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pip install pandas numpy scikit-learn xgboost gradio matplotlib seaborn
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Requirement already satisfied: pandas in /usr/local/lib/python3.11/dist-packages (2.2.2)
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```

```
import pandas as pd
import numpy as np

# Load the dataset
data = pd.read_csv('train.csv')

# Handle missing values
data.fillna(data.median(numeric_only=True), inplace=True)

# Convert categorical variables to numerical using one-hot encoding
data = pd.get_dummies(data)

# Separate features and target variable
X = data.drop('SalePrice', axis=1)
y = np.log1p(data['SalePrice']) # Log-transform the target for better performance
```

```

from sklearn.model_selection import train_test_split

# Split the data into training and testing sets (80% training, 20% testing)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)


import xgboost as xgb
from sklearn.metrics import mean_squared_error, r2_score

# Initialize and train the model
xgb_model = xgb.XGBRegressor(n_estimators=1000, learning_rate=0.05, max_depth=3, subsample=0.8, colsample_bytree=0.8, random_state=42)
xgb_model.fit(X_train, y_train)

# Predict and evaluate
y_pred = xgb_model.predict(X_test)
mse = mean_squared_error(y_test, y_pred)
r2 = r2_score(y_test, y_pred)

print(f"XGBoost Model MSE: {mse}")
print(f"XGBoost Model R-squared: {r2}")

```

 XGBoost Model MSE: 0.01583496962243514  
XGBoost Model R-squared: 0.9151444952831362

```

import gradio as gr

# Define the prediction function
def predict_house_price(OverallQual, GrLivArea, GarageCars, TotalBsmtSF, FullBath, YearBuilt):
    # Create a DataFrame with the input features
    input_data = pd.DataFrame([[OverallQual, GrLivArea, GarageCars, TotalBsmtSF, FullBath, YearBuilt]],
                               columns=['OverallQual', 'GrLivArea', 'GarageCars', 'TotalBsmtSF', 'FullBath', 'YearBuilt'])

    # Align the input data with the training data
    input_data = pd.get_dummies(input_data)
    input_data = input_data.reindex(columns=X.columns, fill_value=0)

    # Predict and return the house price
    prediction = xgb_model.predict(input_data)
    return f"${np.exp1(prediction[0]):.2f}"

# Create the Gradio interface
interface = gr.Interface(
    fn=predict_house_price,
    inputs=[
        gr.Slider(1, 10, step=1, label="Overall Quality"),
        gr.Slider(500, 5000, step=50, label="Above Grade Living Area (sq ft)"),
        gr.Slider(0, 4, step=1, label="Garage Cars"),
        gr.Slider(0, 3000, step=50, label="Total Basement Area (sq ft)"),
        gr.Slider(0, 4, step=1, label="Full Bathrooms"),
        gr.Slider(1900, 2025, step=1, label="Year Built")
    ],
    outputs="text",
    title="House Price Predictor",
    description="Enter the details of the house to predict its price."
)

# Launch the interface
interface.launch()

```

↗ It looks like you are running Gradio on a hosted a Jupyter notebook. For the Gradio app to work, sharing must be enabled. Automatically Colab notebook detected. To show errors in colab notebook, set debug=True in launch()  
\* Running on public URL: <https://28d38996d9c363e4e3.gradio.live>

This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working dir

# House Price Predictor

Enter the details of the house to predict its price.

Overall Quality

1

↻

1

10

Above Grade Living Area (sq ft)

500

↻

500

5000

Garage Cars

0

↻

0

4

Total Basement Area (sq ft)

0

↻

0

3000

Full Bathrooms

0

↻

0

4

Year Built

1900

↻

output

Flag