

1. Go to the website <http://caligari.dartmouth.edu/downloads/matlab/> and follow the instructions to have a full copy of matlab installed on your laptop.
2. Go to the website <http://www.math.dartmouth.edu/m10s08/> and copy the height data that came out of the questionnaire.
3. Open the matlab program and select the Command Window area. Enter the data in the program using the following command:

```
H = [71 63 68 68 76 72 69 66 65 63 65 63 66 70 67 73 66
     69 65 62 69 72 72 71 70 66 64 60 67 75 68 69 65 64]
```

4. The equal sign is an assignment operator. What is on the left is a variable that receives the assignment. What is on the right is a list (i.e. vector) or table (i.e. matrix) of numerical values. You can access the values of the table using subscripts. Try `H(5)`, `H(9)`, or even `H(end)` to access the last element.
5. The colon operator, `:`, is used to produce sequence of numerical values. Try the following commands and figure out what they do.

```
1:10
5:15
3:2:13
10:1.5:25
25:-1:12
H(3:5)
H(3:2:7)
H(end:-1:1)
```

6. The `sum` function takes a list of values and spits out the sum of them. The `length` function takes a list of values and spits out the number of elements in the list. The `sort` command takes a list of values and spits out the same list sorted. Try

```
sum(H)
length(H)
sort(H)
```

7. Using only the previous functions, can you compute the mean and the median of the values?

Mean: _____

Median: _____

8. The semicolon, `;`, at the end of a line, suppresses the output. The two commands

```
S = sum(H)
S = sum(H);
```

both assign to S the sum of the values in H but only the first one displays on the Command Windows the value of S.

9. Clicking on the workspace tab on the left, you can see the variables in memory. By double clicking on one of them, you can access the values like in a spreadsheet. Now open the editor from the menu File – > New – > M-File.
10. Everything you type in the editor area doesn't get automatically executed. Write some of the previous commands. To run a command, select the text and press F9 (on Mac press Shift+F7). You will see the command being executed in the command window. Also, if you move your cursor on a specific command and you press the button F1, you will see an help box explaining how the command works and what it does. It might come useful later if you forget what a command does. Press Esc to close the box. Browsing the help is the best way to learn how to use new matlab functions.
11. If you want to select all the heights that are less than 5'6, you can do that simply typing

```
H(H<66)
```
12. You might want to find only the people whose height is less than 5'6 or the height is larger than 6'0 with the following

```
H(H<66 | H>72)
```

Or you can find the people whose height is greater than or equal to 5'6 AND the height is smaller than or equal to 6'0 with

```
H(H>=66 & H<=72)
```

The symbols | and & stand, respectively, for OR and AND while the symbols >= and <= stand for \geq and \leq .
13. Divide H in three groups, those that are 5'5 or below, those that are in between or equal to 5'6 and 5'10, and those that are from 5'11 up. Put the size of each group respectively in G(1), G(2) and G(3);
14. Use the command bar to draw a bar graph of the three groups with the command bar(G)
15. Use the command pie to draw a pie chart of the three groups with the command pie(G)
16. If you want to add some explanation to your drawing, you can do that with

```
legend('short', 'medium', 'tall')
```
17. If you want, try the plot command and the hist command to analyze your data. Try to learn on your own how these functions work with the matlab help.