

ARJUN COLLEGE OF TECHNOLOGY
ASSIGNMENT – 3
NAAN MUDHALVAN

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REG NO: 723920243014

My IBM | New story | New report | Technical Training Session | Data Analytics Session 4 | Untitled4.ipynb - Colaboratory

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sample_data | House Price India.csv

```
[1] import pandas as pd

df = pd.read_csv('/content/House Price India.csv')
df.head()
```

	id	Date	number of bedrooms	number of bathrooms	living area	lot area	number of floors	waterfront present	number of views
0	6762810145	42491	5	2.50	3650	9050	2.0	0	4
1	6762810635	42491	4	2.50	2920	4000	1.5	0	0
2	6762810998	42491	5	2.75	2910	9480	1.5	0	0
3	6762812605	42491	4	2.50	3310	42998	2.0	0	0
4	6762812919	42491	3	2.00	2710	4500	1.5	0	0

5 rows x 23 columns

House Price India.csv | 1 to 10 of 14620 entries | Filter

id	Date	number of bedrooms	number of bathrooms
6762810145	42491	5	2.5
6762810635	42491	4	2.5
6762810998	42491	5	2.75
6762812605	42491	4	2.5
6762812919	42491	3	2
6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
6762814481	42491	4	2.25

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1	6762810635	42491	4	2.50	2920	4000	1.5	0	0
2	6762810998	42491	5	2.75	2910	9480	1.5	0	0
3	6762812605	42491	4	2.50	3310	42998	2.0	0	0
4	6762812919	42491	3	2.00	2710	4500	1.5	0	0

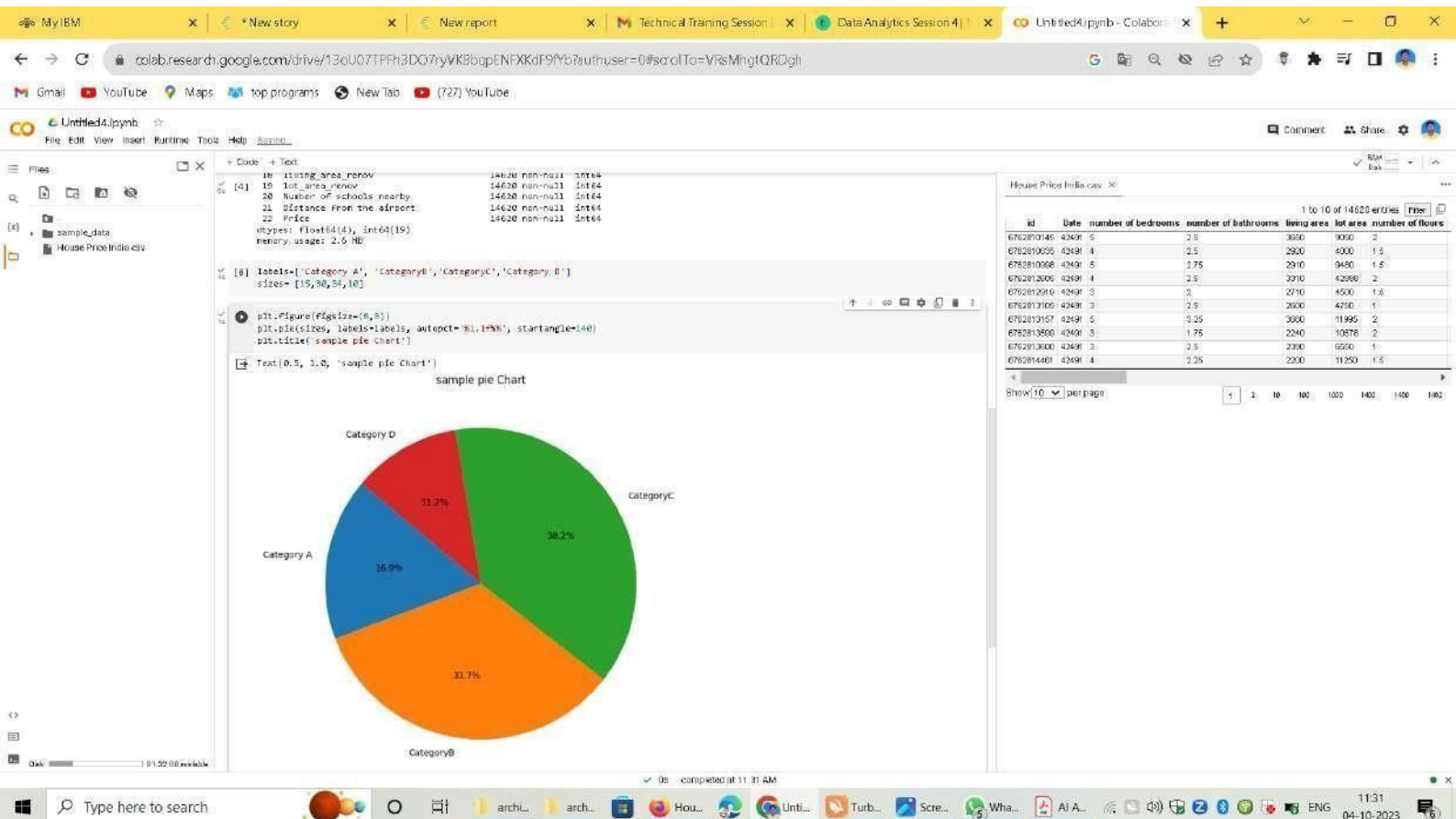
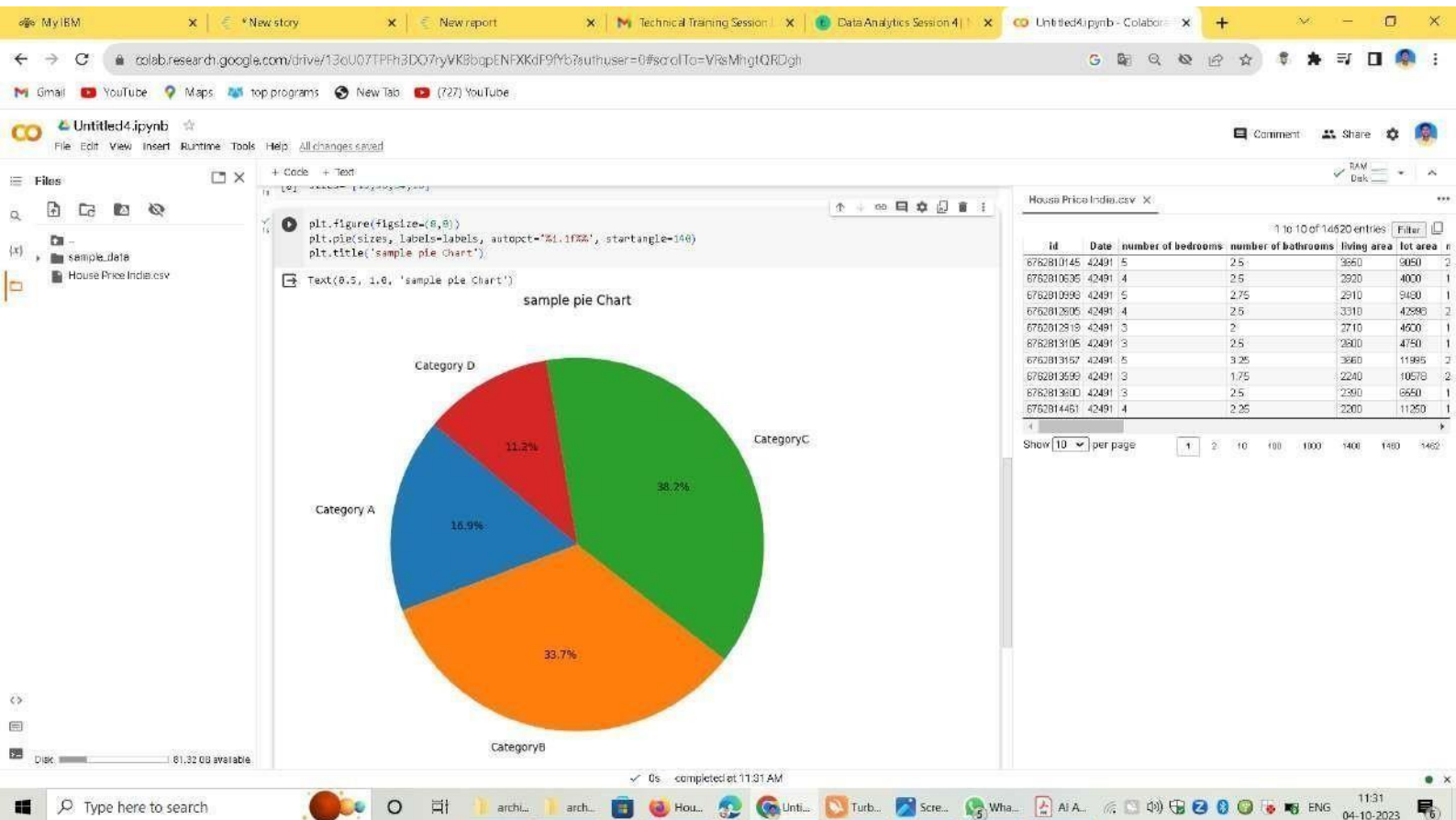
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House Price India.csv | 1 to 10 of 14620 entries | Filter

id	Date	number of bedrooms	number of bathrooms
6762810145	42491	5	2.5
6762810635	42491	4	2.5
6762810998	42491	5	2.75
6762812605	42491	4	2.5
6762812919	42491	3	2
6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
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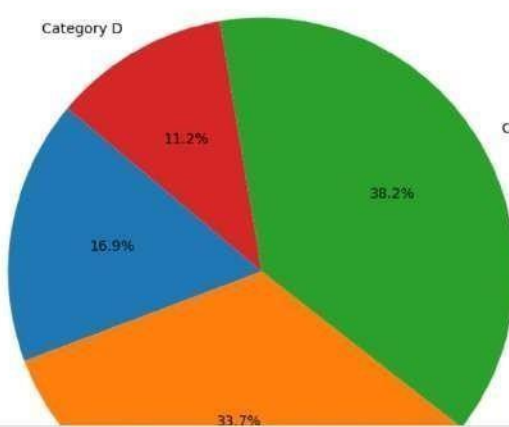
Files

- sample_data
- House Price India.csv

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```
plt.figure(figsize=(8,8))
plt.pie(sizes, labels=labels, autopct='%1.1f%%', startangle=140)
plt.title('sample pie chart')
Text(0.5, 1.0, 'sample pie chart')
```

sample pie Chart



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Category C 38.2%

Category A 15.9%

Category B 33.7%

House Price India.csv

1 to 10 of 14620 entries Filter

id	Date	number of bedrooms	number of bathrooms
6762810145	42491	5	2.5
6762810635	42491	4	2.5
6762810938	42491	5	2.75
6762812605	42491	4	2.5
6762812919	42491	3	2
6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
6762814481	42491	4	2.25

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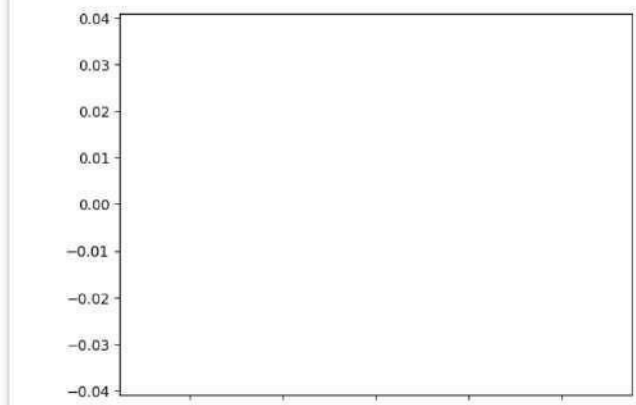
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Files

- sample_data
- House Price India.csv

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```
plt.axis('equal')
plt.show()
```



Category B

House Price India.csv

1 to 10 of 14620 entries Filter

id	Date	number of bedrooms	number of bathrooms
6762810145	42491	5	2.5
6762810635	42491	4	2.5
6762810938	42491	5	2.75
6762812605	42491	4	2.5
6762812919	42491	3	2
6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
6762814481	42491	4	2.25

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Files | sample_data | House Price India.csv

```
plt.figure(figsize=(8, 6)) # Set the figure size (optional)
plt.scatter(x, y, c='blue', marker='o', label='Data Points') # Scatter plot
plt.xlabel('Variable1') # X-axis label
plt.ylabel('Variable2') # Y-axis label
plt.title('Scatter Plot of Variable1 vs. Variable2') # Title (optional)
plt.grid(True) # Display grid (optional)
plt.legend() # Display legend (optional)

# Show the plot
plt.show()
```

Scatter Plot of Variable1 vs. Variable2

House Price India.csv | 1 to 10 of 14620 entries | Filter

id	Date	number of bedrooms	number of bathrooms	living area	lot area
6762810145	42491	5	2.5	3660	9050
6762810635	42491	4	2.5	2920	4000
6762810998	42491	5	2.75	2910	9490
6762812605	42491	4	2.5	3310	42990
6762812519	42491	3	2	2710	4500
6762813105	42491	3	2.5	2800	4750
6762813157	42491	5	3.25	3660	11995
6762813599	42491	3	1.75	2240	10570
6762813600	42491	3	2.5	2390	6650
6762814461	42491	4	2.25	2200	11250

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Files | sample_data | House Price India.csv

```
plt.ylabel('Variable2') # Y-axis label
plt.title('Scatter Plot of Variable1 vs. Variable2') # Title (optional)
plt.grid(True) # Display grid (optional)
plt.legend() # Display legend (optional)

# Show the plot
plt.show()
```

Scatter Plot of Variable1 vs. Variable2

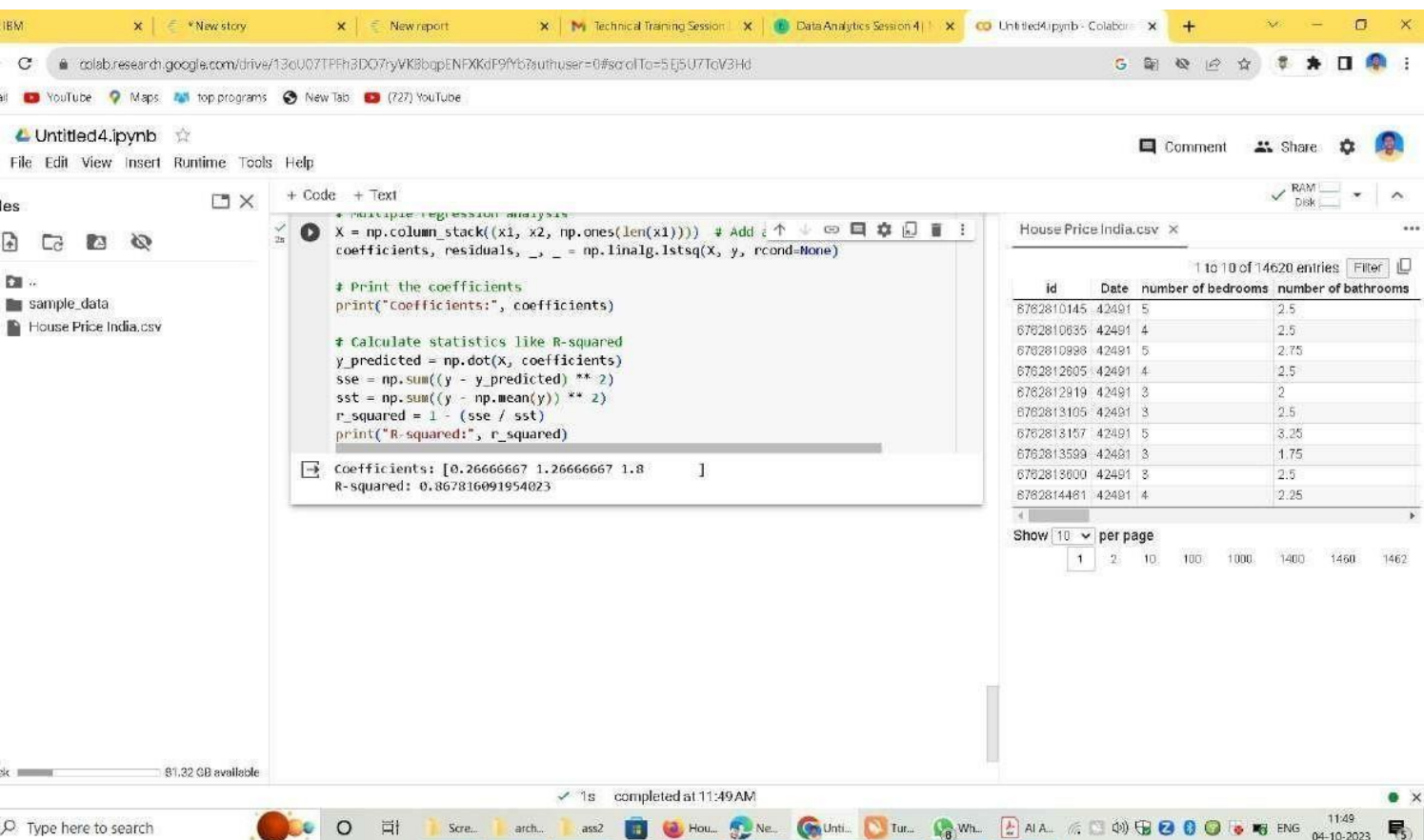
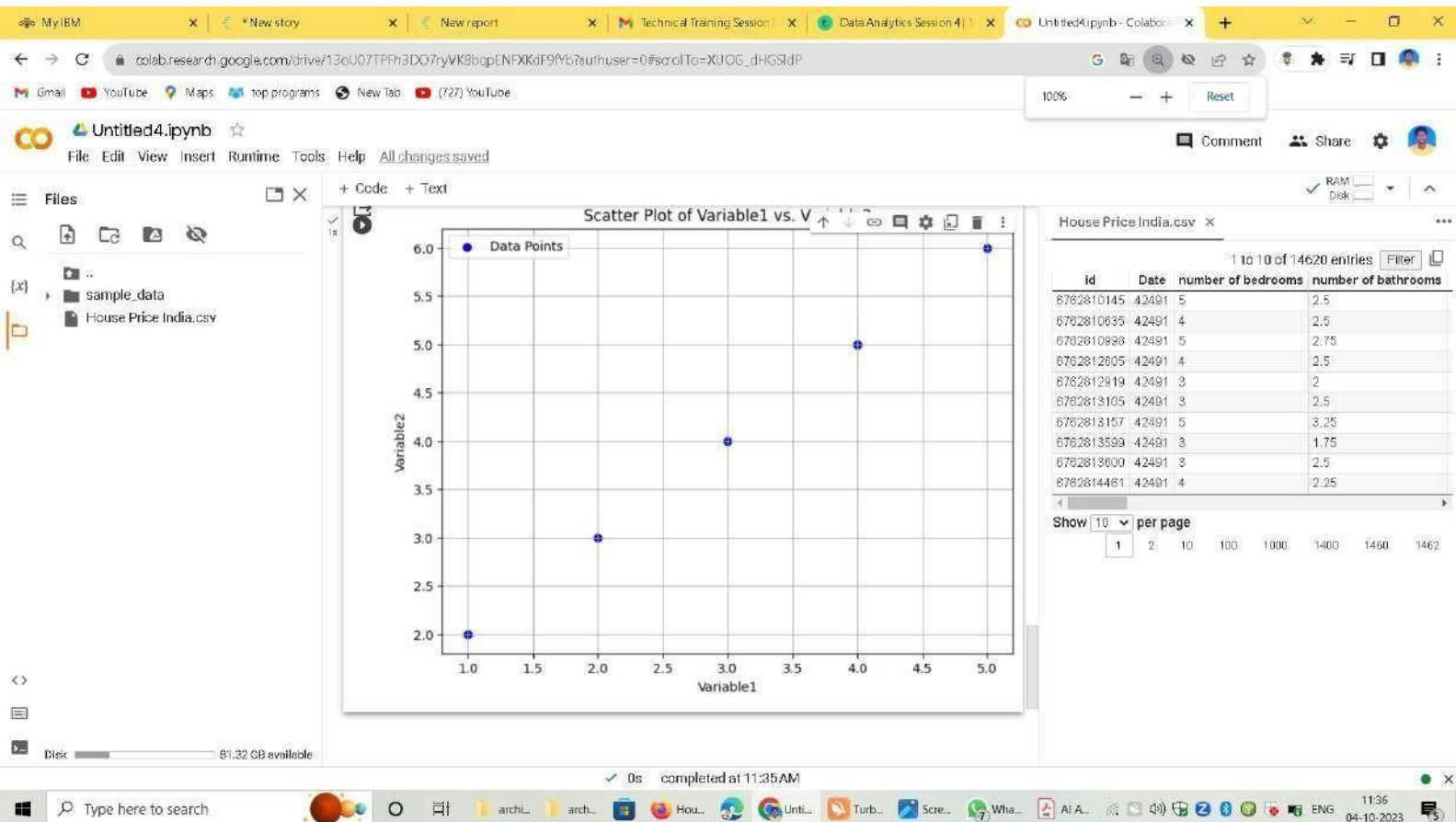
House Price India.csv | 1 to 10 of 14620 entries | Filter

id	Date	number of bedrooms	number of bathrooms
6762810145	42491	5	2.5
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6762812519	42491	3	2
6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
6762814461	42491	4	2.25

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```
# Multiple regression analysis
X = np.column_stack((x1, x2, np.ones(len(x1)))) # Add a column of ones
coefficients, residuals, _, _ = np.linalg.lstsq(X, y, rcond=None)

# Print the coefficients
print("Coefficients:", coefficients)

# Calculate statistics like R-squared
y_predicted = np.dot(X, coefficients)
sse = np.sum((y - y_predicted) ** 2)
sst = np.sum((y - np.mean(y)) ** 2)
r_squared = 1 - (sse / sst)
print("R-squared:", r_squared)
```

Coefficients: [0.26666667 1.26666667 1.8]
R-squared: 0.867816091954023

House Price India.csv

1 to 10 of 14620 entries Filter

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6762810145	42491	5	2.5
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6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
6762814481	42491	4	2.25

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Files

- sample_data
- House Price India.csv

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```
# Display the first few rows of the dataset
print(df.head())

# Get basic summary statistics for numeric columns
print(df.describe())

# Get information about the dataset, including data types and missing values
print(df.info())
```

```
   variable1  variable2
0          1          2
1          2          3
2          3          4
3          4          5
4          5          6

   variable1  variable2
count  5.000000  5.000000
mean    3.000000  4.000000
std     1.581139  1.581139
min     1.000000  2.000000
25%     2.000000  3.000000
50%     3.000000  4.000000
75%     4.000000  5.000000
max     5.000000  6.000000

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5 entries, 0 to 4
Data columns (total 2 columns):
#   column  Non-Null count  dtype
---  ---
0  variable1  5 non-null    int64
1  variable2  5 non-null    int64
dtypes: int64(2)
```

House Price India.csv

1 to 10 of 14620 entries Filter

id	Date	number of bedrooms	number of bathrooms
6762810145	42491	5	2.5
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6762812919	42491	3	2
6762813105	42491	3	2.5
6762813157	42491	5	3.25
6762813599	42491	3	1.75
6762813600	42491	3	2.5
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```
   variable1  variable2
0          1          2
1          2          3
2          3          4
3          4          5
4          5          6
```

```
count    5.000000    5.000000
mean      3.000000    4.000000
std       1.581139    1.581139
min       1.000000    2.000000
25%       2.000000    3.000000
50%       3.000000    4.000000
75%       4.000000    5.000000
max       5.000000    6.000000
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5 entries, 0 to 4
Data columns (total 2 columns):
 #   column  non-null count  dtype
---  ---
 0  variable1  5 non-null    int64
 1  variable2  5 non-null    int64
dtypes: int64(2)
```

House Price India.csv x

1 to 10 of 14620 entries Filter

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```
   variable1  variable2
0          1          2
1          2          3
2          3          4
3          4          5
4          5          6
```

```
count    5.000000    5.000000
mean      3.000000    4.000000
std       1.581139    1.581139
min       1.000000    2.000000
25%       2.000000    3.000000
50%       3.000000    4.000000
75%       4.000000    5.000000
max       5.000000    6.000000
<class 'pandas.core.frame.DataFrame'>
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 1  variable2  5 non-null    int64
```

House Price India.csv x

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6762813157	42491	5	3.25
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