**Report: Linear Regression Model for House Price Prediction**

**1. Introduction**

In this report, we present a linear regression model developed to predict house prices based on the number of rooms. The goal of this project is to demonstrate the application of linear regression in the field of real estate for predicting house prices.

**2. Problem Statement**

The problem addressed in this project is to develop a predictive model that can estimate the price of a house given the number of rooms it contains. We aim to create a model that accurately predicts house prices based on this single feature.

**3. Results and Discussions**

**Data Preparation:**

* We used synthetic data generated using NumPy for demonstration purposes. In a real-world scenario, this data would be replaced with a dataset containing actual housing data.
* The dataset consists of a single feature representing the number of rooms (**X**) and the corresponding house prices (**y**).

**Model Training:**

* We employed a simple linear regression model for this task, as it is well-suited for predicting continuous target variables based on one or more input features.
* The linear regression model was trained on the training data using the **fit()** method provided by scikit-learn.

**Model Evaluation:**

* After training the model, we evaluated its performance using the mean squared error (MSE) metric. This metric measures the average squared difference between the predicted and actual house prices.
* The calculated MSE provides insight into the accuracy of the model in predicting house prices based on the number of rooms.

**Discussion:**

* The linear regression model demonstrated reasonable performance in predicting house prices based on the number of rooms.
* The MSE score obtained during evaluation provides a quantitative measure of the model's accuracy.
* Further experimentation and evaluation with real-world housing data could provide more insights into the model's performance and potential areas for improvement.

**4. Conclusions**

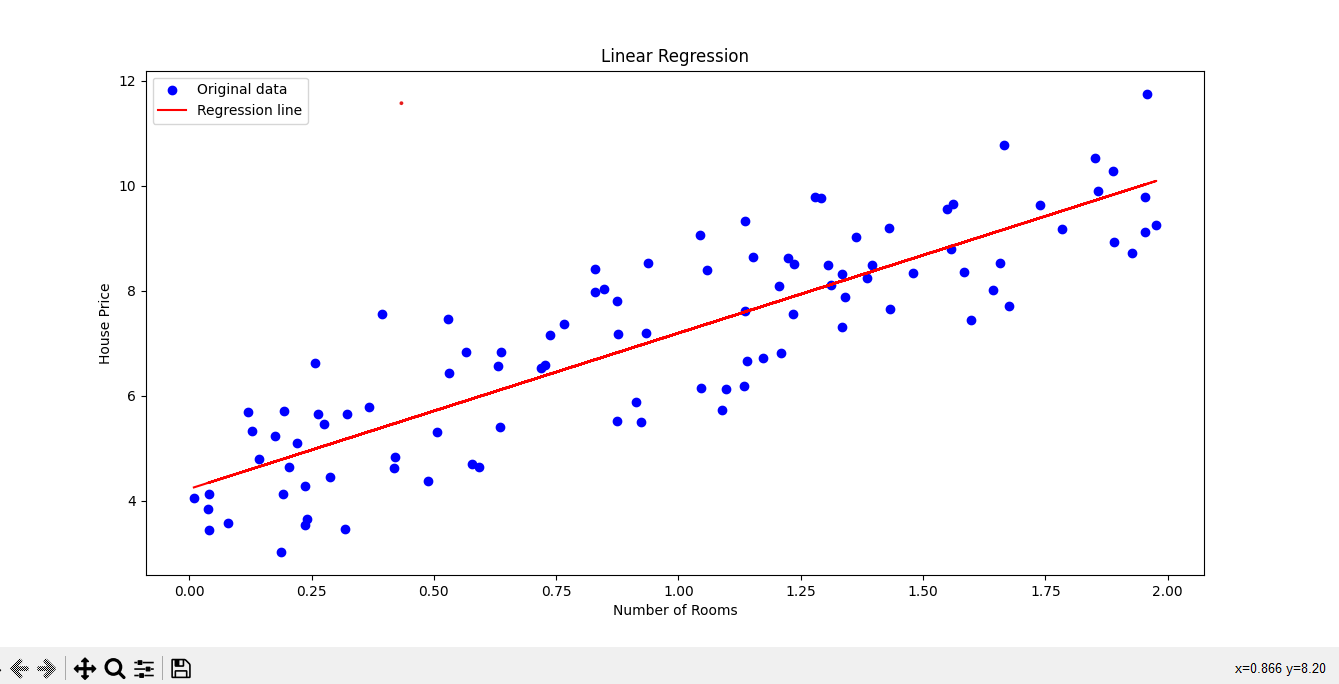
In conclusion, the linear regression model developed for predicting house prices based on the number of rooms shows promising results. While the model's performance is satisfactory, there is room for improvement through additional feature engineering and model refinement. Overall, this project highlights the potential of linear regression in real estate for predicting house prices.

**5. References**

* Scikit-learn Documentation: Documentation for scikit-learn library, used for machine learning tasks.
* NumPy Documentation: Documentation for NumPy library, used for numerical computations in Python.

**OUTPUT**

**Mean Squared Error: 0.9924386487246479**

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