# EEE 332/ CSE 331 Work Sheet

## Problem A

The Fibonacci sequence of numbers is generated by always adding the previous two numbers of the sequence. The first two numbers of the sequence are initialized to 1. So the next number of the sequence will be 1+1=2 and so on.

Example: 1, 1, 2, 3, 5, 8, 13…..

(First two numbers are 1, 1. The next number is generated by adding the previous two numbers)

**Write a program, in assembly language, that will generate the first 10 Fibonacci Numbers. Assume that the first two numbers are included.**

## Problem B

A class teacher has the marks for **10 students**. He wants to create a distribution curve based on the frequency of the marks obtained by the students. **The exam was out of 10.**

**Write a program that will count the frequency of the marks attained by the students.**

Example:

Marks:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 6 | 5 | 4 | 7 | 6 | 6 | 8 | 3 | 10 |

Frequencies:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 0 | 0 | 0 | 1 | 1 | 1 | 3 | 2 | 1 | 0 | 1 |

Instructions:

Create an array of size 10. Load the arrays with marks of your choice. Try to add some repetitions so that it simulates a real exam scenario.

Create a second array. This array will contain the frequency of the marks. **You may use the indices of the array to represent the mark.** Study the example.

## Problem C

Write a complete assembly program to read 16 digits, each digit separated by a single space from the keyboard. Convert them from character to numbers and calculate the average score and display it on the screen.

Hint:  Subtract 30h from each character to get actual digit.  Before display, add 30h to each digit.

## Problem D

Write a program that searches for a character inside a string. Both the string and the search character should be taken from the user. Once the character is found, your program should output the location of the character, that is, the index of the character where it resides. If there are multiple instances of the same character, then take only the first one into consideration.

## Problem E

Write a program that will find the average of a given array. You do not have to take inputs from the user. You just have to print out the average. Assume that you have an array of size 5.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Array** | 1 | 2 | 3 | 4 | 5 |

Average: 3

## Problem F

You are given two arrays loaded with random numbers. You must add the content of each array and the sum will be stored in another array. You must print the contents of the sum array. Ex:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Array 1** | 1 | 2 | 3 | 4 | 5 |
| **Array 2** | 5 | 4 | 3 | 2 | 1 |
| **Sum Array** | 6 | 6 | 6 | 6 | 6 |

Create the three arrays. Load values of your wish in the first two. Place the sum of each of the element in the two arrays into the third array.

## Problem G

Create two arrays of size 5. Load one of the arrays with numbers taking user input. The second arrays should be kept blank. Copy the contents of the first array into the second array in **reverse** order using loops to accomplish this task.