

# Lab 07 (Due: Monday, April 11, 2016, 11 : 59 : 00pm (Central Time))

CSCE 155N

## 1 Lab Objectives

- Get and set some advanced properties using statistics and sets
- Sorting numbers
- Using indices
- Generate M-files for reproducing figures

## 2 Prior to Laboratory

- Review the laboratory handout
- Read Chapter 12 in Attaway

## 3 Topics Covered in Lab

- Get and set some advanced properties using statistics and sets
- Sorting numbers
- Using indices

## 4 Activities/Exercises

### Before You Begin

- Download files from <http://cse.unl.edu/~cse155n/labs/08> to your Z:\csce155nm directory

### 4.1 myBubbleSort

- Modify `myBubbleSort.m` so that the function returns the partial result of putting the  $n$  largest numbers in the correct (ascending) order during the execution of bubble sort
- $n$  will be an integer value between 1 and the length of the array (inclusive)
- `myBubbleSort( someArray , length( someArray ) )` would return the completely sorted array.

## 4.2 myIndexing

- Modify `myIndexing.m` so that the function returns indices of the array that can be used like this  
`[ asc , desc ] = myIndexing( someArray ); disp( someArray( desc ) )` to display the array in descending order.
- **Do not use MATLAB's sort Function**

## 4.3 myMiddleFind

- Modify `myMiddleFind.m` so that the function returns the position of the middle (second of three, third of five, etc.) instance of something in an array.

`myMiddleFind(3, [3,3,3])` would return 2; `myMiddleFind(3, [3,5,4,2,1,3,9,4,3])` would return 6, and so on.

Assuming that there are an odd number of a specific element in an array, you want to just return the index of the middle instance that you find (second index if you find three items, third if you find five of the same item, etc.)

## 4.4 30% Extra Credit: myInsertionSort

- Modify `myInsertionSort.m` so that the function returns the partial result of putting the first  $n$  numbers in the correct (ascending) order during the execution of insertion sort
- $n$  will be an integer value between 1 and the length of the array (inclusive)

# 5 Code Documentation

Remember to document your files in the way that we did for the previous labs. It will come in handy when you look back at code after a long time, or when someone else is trying to understand what your code does.

# 6 What to Submit

You will be submitting five (5) or six (6) files (`myBubbleSort.m`, `myIndexing.m`, `myMiddleFind.m`, and, maybe `myInsertionSort.m`, along with `members08lab.txt` and `contributions08lab.txt`).

# 7 Additional Resources

Online MATLAB Documentation  
CSE Webhandin  
CSE webgrader

## 8 Point Allocation

Component	Points
myBubbleSort.m	30
myIndexing.m	30
myMiddleFind.m	30
members08lab.txt	5
contributions08lab.txt	5
Total	100