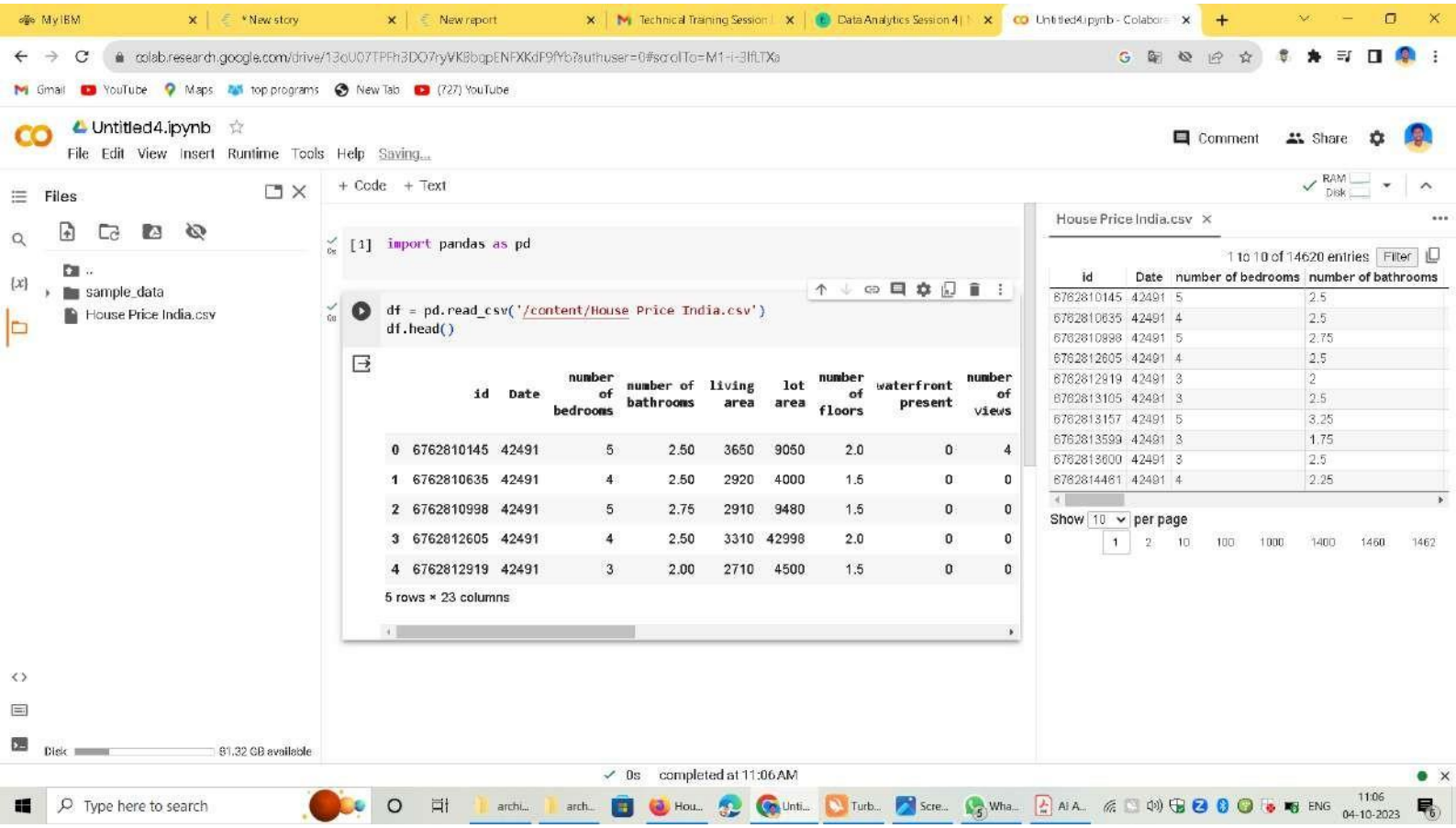
ARJUN COLLEGE OF TECHNOLOGY

ASSIGNMENT – 3

NAAN MUDHALVAN

NAME : THOTA NIKHIL

REG NO: 723920243057


Untitled4.ipynb
File Edit View Insert Runtime Tools Help Saving...
Comment
Share
Files
sample_data
House Price India.csv
+ Code + Text
[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 × 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
6762814461 42491 4 2.25
Show 10 per page
1 2 10 100 1000 1400 1460 1462
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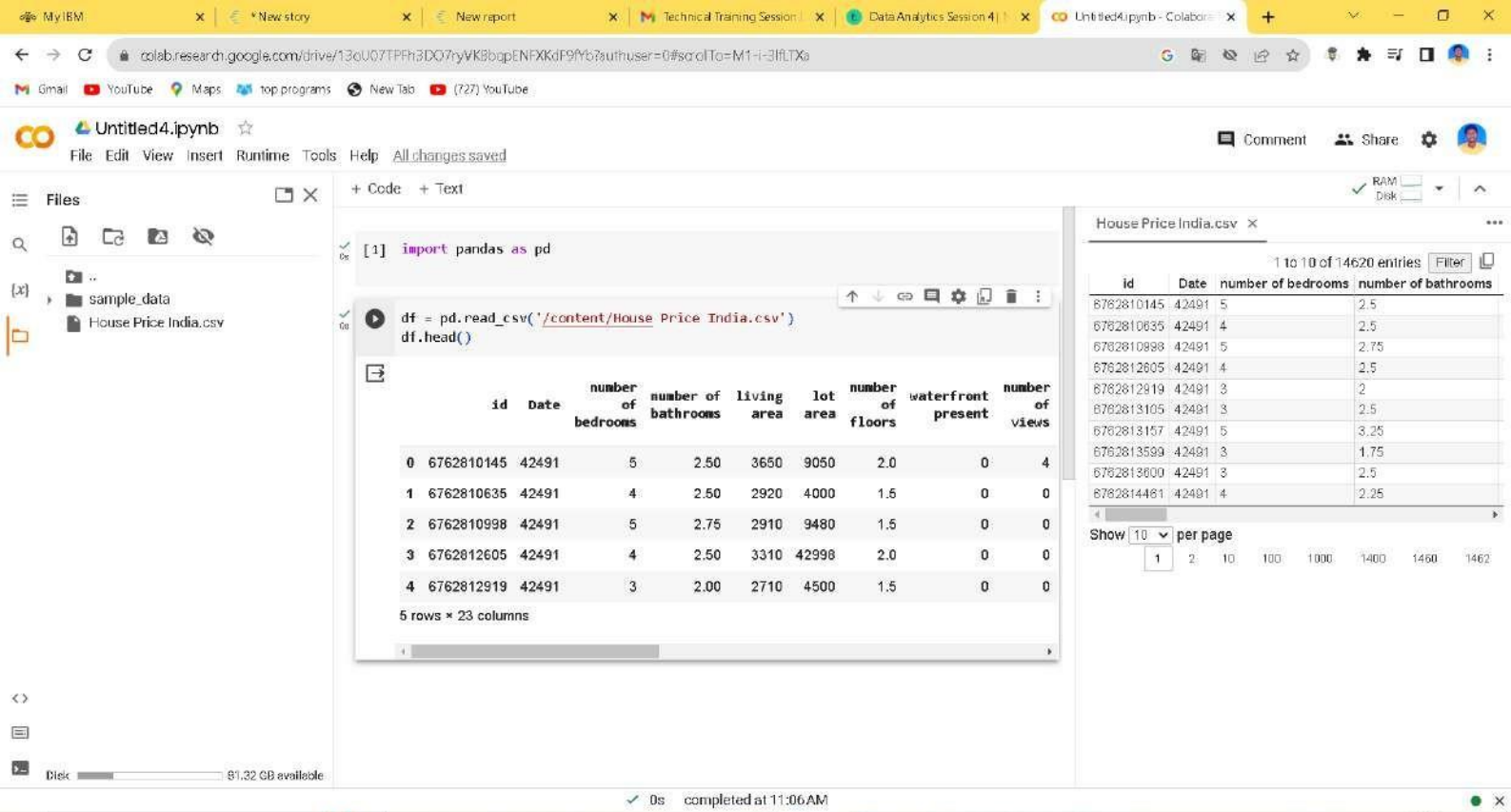
Untitled4.ipynb
File Edit View Insert Runtime Tools Help All changes saved
Comment
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sample_data
House Price India.csv
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3 6762812605 42491 4 2.50 3310 42998 2.0 0 0
4 6762812919 42491 3 2.00 2710 4500 1.5 0 0
5 rows × 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
6762814461 42491 4 2.25
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1 2 10 100 1000 1400 1460 1462
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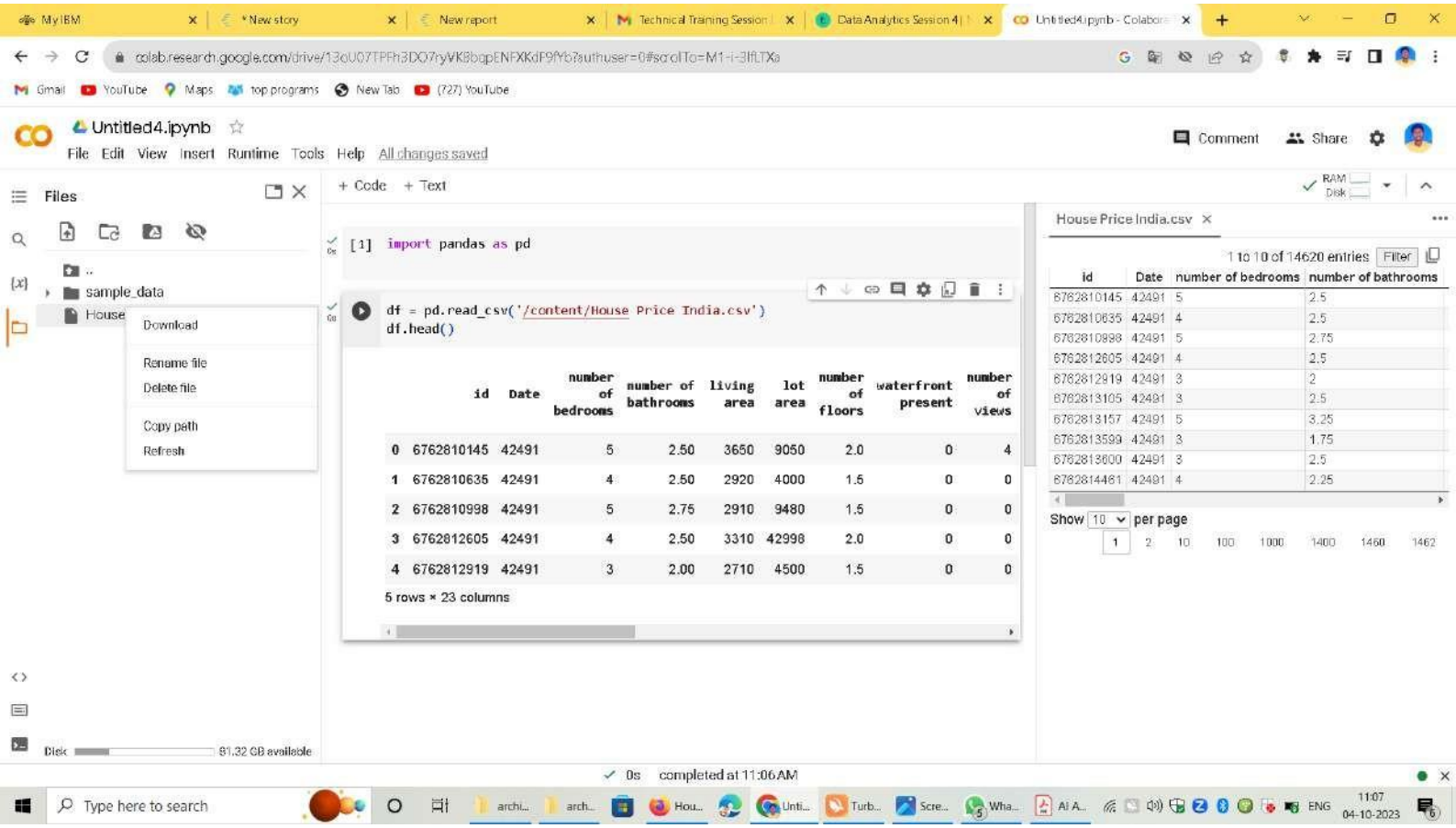
Untitled4.ipynb
File Edit View Insert Runtime Tools Help All changes saved
Comment Share
Files
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sample_data
House
Download
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3 6762812605 42491 4 2.50 3310 42998 2.0 0 0
4 6762812919 42491 3 2.00 2710 4500 1.5 0 0
5 rows × 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
6762814461 42491 4 2.25
Show 10 per page
1 2 10 100 1000 1400 1460 1462
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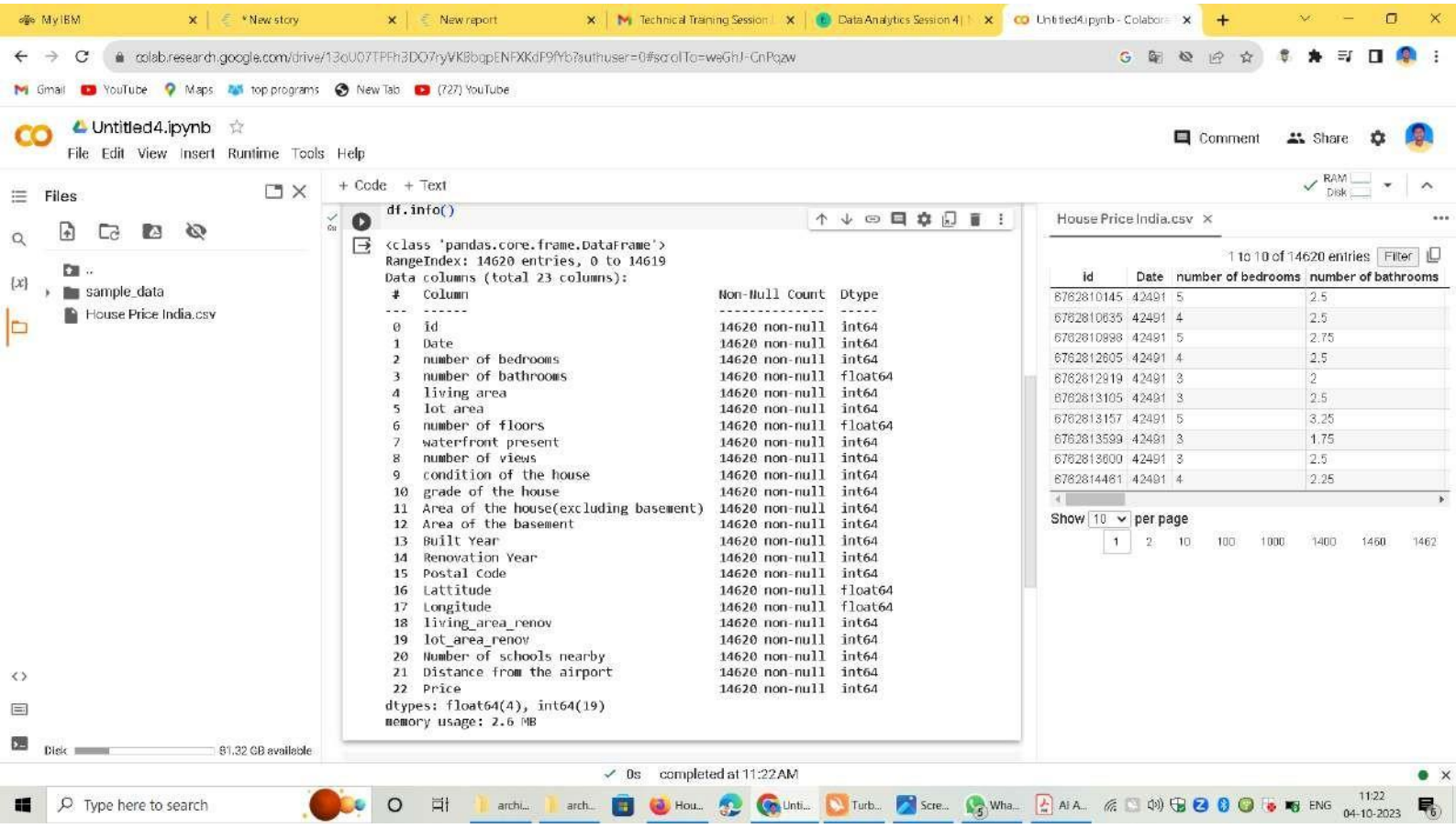
Untitled4.ipynb
File Edit View Insert Runtime Tools Help
Comment Share
Files
+ Code + Text
sample_data
House Price India.csv
df.info()
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14620 entries, 0 to 14619
Data columns (total 23 columns):
Column Non-Null Count Dtype
0 id 14620 non-null int64
1 Date 14620 non-null int64
2 number of bedrooms 14620 non-null int64
3 number of bathrooms 14620 non-null float64
4 living area 14620 non-null int64
5 lot area 14620 non-null int64
6 number of floors 14620 non-null float64
7 waterfront present 14620 non-null int64
8 number of views 14620 non-null int64
9 condition of the house 14620 non-null int64
10 grade of the house 14620 non-null int64
11 Area of the house(excluding basement) 14620 non-null int64
12 Area of the basement 14620 non-null int64
13 Built Year 14620 non-null int64
14 Renovation Year 14620 non-null int64
15 Postal Code 14620 non-null int64
16 Lattitude 14620 non-null float64
17 Longitude 14620 non-null float64
18 living_area_renov 14620 non-null int64
19 lot_area_renov 14620 non-null int64
20 Number of schools nearby 14620 non-null int64
21 Distance from the airport 14620 non-null int64
22 Price 14620 non-null int64
dtypes: float64(4), int64(19)
memory usage: 2.6 MB
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
6762814461 42491 4 2.25
Show 10 per page
1 2 10 100 1000 1400 1460 1462
Disk 81.32 GB available
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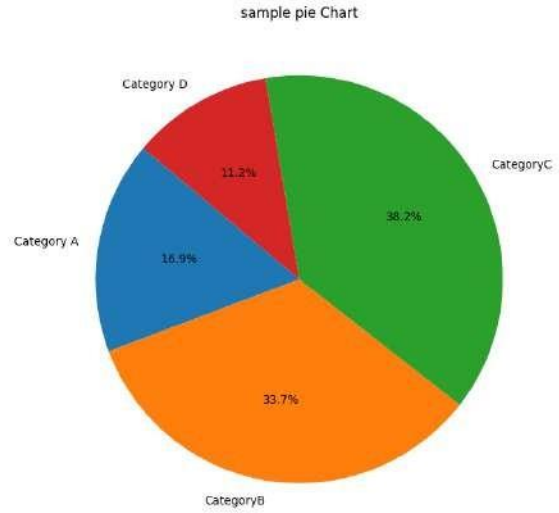
11:22
04-10-2023

```
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')
```



House Price India.csv

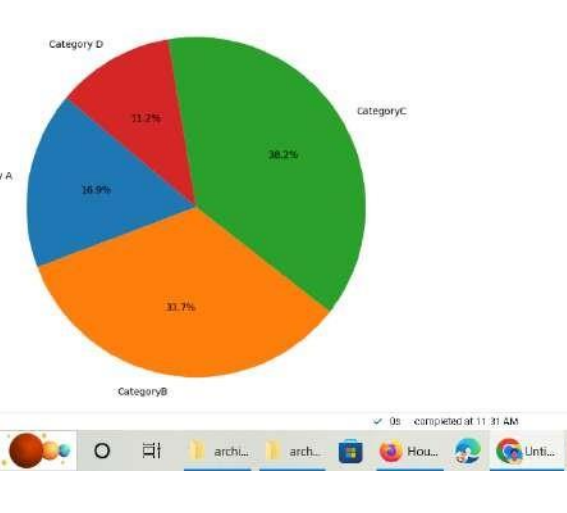
1 to 10 of 14620 entries

id	Date	number of bedrooms	number of bathrooms	living area	lot area	n
6762810145	42491	5	2.5	3650	9050	2
6762810635	42491	4	2.5	2920	4000	1
6762810998	42491	5	2.75	2910	9480	1
6762812605	42491	4	2.5	3310	42998	2
6762812919	42491	3	2	2710	4500	1
6762813105	42491	3	2.5	2600	4750	1
6762813157	42491	5	3.25	3650	11995	2
6762813599	42491	3	1.75	2240	10578	2
6762813800	42491	3	2.5	2390	6650	1
6762814461	42491	4	2.25	2200	11250	1

Show 10 per page


```
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')
```



House Price India.csv

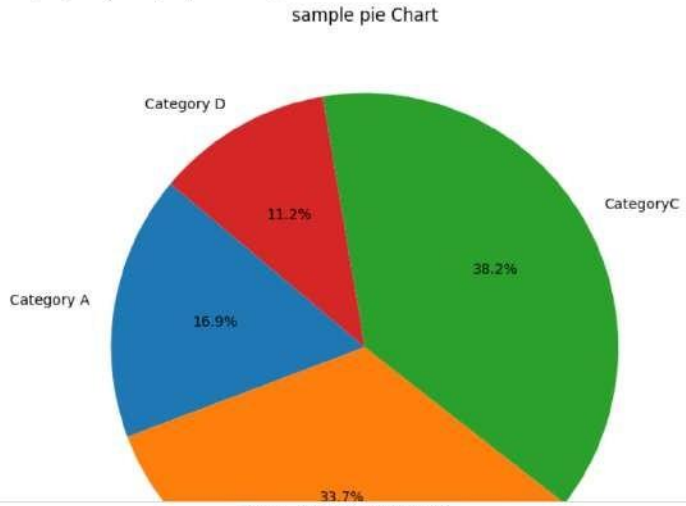
1 to 10 of 14620 entries

id	Date	number of bedrooms	number of bathrooms	living area	lot area	number of floors
6762810145	42491	5	2.5	3650	9050	2
6762810635	42491	4	2.5	2920	4000	1.5
6762810998	42491	5	2.75	2910	9480	1.5
6762812605	42491	4	2.5	3310	42998	2
6762812919	42491	3	2	2710	4500	1.5
6762813105	42491	3	2.5	2600	4750	1
6762813157	42491	5	3.25	3650	11995	2
6762813599	42491	3	1.75	2240	10578	2
6762813800	42491	3	2.5	2390	6650	1
6762814461	42491	4	2.25	2200	11250	1.5

Show 10 per page

```
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')
```



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
6762814461	42491	4	2.25

Show 10 per page

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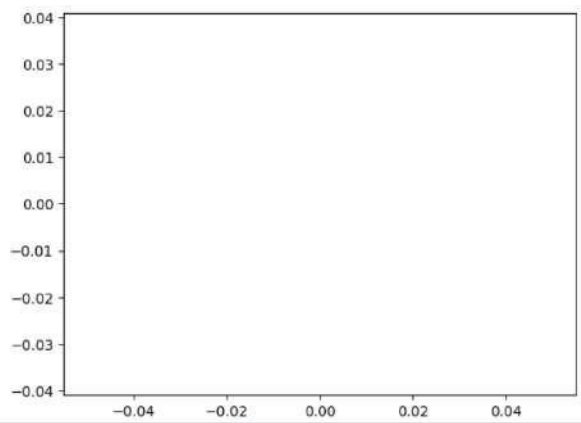
```
[9]
```

CategoryB

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



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
6762814461	42491	4	2.25

Show 10 per page

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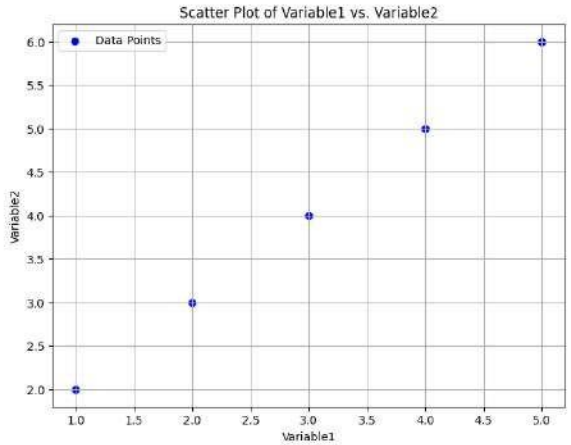
```
plt.figure(figsize=(8, 6))  # Set the figure size (optional)
plt.scatter(x, y, c='blue', marker='o', label='Data Points')  # Scatter plot
plt.xlabel('Variable1')  # X-axis label
plt.ylabel('Variable2')  # Y-axis label
plt.title('Scatter Plot of Variable1 vs. Variable2')  # Title (optional)
plt.grid(True)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

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



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	3650	9050
6762810635	42491	4	2.5	2920	4000
6762810998	42491	5	2.75	2910	9480
6762812605	42491	4	2.5	3310	42998
6762812919	42491	3	2	2710	4500
6762813105	42491	3	2.5	2600	4750
6762813157	42491	5	3.25	3660	11995
6762813599	42491	3	1.75	2240	10578
6762813600	42491	3	2.5	2390	6650
6762814461	42491	4	2.25	2200	11250

Show 10 per page 1 2 10 100 1000 1400 1460 1462

Files: .. sample_data House Price India.csv

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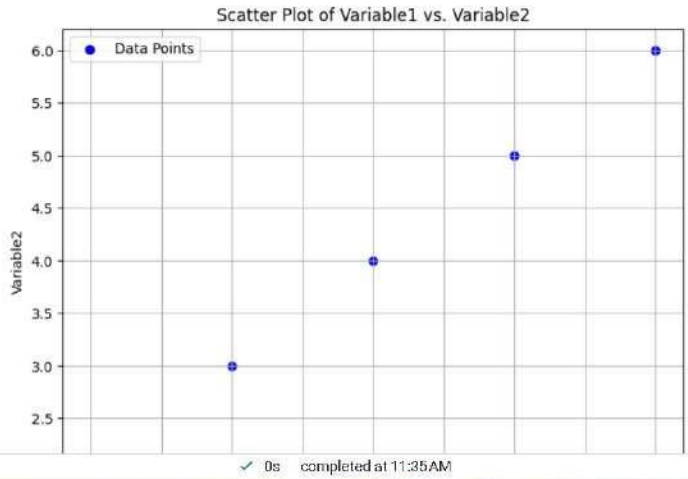
```
plt.ylabel('Variable2')  # Y-axis label
plt.title('Scatter Plot of Variable1 vs. Variable2')  # Title (optional)
plt.grid(True)  # Display grid (optional)
plt.legend()  # Display legend (optional)

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



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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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
6762814461	42491	4	2.25

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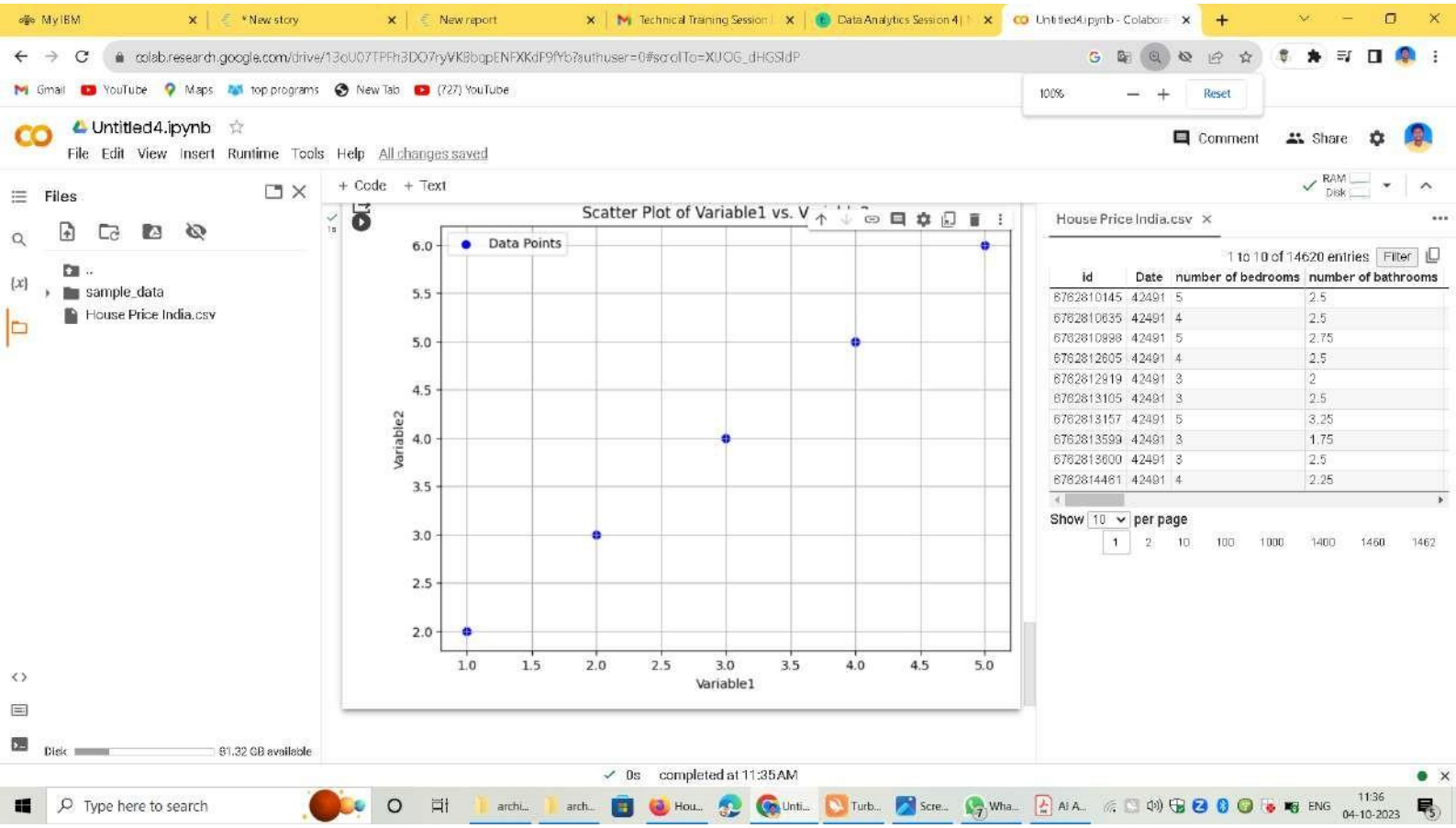
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Files
sample_data
House Price India.csv
Scatter Plot of Variable1 vs. V
Data Points
Variable2
Variable1
House Price India.csv
1 to 10 of 14620 entries
Filter
id
Date
number of bedrooms
number of bathrooms
6762810145 42491 5 2.5
6762810635 42491 4 2.5
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
6762814461 42491 4 2.25
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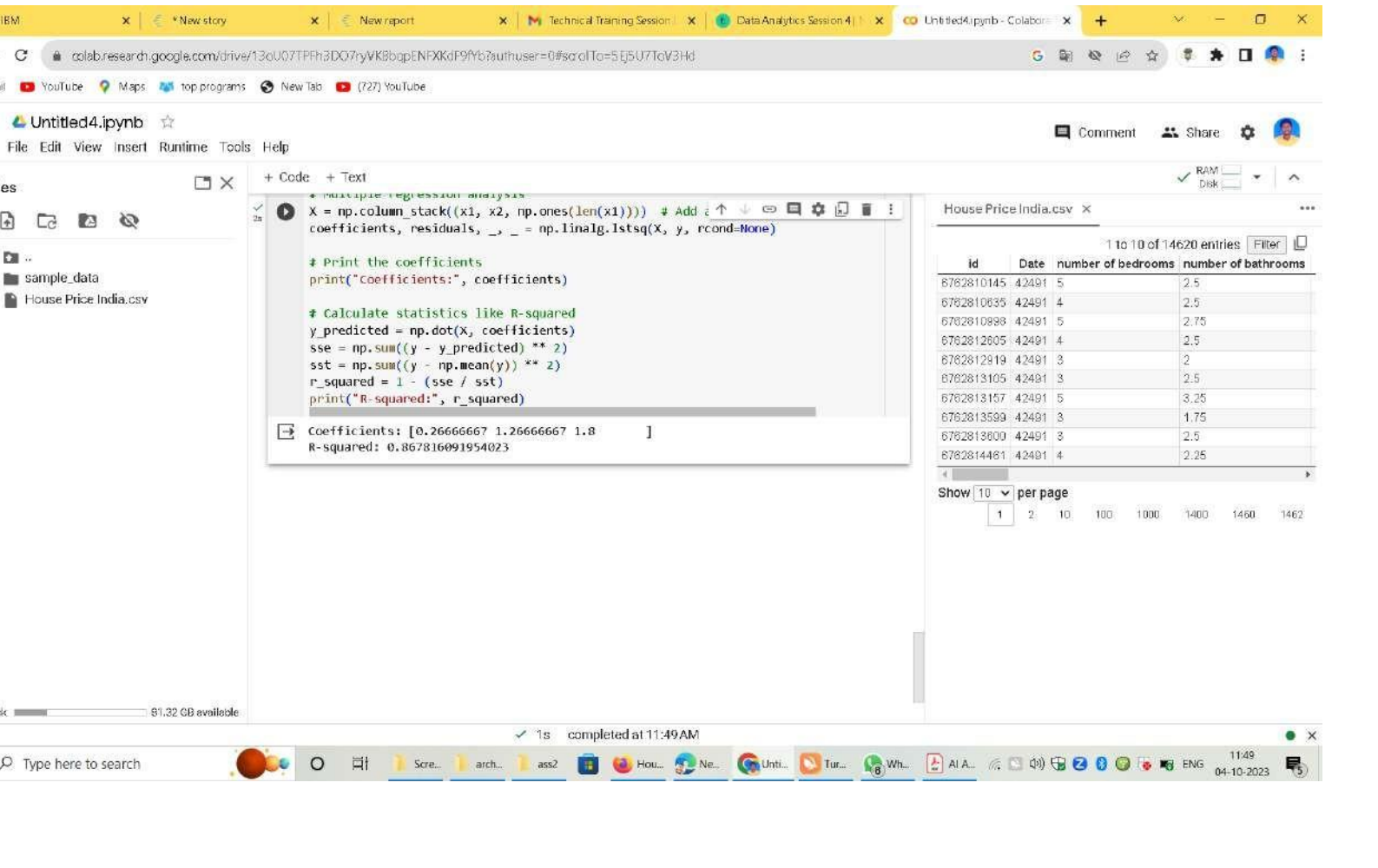
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X = np.column_stack((x1, x2, np.ones(len(x1))))
coefficients, residuals, _, _ = np.linalg.lstsq(X, y, rcond=None)
# Print the coefficients
print("Coefficients:", coefficients)
# Calculate statistics like R-squared
y_predicted = np.dot(X, coefficients)
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
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
6762814461 42491 4 2.25
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House Price India.csv

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```
# Multiple regression analysis
X = np.column_stack((x1, x2, np.ones(len(x1))))  # Add a
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

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
6762814461	42491	4	2.25

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RAM Disk

Files

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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
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
6762814461	42491	4	2.25

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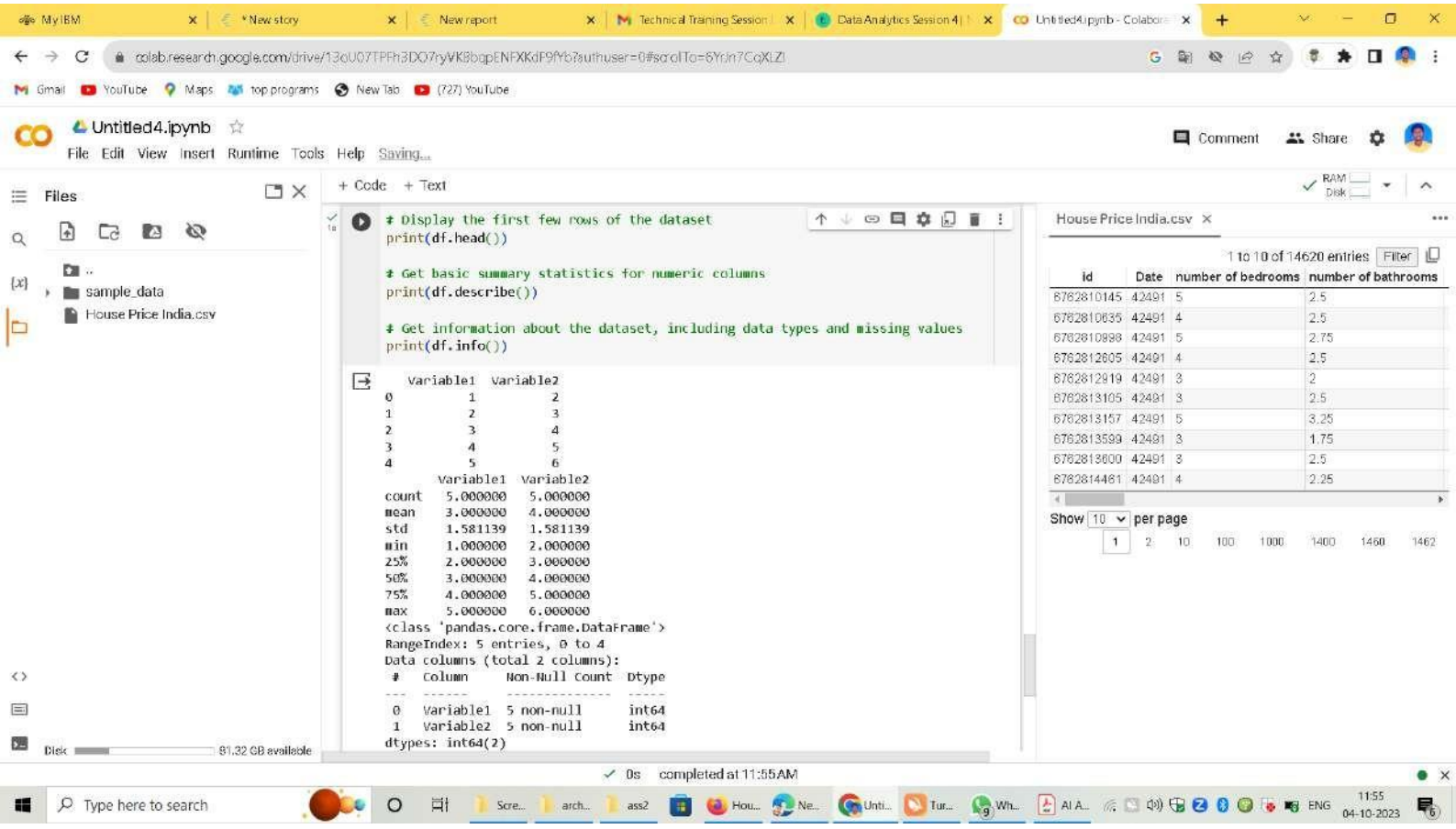
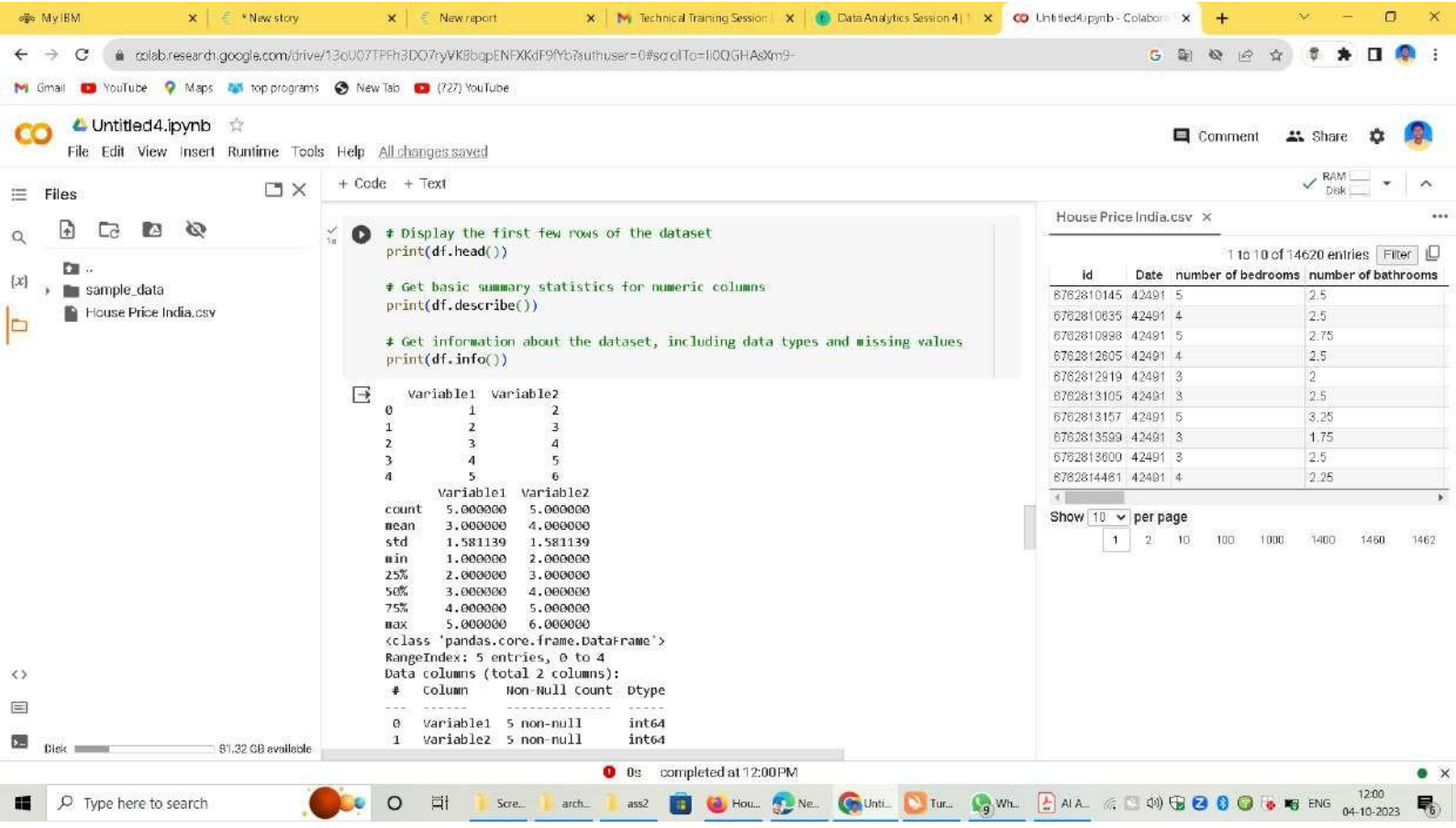

Untitled4.ipynb
File Edit View Insert Runtime Tools Help Saving...
Comment
Share
Files
sample_data
House Price India.csv
+ Code + Text
# Display the first few rows of the dataset
print(df.head())
# Get basic summary statistics for numeric columns
print(df.describe())
# Get information about the dataset, 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
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
6762814461 42491 4 2.25
Show 10 per page
0s completed at 11:55 AM


Untitled4.ipynb
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sample_data
House Price India.csv
+ Code + Text
# 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
House Price India.csv
1 to 10 of 14620 entries
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
6762814461 42491 4 2.25
Show 10 per page
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