ECE 175: Computer Programming for Engineering Applications
Lab Assignment #5 (Wednesday sessions)

Relevant Programming Concepts:

- Function with pass by pointer
- Array

Problem 1) (15 points) Write a C program that lets a user enter score values until he/she enters -1 and then outputs

1) the number of times that the score value is A) less than 49 (inclusive) or B) between 50-69 or C) between 70-89 or D) above 90, and
2) the average/mean score.

Your program must complete and use the following function (Note: -10 points if the function is not used in your program).

void scoreDist(int num, int *p_A, int *p_B, int *p_C, int *p_D)

In scoreDist function, num is a score value, the four int pointers point to variables in the main that hold the count for each score range.

Note: you can assume that users will enter values between 0 and 100

Sample execution (red entered by a user)

```
Enter value between 0 - 100 (-1 to stop): 99
Enter value between 0 - 100 (-1 to stop): 100
Enter value between 0 - 100 (-1 to stop): 90
Enter value between 0 - 100 (-1 to stop): 87
Enter value between 0 - 100 (-1 to stop): 75
Enter value between 0 - 100 (-1 to stop): 31
Enter value between 0 - 100 (-1 to stop): 38
Enter value between 0 - 100 (-1 to stop): 70
Enter value between 0 - 100 (-1 to stop): 69
Enter value between 0 - 100 (-1 to stop): 55
Enter value between 0 - 100 (-1 to stop): 32
Enter value between 0 - 100 (-1 to stop): 49
Enter value between 0 - 100 (-1 to stop): -1
Score range      Occurrence
up t0 49:         4
50-69:            2
70-89:            3
90 or above:      3
The average score is 66.25
```

Sample execution #2 (red entered by a user)

```
Enter value between 0 - 100 (-1 to stop): -1
Temp range       Occurrence
up t0 49:         0
50-69:            0
70-89:            0
90 or above:      0
The average score is 0.00
```

Note: You can assume that a user will enter values between 0 – 100 except when they want to quit, they will enter -1.

Problem 2 (15 points) Symmetric Arrays

Write a C program that

- Scans in 8 integers (from the user) and stores them in an array.
- Displays the maximum of the elements in the array.
- Displays the array elements in reverse order, i.e. displays the last element first.
- Checks whether the array is symmetric, i.e. if the value of the first element equals the last one, if the value of the second element equals the one before the last one, · · ·

Note: The loop structure must be used to get numbers entered by a user into an array, access the array to display the elements in the reverse order and to find the maximum value. If your program does not use the loop, you will get 0 point for this problem!

Sample Code Execution 1: Red text indicates information entered by a user

```
Enter 8 integer numbers (each one separated by a space):
-1 3 100 9 9 100 3 -1

The maximum value of all data points is 100
An array in reverse order:
-1 3 100 9 9 100 3 -1
This array is symmetric
```

Sample Code Execution 2: Red text indicates information entered by a user

```
Enter 8 integer numbers (each one separated by a space):
-10 -2 -3 -4 -4 -10 -1 -10

The maximum value of all data points is -1
An array in reverse order:
-10 -1 -10 -4 -4 -3 -2 -10
This array is NOT symmetric
```