Target (output variable)

Example:

House Size (sqft)	Price ($1000s)
750	150
1000	190
1500	275

🛠️ Tools & Libraries

- **Python**
- **Pandas & NumPy** → Data handling
- **Matplotlib & Seaborn** → Visualization
- **Scikit-learn** → Machine Learning model

🔍 Methodology

1. Import libraries and dataset.
2. Visualize data (scatterplot).
3. Split dataset into training & testing sets.
4. Train a **Linear Regression model**.
5. Evaluate performance using:
    - Mean Squared Error (MSE)
    - R^2 Score (accuracy)
6. Predict house prices for new input values.

✅ Results

- The model shows a **strong positive correlation** between house size and price.
- Example Prediction:
    - Input: **1250 sqft house**
    - Predicted Price ≈ **$245,000**

📌 Conclusion

This project demonstrates how **Machine Learning** can be used for simple predictive tasks. While the dataset is small and created manually, the same approach can be applied to larger real-world housing datasets.

🚀 Future Enhancements

- Use a larger, real-world dataset (e.g., Kaggle housing datasets).
- Add more features (e.g., number of bedrooms, location, age of house).
- Try advanced ML models (e.g., Random Forest, XGBoost).