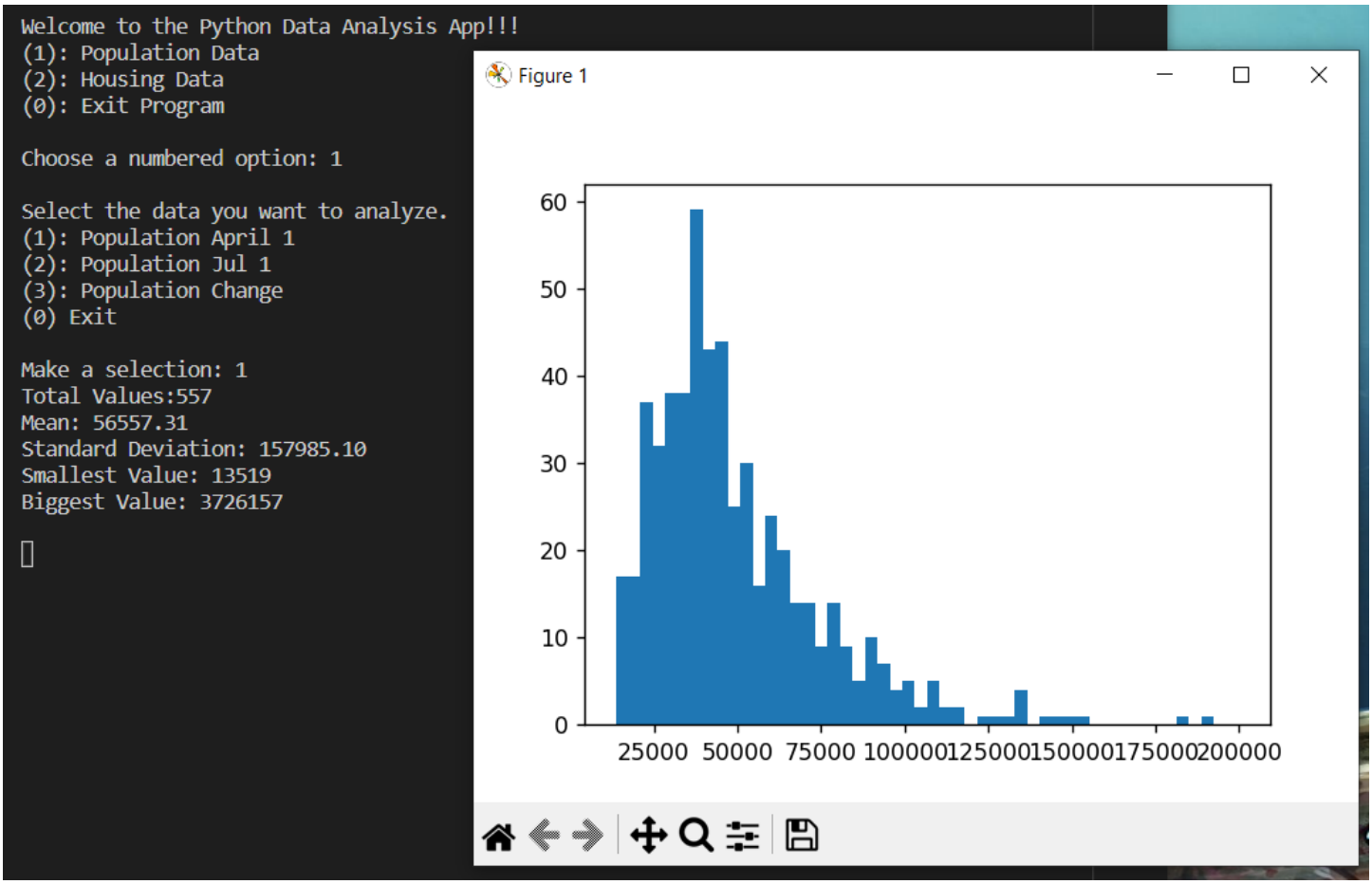
Name: Rodriguez, Michael SDEV300 Date: (11/21/2022)

```
PS C:\Users\MHR1440\Documents\impo\UMGC\SDEV300\Week5> pylint c:/Users/MHR1440
/Documents/impo/UMGC/SDEV300/Week5/RodriguezMichaelLab5.py

------------------------------------------------------------------Your code
has been rated at 10.00/10 (previous run: 10.00/10, +0.00)
PS C:\Users\MHR1440\Documents\impo\UMGC\SDEV300\Week5>
```

Test Case: Pop Apr 1 Menu Analysis

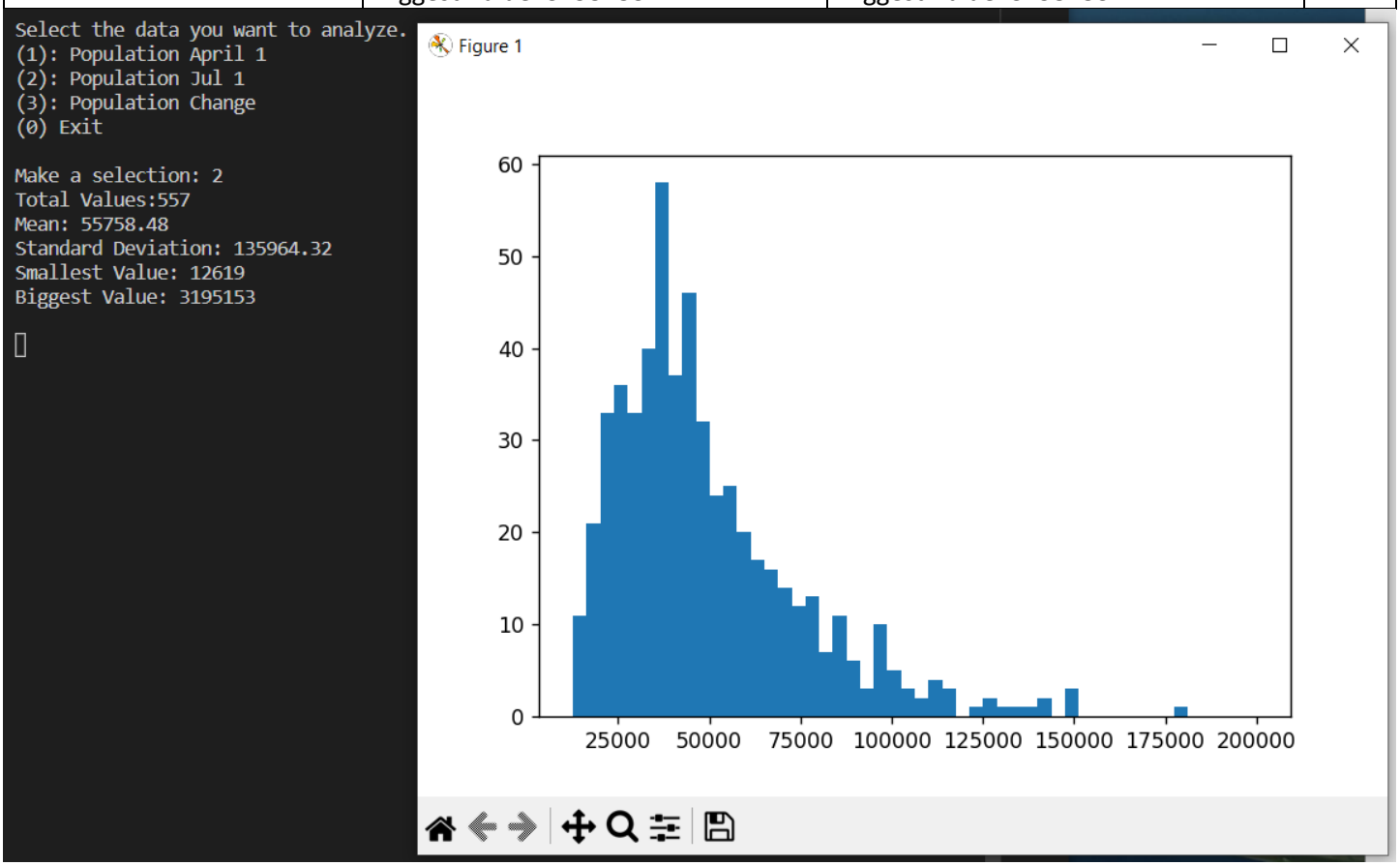
Input	Expected Output	Actual Output	Pass?
Main Menu = 1 Sub Menu = 1	Welcome to the Python Data Analysis App!!! (1): Population Data (2): Housing Data (0): Exit Program Choose a numbered option: 1 Select the data you want to analyze. (1): Population April 1 (2): Population Jul 1 (3): Population Change (0) Exit Make a selection: 1 Total Values:557 Mean: 56557.31 Standard Deviation: 157985.10 Smallest Value: 13519 Biggest Value: 3726157	Welcome to the Python Data Analysis App!!! (1): Population Data (2): Housing Data (0): Exit Program Choose a numbered option: 1 Select the data you want to analyze. (1): Population April 1 (2): Population Jul 1 (3): Population Change (0) Exit Make a selection: 1 Total Values:557 Mean: 56557.31 Standard Deviation: 157985.10 Smallest Value: 13519 Biggest Value: 3726157	Yes



Notes: The Population csv had an extreme outlier that made it hard to graph properly. I eventually found the range key word to truncate the extreme value for the histogram. The extreme data is still kept for the final metrics of standard deviation and the biggest value. Menu and sub menu output will be omitted in future cases for brevity. The histogram uses fifty bars of data for accuracy in comparison to the 19 seen in the lab document.

Test Case: Pop Jul 1 Menu Analysis

Input	Expected Output	Actual Output	Pass?
Main Menu = 1 Sub Menu = 2	Make a selection: 2 Total Values:557 Mean: 55758.48 Standard Deviation: 135964.32 Smallest Value: 12619 Biggest Value: 3195153	Make a selection: 2 Total Values:557 Mean: 55758.48 Standard Deviation: 135964.32 Smallest Value: 12619 Biggest Value: 3195153	Yes



Notes: The Jul 1 data also has an extreme outlier that is truncated for the histogram only.

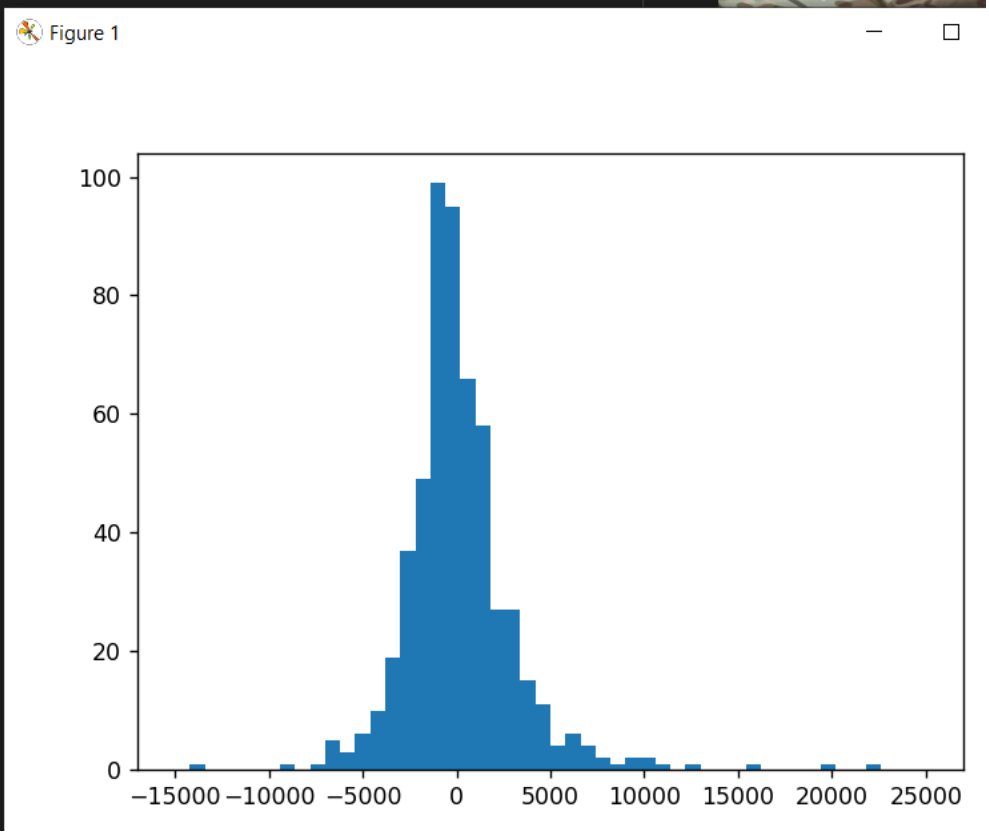
Test Case: Population Change Menu Analysis

Input	Expected Output	Actual Output	Pass?
Main Menu = 1 Sub Menu = 3, 0	Make a selection: 3 Total Values:557 Mean: -798.83 Standard Deviation: 22690.96 Smallest Value: -531004 Biggest Value: 22363	Make a selection: 3 Total Values:557 Mean: -798.83 Standard Deviation: 22690.96 Smallest Value: -531004 Biggest Value: 22363	Yes

```
Mean: 55758.48
Standard Deviation: 135964.32
Smallest Value: 12619
Biggest Value: 3195153


Select the data you want to analyze.
(1): Population April 1
(2): Population Jul 1
(3): Population Change
(0) Exit

Make a selection: 3
Total Values:557
Mean: -798.83
Standard Deviation: 22690.96
Smallest Value: -531004
Biggest Value: 22363
```



Notes: The data for this histogram had extreme ranges on both ends of the x-axis. This required a different range to show properly.

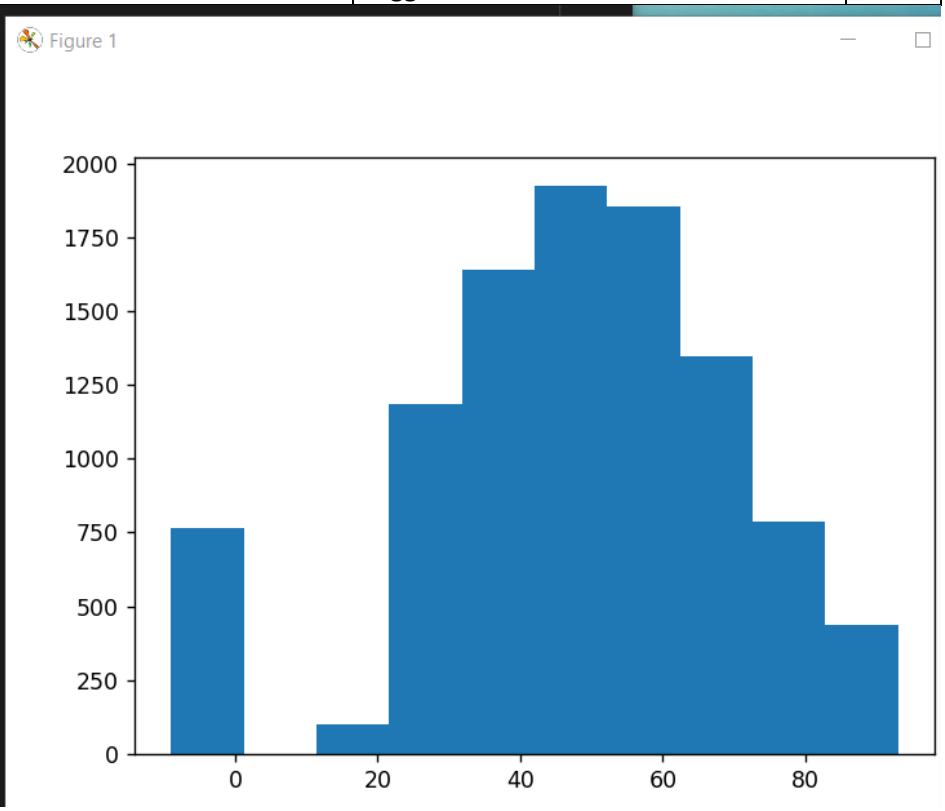
Test Case: Age Menu Analysis

Input	Expected Output	Actual Output	Pass?
Main Menu = 2 Sub Menu = 1	Make a selection: 1 Total Values:10042 Mean: 47.22 Standard Deviation: 23.15 Smallest Value: -9 Biggest Value: 93	Make a selection: 1 Total Values:10042 Mean: 47.22 Standard Deviation: 23.15 Smallest Value: -9 Biggest Value: 93	Yes

```
Welcome to the Python Data Analysis App!!!
(1): Population Data
(2): Housing Data
(0): Exit Program

Choose a numbered option: 2

Welcome to the Python Data Analysis App!!!
(1): Age
(2): Bedrooms
(3): Built
(4): Rooms
(5): Utility
(0): Exit
Make a selection: 1
Total Values:10042
Mean: 47.22
Standard Deviation: 23.15
Smallest Value: -9
Biggest Value: 93
```

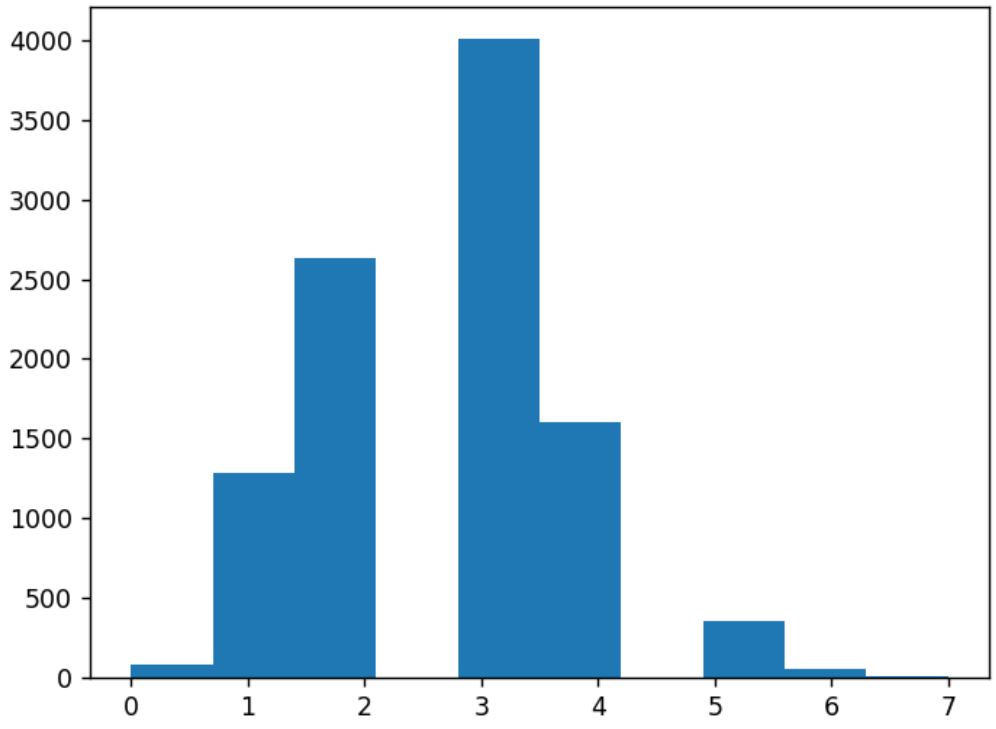


Notes: The housing data does not have any extreme outliers. The default histogram

Test Case: Bedroom Amount Menu Analysis

Input	Expected Output	Actual Output	Pass?
Main Menu = 2 Sub Menu = 2	Make a selection: 2 Total Values:10042 Mean: 2.71 Standard Deviation: 1.07 Smallest Value: 0 Biggest Value: 7	Make a selection: 2 Total Values:10042 Mean: 2.71 Standard Deviation: 1.07 Smallest Value: 0 Biggest Value: 7	Yes

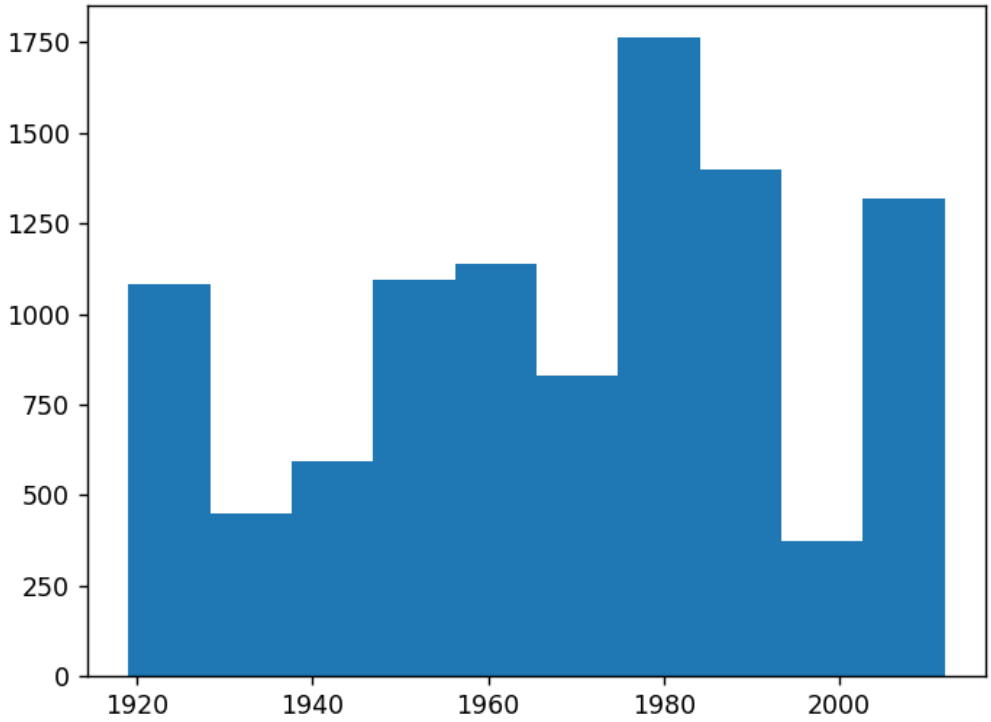
```
Make a selection: 2
Total Values:10042
Mean: 2.71
Standard Deviation: 1.07
Smallest Value: 0
Biggest Value: 7
```



Test Case: Build Year Menu Analysis

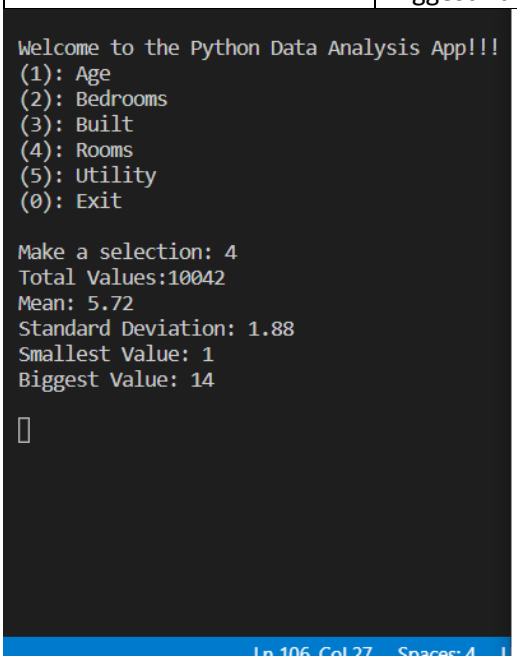
Input	Expected Output	Actual Output	Pass?
Main Menu = 2 Sub Menu = 3	Make a selection: 3 Total Values:10042 Mean: 1966.95 Standard Deviation: 26.30 Smallest Value: 1919 Biggest Value: 2012	Make a selection: 3 Total Values:10042 Mean: 1966.95 Standard Deviation: 26.30 Smallest Value: 1919 Biggest Value: 2012	Yes

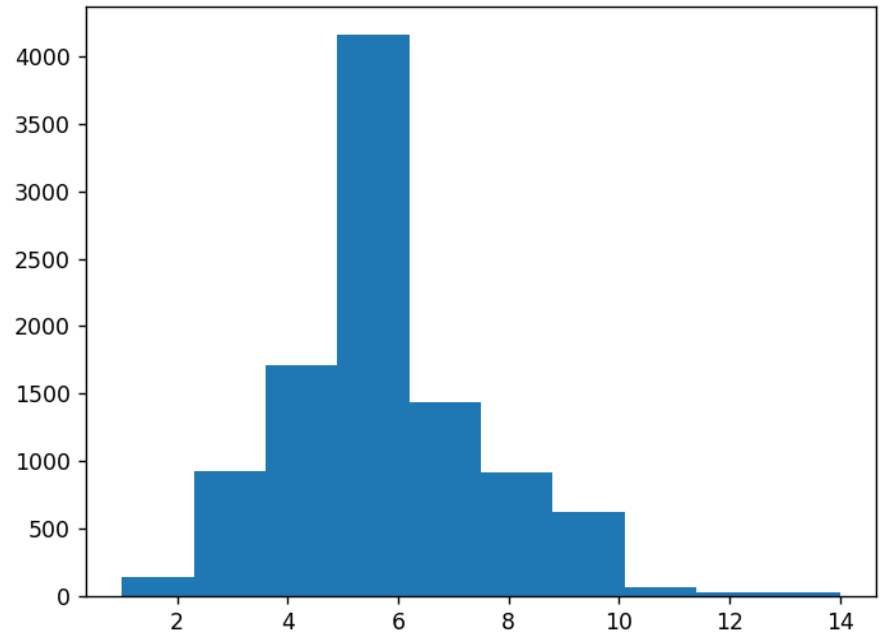
```
Make a selection: 3
Total Values:10042
Mean: 1966.95
Standard Deviation: 26.30
Smallest Value: 1919
Biggest Value: 2012
```



Test Case: Room Amount Menu Analysis

Input	Expected Output	Actual Output	Pass?
Main Menu = 2 Sub Menu = 4	Make a selection: 4 Total Values:10042 Mean: 5.72 Standard Deviation: 1.88 Smallest Value: 1 Biggest Value: 14	Make a selection: 4 Total Values:10042 Mean: 5.72 Standard Deviation: 1.88 Smallest Value: 1 Biggest Value: 14	Yes

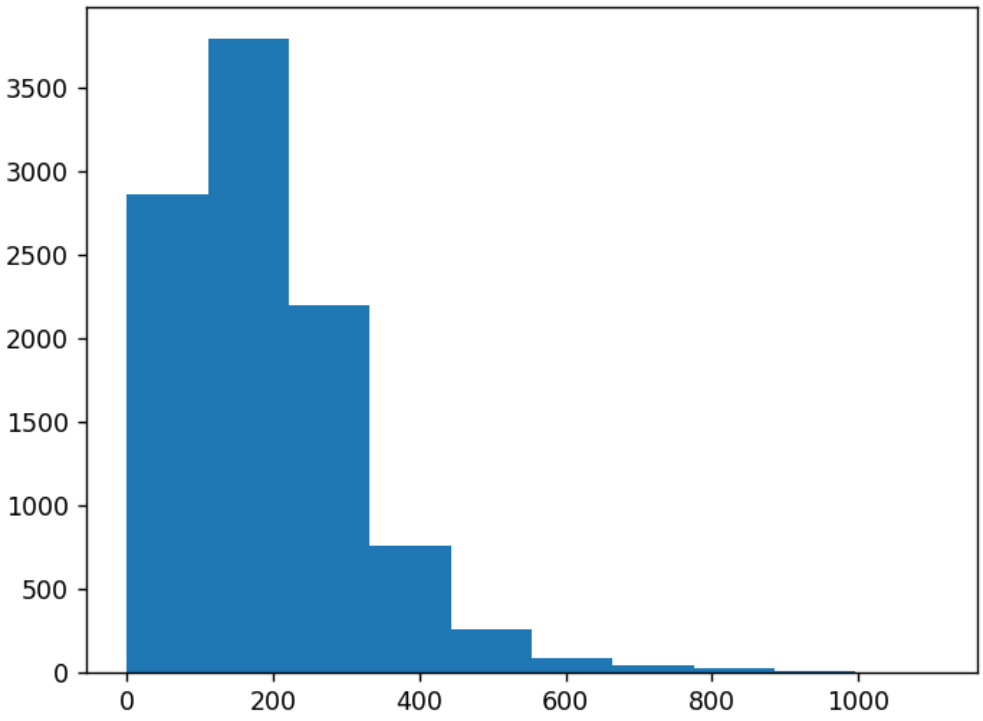




Test Case: Utility Menu Analysis

Input	Expected Output	Actual Output	Pass?
Main Menu = 2 Sub Menu = 5, a, 0, 0	Make a selection: 5 Total Values:10042 Mean: 189.59 Standard Deviation: 128.92 Smallest Value: 0.0 Biggest Value: 1107.583333 Welcome to the Python Data Analysis App!!! (1): Age (2): Bedrooms (3): Built (4): Rooms (5): Utility (0): Exit Make a selection: a Invalid input. Please try again. Welcome to the Python Data Analysis App!!! (1): Age (2): Bedrooms (3): Built (4): Rooms (5): Utility (0): Exit Make a selection: 0 Exiting population analysis... Welcome to the Python Data Analysis App!!! (1): Population Data (2): Housing Data (0): Exit Program Choose a numbered option: 0 Thanks for using the data analysis app!	Make a selection: 5 Total Values:10042 Mean: 189.59 Standard Deviation: 128.92 Smallest Value: 0.0 Biggest Value: 1107.583333 Welcome to the Python Data Analysis App!!! (1): Age (2): Bedrooms (3): Built (4): Rooms (5): Utility (0): Exit Make a selection: a Invalid input. Please try again. Welcome to the Python Data Analysis App!!! (1): Age (2): Bedrooms (3): Built (4): Rooms (5): Utility (0): Exit Make a selection: 0 Exiting population analysis... Welcome to the Python Data Analysis App!!! (1): Population Data (2): Housing Data (0): Exit Program Choose a numbered option: 0 Thanks for using the data analysis app!	Yes

```
Make a selection: 5
Total Values:10042
Mean: 189.59
Standard Deviation: 128.92
Smallest Value: 0.0
Biggest Value: 1107.583333
```



Notes: An a was inputted to verify error checking. The application requires specific input and treats every other input as an error.