Answer this question using a jupyter notebook. Send the notebook and the deployment python file to whatservice1234@gmail.com on or before the 28th July, 2024.

House Price Prediction with Machine Learning

You are working on a project to predict the price of houses based on various attributes. The dataset contains the following columns: House Age, Number of Bedrooms, Number of Bathrooms, Area (in sq ft), Location, and Price. The project involves the entire lifecycle of a machine learning model, including data collection, preprocessing, model training, evaluation, and deployment.

Dataset Description

House Age: Integer, the age of the house in years.

Number of Bedrooms: Integer, the number of bedrooms in the house.

Number of Bathrooms: Integer, the number of bathrooms in the house.

Area (in sq ft): Integer, the area of the house in square feet.

Location: Categorical, the location of the house (Urban, Suburban, Rural).

Price: Integer, the price of the house in dollars.

Task (include relevant code)

a) Data Preprocessing

Explain how you would encode the categorical column (Location).

Describe the process of feature scaling and why it is important for this project.

b) Model Training

List at least three machine learning algorithms suitable for predicting house prices.

Explain the advantages and disadvantages of each algorithm in the context of this project.

c) Model Training Process

Describe the process of training a machine learning model using the preprocessed dataset.

d) Model Evaluation

List and explain three metrics you would use to evaluate the performance of your model.

e) Streamlit Application

Write a Streamlit application code to collect user inputs for House Age, Number of Bedrooms, Number of Bathrooms, Area (in sq ft), and Location.

Load the trained model, label encoders, and scaler. Ensure that user inputs are processed correctly before making predictions.

Display the predicted house price based on user inputs.

Instructions

Provide detailed explanations and justifications for each task.

Include relevant code snippets where applicable.

Ensure that your Streamlit app is functional and correctly predicts the house price based on user inputs.

Do not copy others or let yourself be copied. You will score zero once that is detected.