Quiz 3: Visualizing and Accessing Data in Tables

TOTAL POINTS 12

1. For this week's quiz you'll look at data from automobiles manufactured from 1970 - 1982. You used this data set previously in the Module 2 Quiz. If you don't have the "Automobile Data.csv" open and run the createAutoDataFile script found in the Module 2 folder to run it. 1 point

   Below is an image of the variables and data types to import. The quiz will use the table and variable names shown in the image.

Automobile Data.csv

	A	B	C	D	E	F	G	H	I
					auto				
	Mfg	Model	Model_Year	MPG	Weight	Cylinders	Horsepower	Acceleration	Displacement
	Categorical	Text	Number	Number	Number	Number	Number	Number	Number
1	Mfg	Model	Model_Year	MPG	Weight	Cylinders	Horsepower	Acceleration	Displacement
2	chevrolet	chevrolet chevelle ma...	70	18	3504	8	130	12	307
3	buick	buick skylark 320 ...	70	15	3693	8	165	11.5	350
4	plymouth	plymouth satellite ...	70	18	3436	8	150	11	318
5	amc	amc rebel sst ...	70	16	3433	8	150	12	304
6	ford	ford torino ...	70	17	3449	8	140	10.5	302
7	ford	ford galaxie 500 ...	70	15	4341	8	198	10	429
8	chevrolet	chevrolet impala ...	70	14	4354	8	220	9	454
9	plymouth	plymouth fury iii ...	70	14	4312	8	215	8.5	440

   To help you interpret the data:

   - **MPG** stands for miles per gallon
   - **Weight** is in pounds
   - **Acceleration** is the time in seconds to go from 0 to 60 mph (miles per hour)
   - **Displacement** is the engine volume in cubic inches.

   Did you successfully import the data into MATLAB?

   - (●) Yes, I was able to successfully import the data.
   - ( ) No, I was unable to import the data.

2. Which option in the Plots Tab do you select to create the figure shown? 1 point

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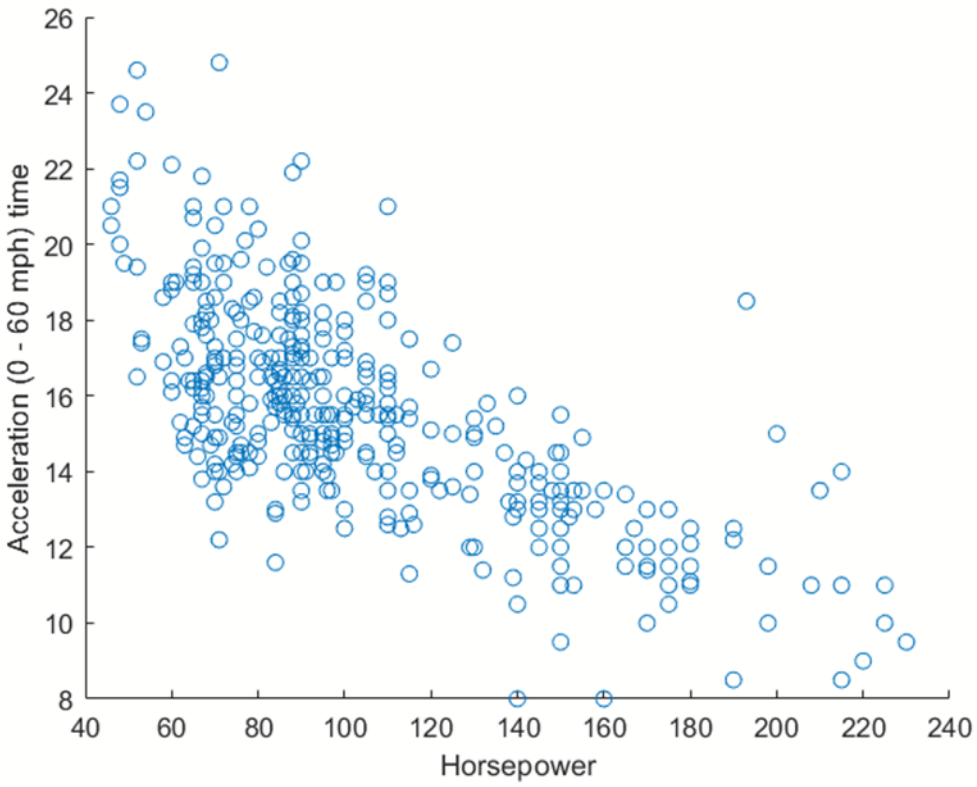


- ○ stem
- ○ semilogx
- ◉ scatter
- ○ plot

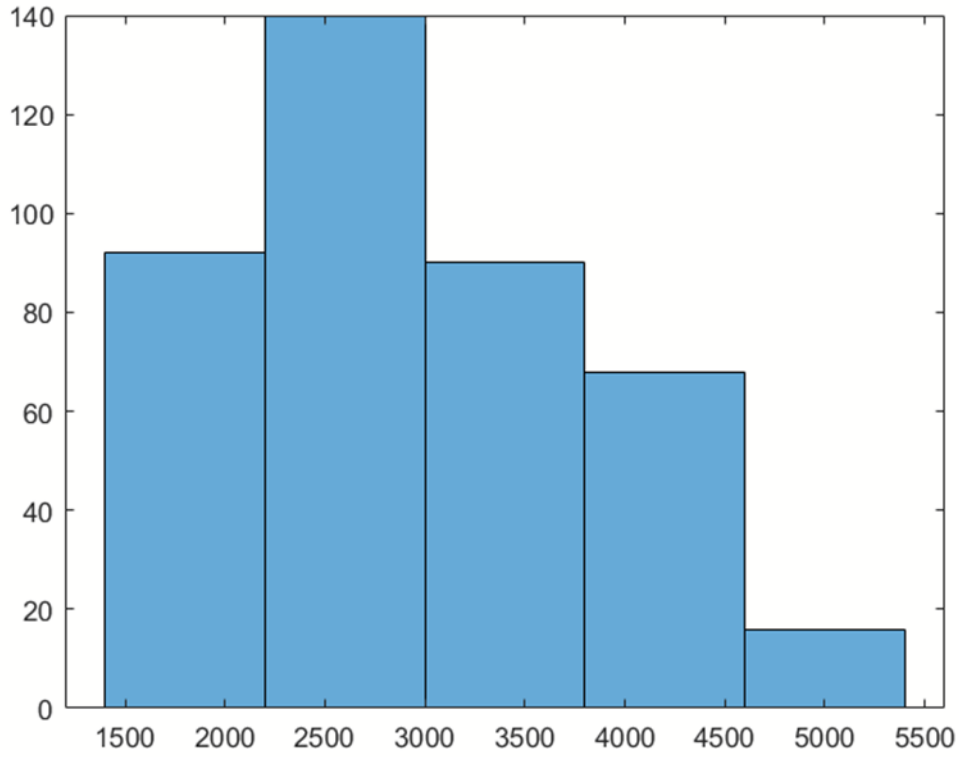
3. The figure in question 2 has both an x and y-label. Select the methods below to create labels for figures. 1 point

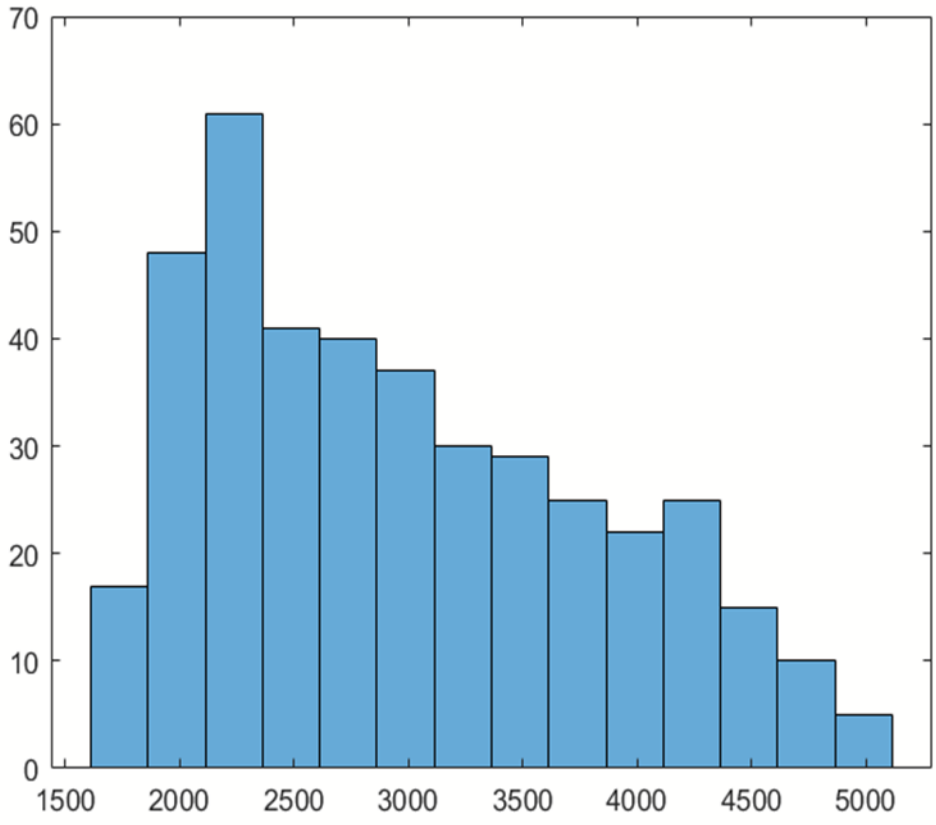
- ☐ Double-click the plot to bring up edit fields
- ☐ Right-click and select "Add Labels"
- ☑ Use the code:

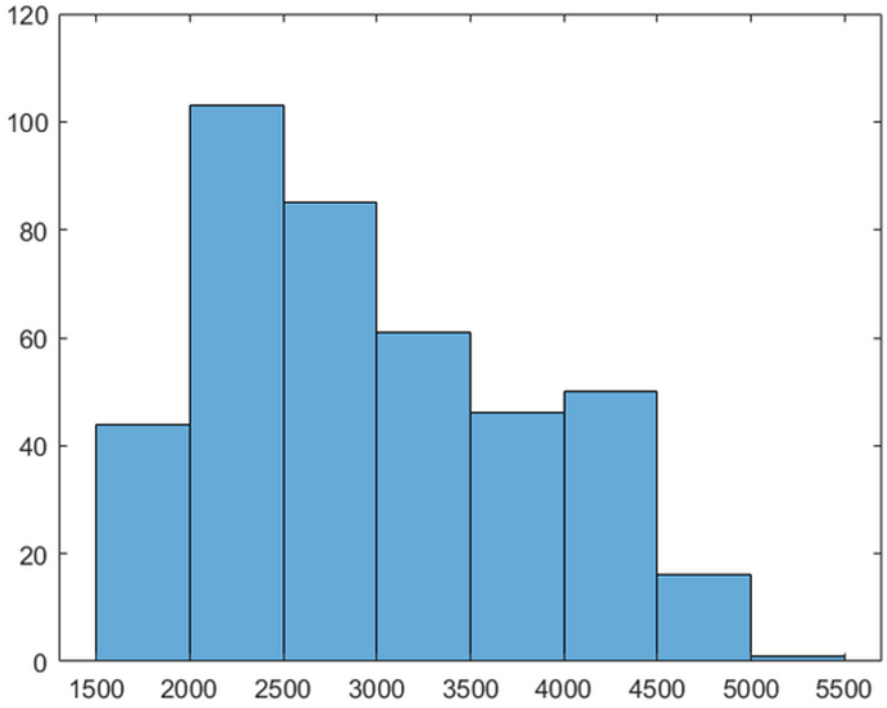
```
xlabel('Horsepower')
ylabel('Acceleration')
```

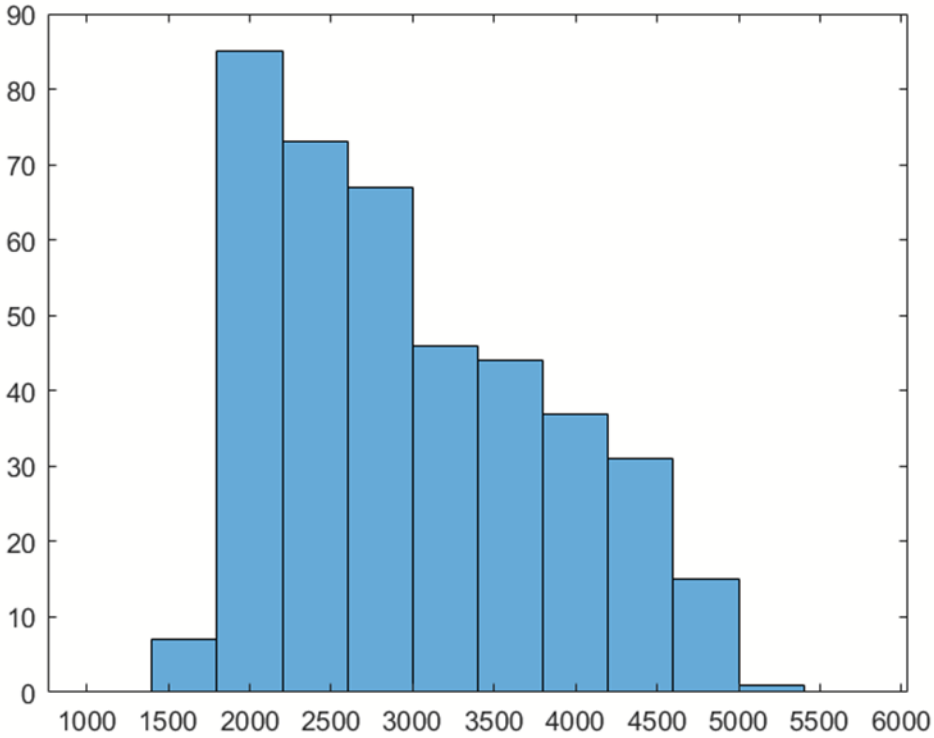
- ☑ Click on a plot in the Live Editor and use the Figure Tab to add labels and further customize the plot.

4. Create a histogram of the Weight variable in the auto table. Which image below is the figure that is created with the default options? 1 point









5. Refer to the documentation for the histogram function and consider the following function call: 1 point

```
1   histogram(auto.Weight, 10)
```

What does this command to?

- Creates a histogram with 10 edges, resulting in 9 bins of equal size
- Creates a histogram with 10 bins of equal size
- Automatically chooses the bins and displays only the first 10
- Automatically chooses the bins and displays only the 10 largest

6. Which automobile manufacturer (the Mfg variable) has the most entries in the original data set? 1 point

ford

7. Sort the table to order the entries by highest MPG to smallest. Ignoring entries with missing data, what is the MPG of the 3rd most fuel-efficient car in the data set. Enter the number to a single decimal place. 1 point

44.3

8. Filter the table to include only automobiles with 8 Cylinders. Ignoring missing entries, what is the Model of the 8-cylinder automobile with the highest MPG? 1 point

- (●) oldsmobile cutlass ls
- ( ) cadillac eldorado
- ( ) amc concord dl 6
- ( ) chevrolet impala

9. Starting with the original data, filter the table using the Model_Year variable to include only automobiles from the 1970s (1970-1979). Filter the table further to remove entries where the MPG variable is missing. How many observations are in the final table? 1 point

309

10. When filtering a table, it is good practice to do the following (Select all that apply): 1 point

- [ ] Filter your data after creating visualizations
- [ ] Use a section break to separate every filter operation
- [x] Use the "Update Code" button to capture your steps and add them to a script
- [x] Rename the filtered table so that original data is still available

11. The fuel efficiency is given in miles per gallon. To convert this to kilometers per liter you multiply the values in the MPG variable by 0.425. Which command below adds a new variable to the table auto that is the fuel efficiency in kilometers per liter? 1 point

- (●)
```
auto.KMPL = 0.425 * auto.MPG
```
- ( )
```
auto.KMPL = 0.425 * auto(MPG)
```
- ( )
```
auto = addVariable(0.425 * autoMPG)
```
- ( )
```
auto(KMPL) = 0.425 * auto(MPG)
```

12. Add the fuel efficiency in kilometers per liter to the original auto table. Move the new table variable next to the MPG variable in the table. Save the table to a new csv-file. As a bonus - convert all units to metric (weight from pounds to kilograms, displacement from cubic inches to cubic centimeters, etc). 1 point

- (●) Yes, I successfully added the new variable to the table and created a csv-file of the new table.
- ( ) No, I was unable to complete the tasks.