


```
from google.colab import files
import pandas as pd

# Step 1: Upload the file
uploaded = files.upload()

# Step 2: Check uploaded files
for file_name in uploaded.keys():
    print(f'User uploaded file "{file_name}"')

# Step 3: Load dataset (if CSV)
df = pd.read_csv(file_name)
print("✅ Dataset loaded successfully!")
df.head()
```

 StudentsPerformance.csv
StudentsPerformance.csv(text/csv) - 72036 bytes, last modified: 11/13/2025 - 100% done
Saving StudentsPerformance.csv to StudentsPerformance (1).csv
User uploaded file "StudentsPerformance (1).csv"
✅ Dataset loaded successfully!

```
import pandas as pd

# Step 1: Load the uploaded dataset
df = pd.read_csv('StudentsPerformance.csv')

# Step 2: Display basic info before cleaning
print("Before cleaning:")
print(df.info())
print("\nMissing values per column:\n", df.isnull().sum())

# Step 3: Drop rows with missing values
df_cleaned = df.dropna()

# Step 4: Display info after cleaning
print("\nAfter cleaning:")
print(df_cleaned.info())

# Step 5: (Optional) Save cleaned data
df_cleaned.to_csv('StudentsPerformance_cleaned.csv', index=False)
print("\n✅ Cleaned dataset saved as 'StudentsPerformance_cleaned.csv'")

# Step 6: Preview cleaned dataset
df_cleaned.head()
```

```
Before cleaning:
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
Data columns (total 8 columns):
#   Column                                Non-Null Count  Dtype
---  ---                                -
0   gender                                1000 non-null   object
1   race/ethnicity                        1000 non-null   object
2   parental level of education          1000 non-null   object
3   lunch                                1000 non-null   object
4   test preparation course              1000 non-null   object
5   math score                           1000 non-null   int64
6   reading score                        1000 non-null   int64
7   writing score                         1000 non-null   int64
dtypes: int64(3), object(5)
memory usage: 62.6+ KB
None
```

```
Missing values per column:
gender                0
race/ethnicity        0
parental level of education  0
lunch                 0
test preparation course  0
math score            0
reading score         0
writing score         0
dtype: int64
```

```
After cleaning:
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
```

```
# Step 1: Import libraries
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_absolute_error, mean_squared_error, r2_score

# Step 2: Load dataset
df = pd.read_csv('StudentsPerformance.csv')

# Step 3: Display first few rows
print("Dataset preview:")
print(df.head())

# Step 4: Check for missing values and drop them
df = df.dropna()

# Step 5: Convert categorical columns to numeric if needed
# Example: encode 'gender' or 'race/ethnicity' if necessary
df = pd.get_dummies(df, drop_first=True)

# Step 6: Choose feature (X) and target (y)
# Example: Predict 'math score' based on 'reading score'
X = df[['reading score']]
y = df['math score']

# Step 7: Split into train and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Step 8: Create and train model
model = LinearRegression()
model.fit(X_train, y_train)

# Step 9: Make predictions
y_pred = model.predict(X_test)

# Step 10: Evaluate model
print("\nModel Evaluation:")
print("Mean Absolute Error:", mean_absolute_error(y_test, y_pred))
print("Mean Squared Error:", mean_squared_error(y_test, y_pred))
print("R² Score:", r2_score(y_test, y_pred))

# Step 11: Display regression line
plt.figure(figsize=(8,5))
plt.scatter(X_test, y_test, color='blue', label='Actual')
plt.plot(X_test, y_pred, color='red', linewidth=2, label='Predicted Line')
plt.title('Simple Linear Regression: Reading Score vs Math Score')
plt.xlabel('Reading Score')
```

```
plt.xlabel('Reading Score')
plt.ylabel('Math Score')
plt.legend()
plt.show()
```

Dataset preview:

	gender	race/ethnicity	parental level of education	lunch
0	female	group B	bachelor's degree	standard
1	female	group C	some college	standard
2	female	group B	master's degree	standard
3	male	group A	associate's degree	free/reduced
4	male	group C	some college	standard

	test preparation course	math score	reading score	writing score
0	none	72	72	74
1	completed	69	90	88
2	none	90	95	93
3	none	47	57	44
4	none	76	78	75

Model Evaluation:

Mean Absolute Error: 7.280881770618455

Mean Squared Error: 77.75953982761706

R^2 Score: 0.6804469009921283

