

**Lab 5**

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SDEV 300: Building Secure Python Applications

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### Matrix Application

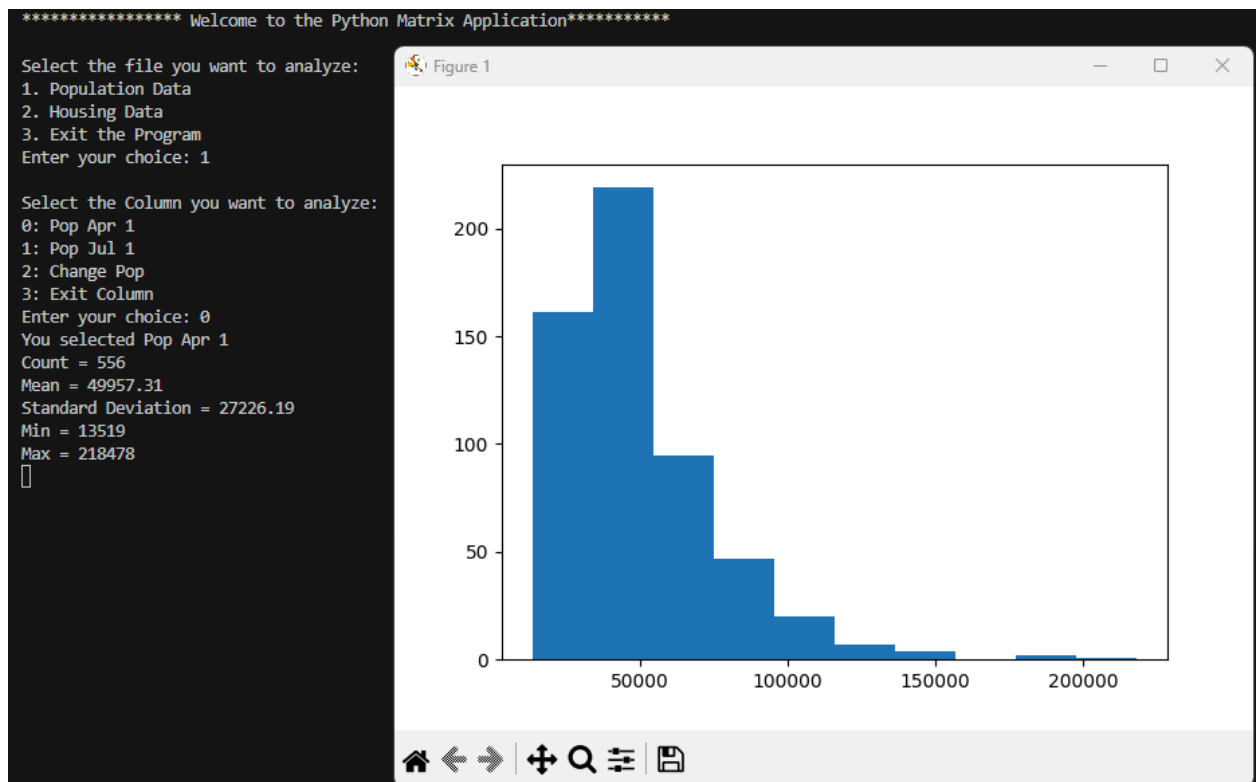
#### Test Cases

	Input	Expected	Actual	Pass?
Test Case 1	1: Population Data 0: Pop Apr 1	Count = 556 Mean = 49957.31 Standard Deviation = 27226.19 Min = 13519 Max = 218478 Print histogram	Count = 556 Mean = 49957.31 Standard Deviation = 27226.19 Min = 13519 Max = 218478 Print histogram	Yes
Test Case 2	1: Population Data 0: Pop Apr 1	Count = 556 Mean = 50112.09 Standard Deviation = 27593.60 Min = 12619 Max = 217215 Print histogram	Count = 556 Mean = 50112.09 Standard Deviation = 27593.60 Min = 12619 Max = 217215 Print histogram	Yes
Test Case 3	1: Population Data 2: Change Pop	Count = 556 Mean = 154.78 Standard Deviation = 3047.81 Min = -13775 Max = 22363 Print histogram	Count = 556 Mean = 154.78 Standard Deviation = 3047.81 Min = -13775 Max = 22363 Print histogram	Yes
Test Case 4	1: Population Data 5: Invalid	Invalid, prompt again	Invalid, prompt again	Yes

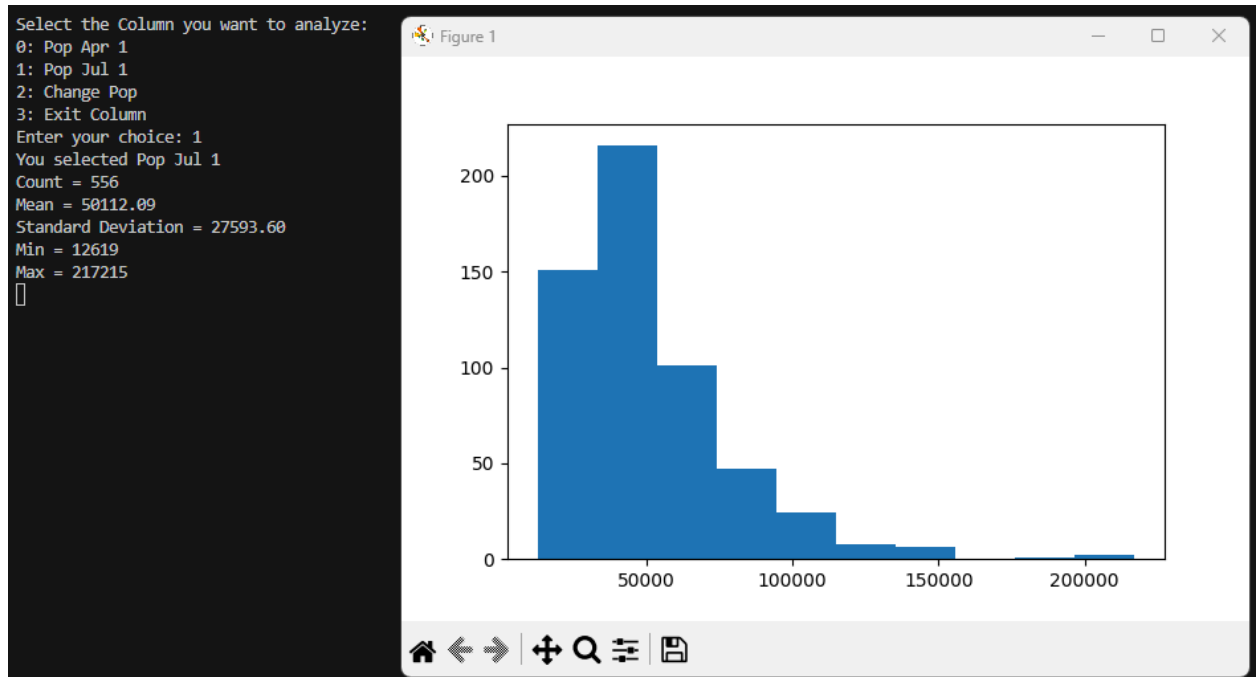
Test Case 5	1: Population Data 3: Exit	Prompt for file	Prompt for file	Yes
Test Case 6	2: Housing Data 0: Age	Count = 10042 Mean = 47.22 Standard Deviation = 23.15 Min = -9 Max = 93 Print histogram	Count = 10042 Mean = 47.22 Standard Deviation = 23.15 Min = -9 Max = 93 Print histogram	Yes
Test Case 7	2: Housing Data 1: Bedrooms	Count = 10042 Mean = 2.71 Standard Deviation = 1.07 Min = 0 Max = 7 Print histogram	Count = 10042 Mean = 2.71 Standard Deviation = 1.07 Min = 0 Max = 7 Print histogram	Yes
Test Case 8	2: Housing Data 2: Built	Count = 10042 Mean = 1966.95 Standard Deviation = 26.30 Min = 1919 Max = 2012 Print histogram	Count = 10042 Mean = 1966.95 Standard Deviation = 26.30 Min = 1919 Max = 2012 Print histogram	Yes

Test Case 9	2: Housing Data 3: Rooms	Count = 10042 Mean = 5.72 Standard Deviation = 1.88 Min = 1 Max = 14 Print histogram	Count = 10042 Mean = 5.72 Standard Deviation = 1.88 Min = 1 Max = 14 Print histogram	Yes
Test Case 10	2: Housing Data 4: Utility	Count = 10042 Mean = 189.59 Standard Deviation = 128.92 Min = 0.0 Max = 1107.583333 Print histogram	Count = 10042 Mean = 189.59 Standard Deviation = 128.92 Min = 0.0 Max = 1107.583333 Print histogram	Y
Test Case 11	2: Housing Data 5: Quit	Leave column menu, prompt for file	Leave column menu, prompt for file	Y
Test Case 12	apple	Invalid, prompt for file again	Invalid, prompt for file again	Y
Test Case 13	3: Quit	Display goodbye message	Display goodbye message	Y

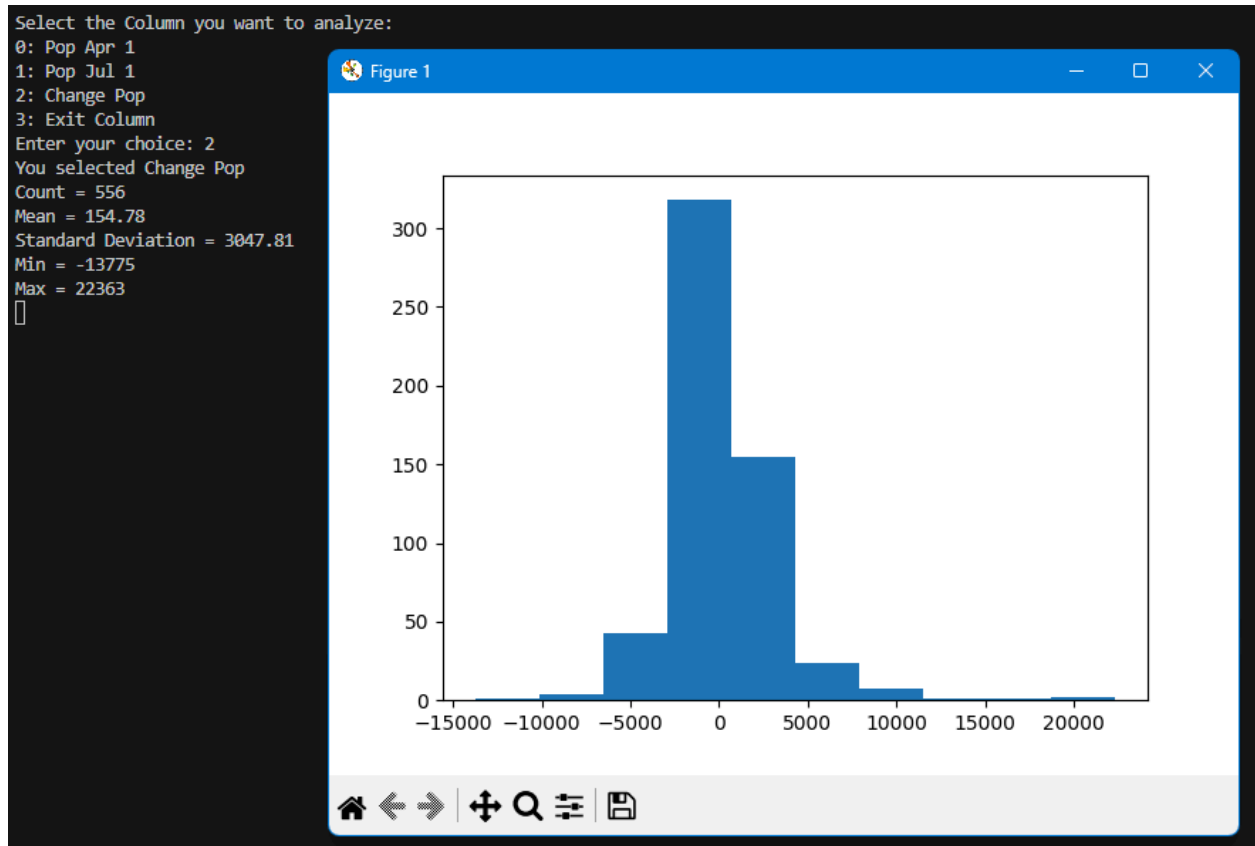
### Test Case 1:



### Test Case 2:



## Test Case 3:



## Test Case 4:

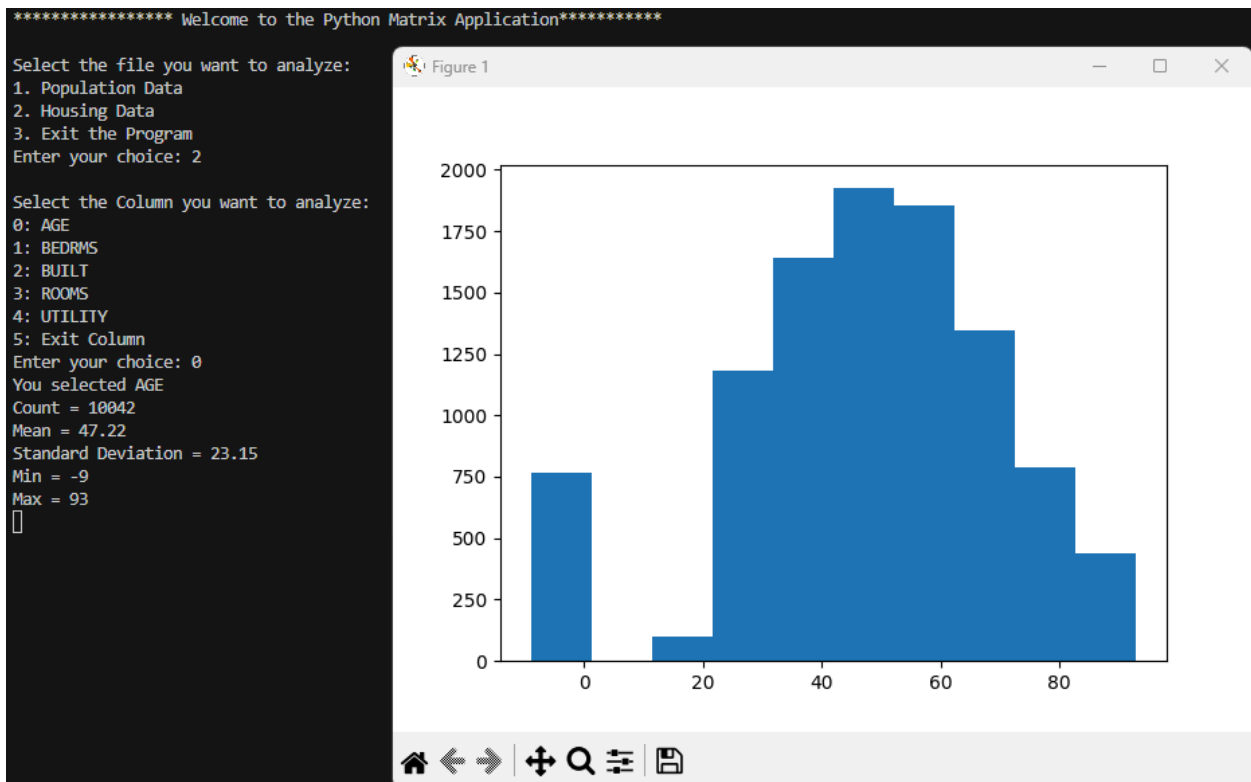
```
Select the Column you want to analyze:
0: Pop Apr 1
1: Pop Jul 1
2: Change Pop
3: Exit Column
Enter your choice: 5
Invalid, please input a number in the presented options.
Enter your choice: 
```

## Test Case 5:

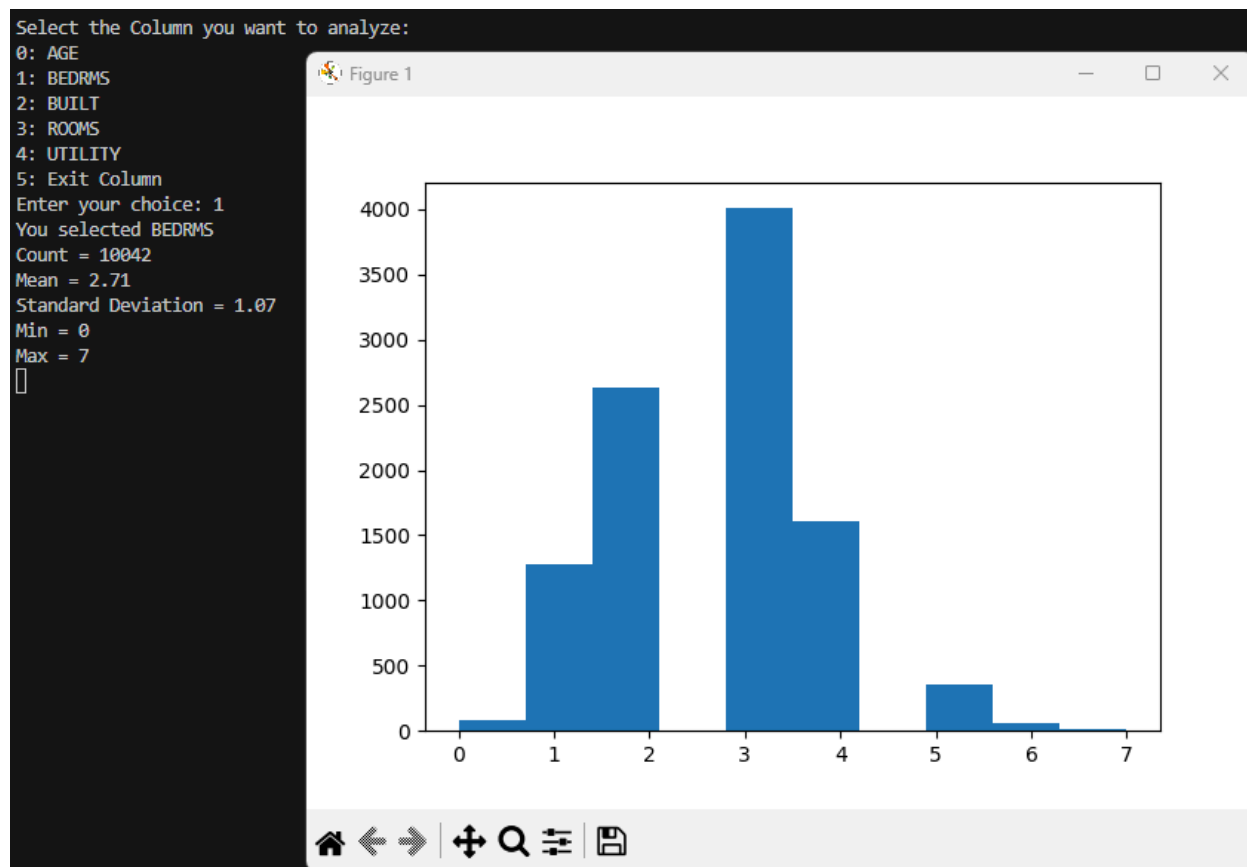
```
Select the Column you want to analyze:
0: Pop Apr 1
1: Pop Jul 1
2: Change Pop
3: Exit Column
Enter your choice: 3

Select the file you want to analyze:
1. Population Data
2. Housing Data
3. Exit the Program
Enter your choice: 1
```

## Test Case 6:

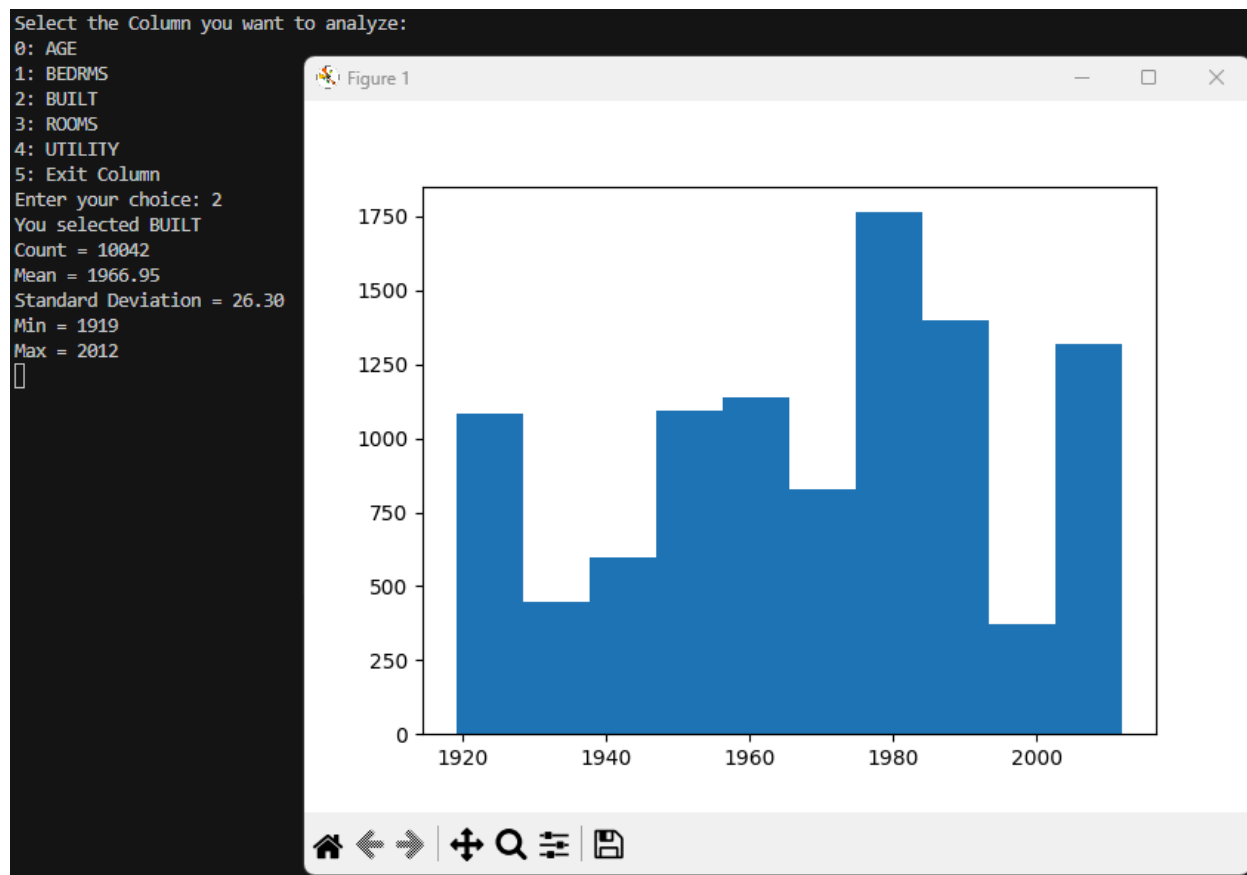


## Test Case 7:

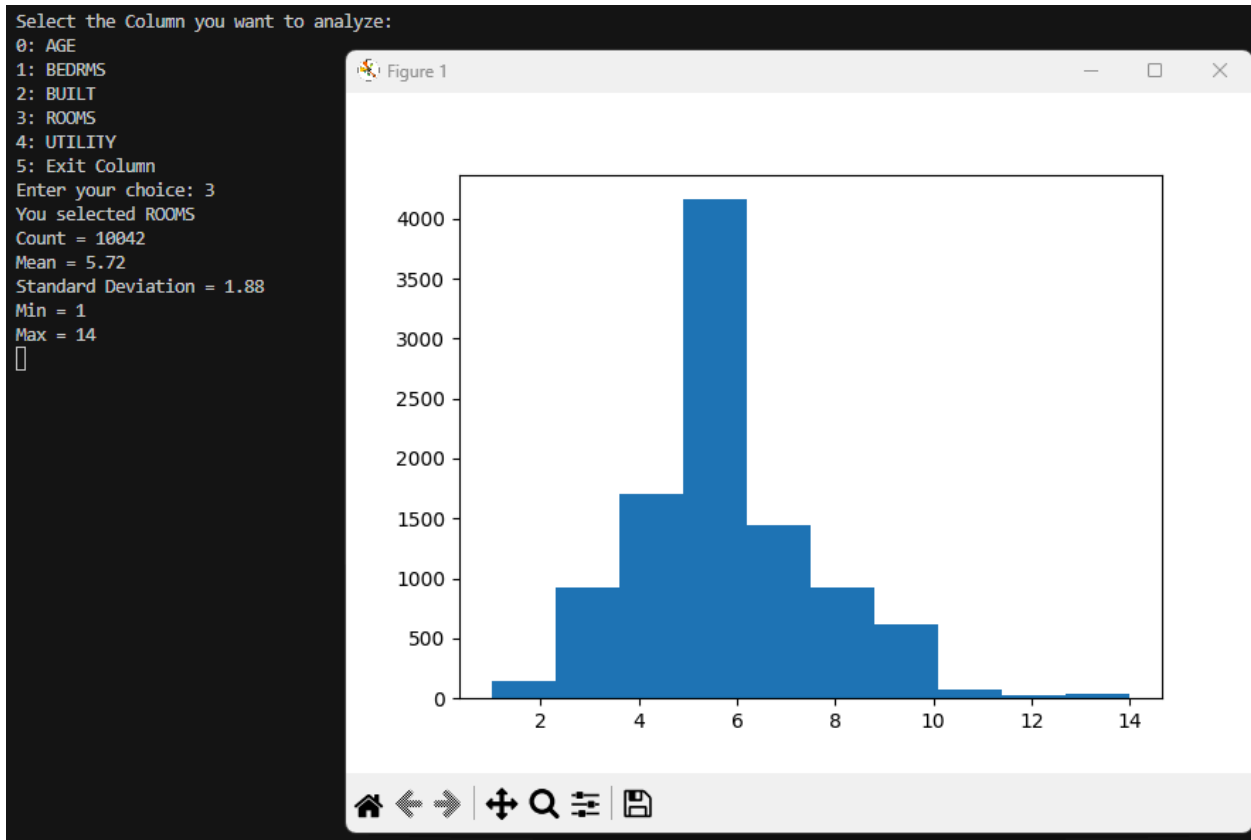




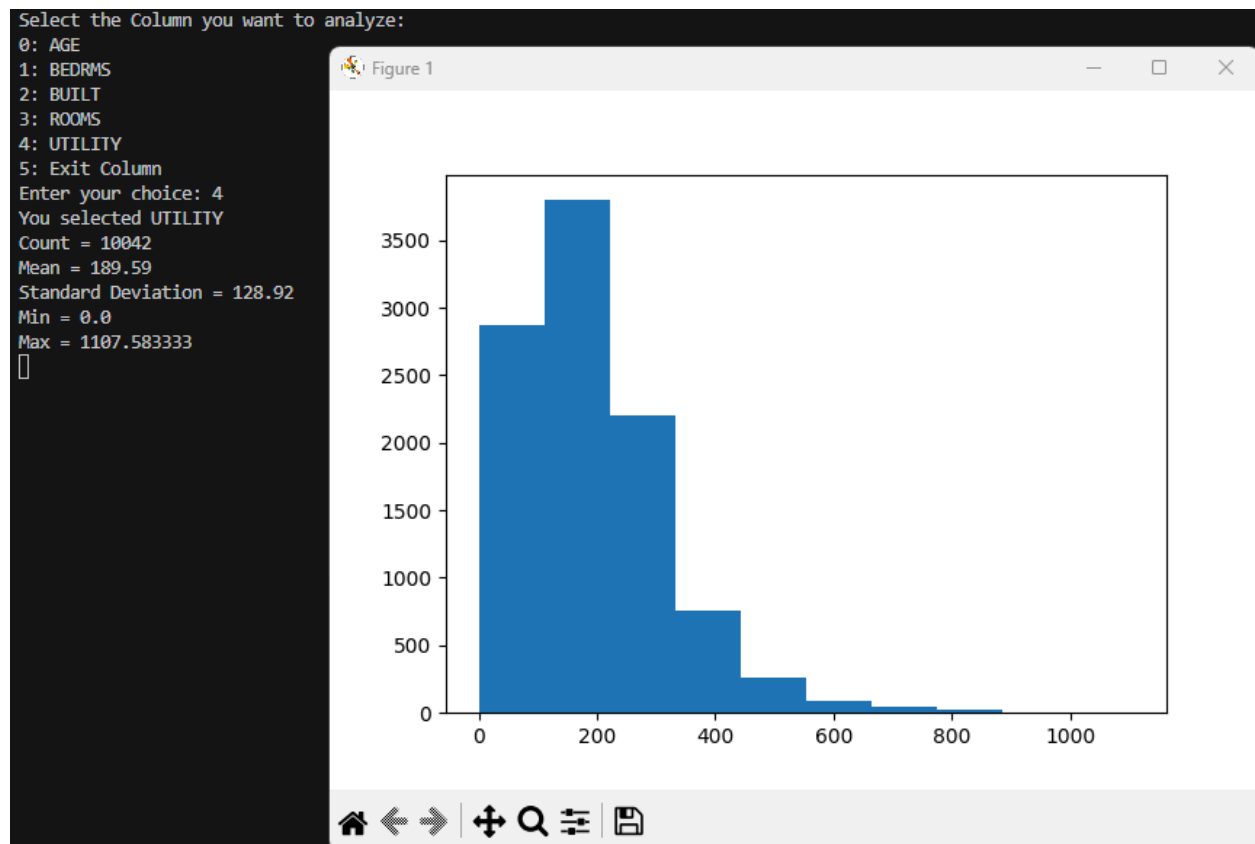
## Test Case 8:



## Test Case 9:



## Test Case 10:



## Test Case 11:

```
Select the Column you want to analyze:
0: AGE
1: BEDRMS
2: BUILT
3: ROOMS
4: UTILITY
5: Exit Column
Enter your choice: 5

Select the file you want to analyze:
1. Population Data
2. Housing Data
3. Exit the Program
Enter your choice: 
```

Test Case 12:

```
Select the file you want to analyze:
1. Population Data
2. Housing Data
3. Exit the Program
Enter your choice: apple
Invalid, please input a number in the presented options.
Enter your choice: []
```

Test Case 13:

```
***** Welcome to the Python Matrix Application*****

Select the file you want to analyze:
1. Population Data
2. Housing Data
3. Exit the Program
Enter your choice: 3
***** Thanks for using the Data Analysis App *****
```

## Pylint

```
sdev_300 > lab_5 > ≡ pylint_results.txt
1
2 -----
3 Your code has been rated at 10.00/10 (previous run: 10.00/10, +0.00)
4
5
```

Most of my code was borrowed from previous labs that had already achieved a 10/10, so there weren't any major issues for Pylance to point out. I made a few edits to my functions to make them fit in better with this particular assignment. Luckily, I found that numpy has a standard deviation function, so I didn't have to re-learn how statistics work. The rest was easy after that. I also ran bandit on my code after I finished, and found no vulnerabilities.