Lab 5

Pointers - Arrays

1 Problem 1 – Arithmetic Operations

Write a C program that takes as input **five** floating point numbers and count the number of positive and negative numbers. Also print the average of all positive and negative values.

Sample Run:

Input:

```
Enter 5 numbers:
12
45.13
-50.8
0.19
-16
```

output:

```
Number of positive numbers: 3
Number of Negative numbers: 2
Average of positive numbers: 28.66
Average of negative numbers: -33.4
```

2 Problem 2 - Sales People

A company pays its sales people on a commission basis. A salesperson receives $200 per week plus 9% of his/her gross sales for that week. For example, a salesperson who grosses $3000 in sales in a week receives $200 plus 9% of $3000, or total of $470. Write a C program that uses an *ARRAY* to determine how many salespersons earned salaries in each of the following ranges.

a) $200 - $299

b) $300 - $399

c) $400 - $499

d) $500 - $599

e) $600 - $699

f) $700 - $799

g) $800 - $899

h) $900 - $1000

i) $1000 and above

It should take as input the week's gross sales of a salesperson, then it should calculate the week salary of the salesperson, and increment the corresponding salary range by one (check the sample run below).

Assume that each person's salary is truncated to an integer. For example, in the above example, a salesperson who grosses $3000 in sales in a week receives $200 plus 9% of $3000, whichis a total of $470. So, he falls into the 3rd range ($400 - $499).
Your program does not know how many salespersons will be entered. However, the program should keep on reading inputs from the user until the user enters -1.

Note: using an array to store the counts of salespeople in each salary range is a requirement!

Sample Run:

```
Enter Employee gross sale (-1 to end) : 3000
Employee salary is $470

Enter Employee gross sale (-1 to end) : 1000
Employee salary is $290

Enter Employee gross sale (-1 to end) : 10000
Employee salary is $1100

Enter Employee gross sale (-1 to end) : 8000
Employee salary is $920

Enter Employee gross sale (-1 to end) : 200
Employee salary is $218

Enter Employee gross sale (-1 to end) : 7000
Employee salary is $830

Enter Employee gross sale (-1 to end) : -1
```

```
Total 6 Employees Reported
Employees in the range:
200   299: 2
300   399: 0
400   499: 1
500   599: 0
600   699: 0
700   799: 0
800   899: 1
900   999: 1
Over 1000:  1
```

3 Problem 3 - Add two matrix using pointers

Write a C program to add two matrix using pointers. The program should take as input two matrix from user and find sum of both matrices using pointers. Assume the dimensions are 3x3.

Sample Run:

Input:

```
Input matrix1 of size 3x3:
1 2 3
4 5 6
7 8 9
Input matrix2 of size 3x3:
9 8 7
6 5 4
3 2 1
```

Output:

```
Sum of both matrices:
10 10 10
10 10 10
10 10 10
```

4 Delivery Requirements

- You are required to submit the following:
  - The source codes of the programs
  - A detailed report is required, contains
    - Assumptions and details you find necessary to be clarified
    - Sample runs
- You should Compress your deliverables into a zip file with your name and send by email to: **ahmed.elsayed.mahmoud3@gmail.com** with subject: **Data Structures Lab 1**
- You should work individually.
- You are encouraged to ask any questions on teams, or in person.

Good Luck