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# BSc (Hons) in Information Technology
# Year 1

## Tutorial 9

## IT1010 – Introduction to Programming Semester 1, 2020

**** Please upload the answers for the following questions to the provided courseweb link on or before 9th of May.**

### Question 1

a) Write a C program that reads marks of 10 students in to a single subscripted array.

b) Above marks should be between 0 to 20. Modify the above program to add marks to the array only if the input mark is between the given range.

c) Find the mean of the marks by reading the values of the array.

### Question 2

Create an integer array called **Motion** of size 5. Ask the user to enter values to the array from the keyboard. Rotate the values of the array by one position in the forward direction and display the values.

Ex: number in index 4 should move to index 3, Number in index 3 should move to index2, number index 0 should move to index 4.

| | |
|---|---|
| Initial values | 10 6 8 2 9 |
| After rotating | 6 8 2 9 10 |

### Question 3

Write a C program that read numbers from an integer array and graph the information in the form of bar chat. Sample output is given below.

| Element | Value | Histogram |
|---|---|---|
| 0 | 19 | ********** |
| 1 | 3 | *** |
| 2 | 15 | ********** |
| 3 | 7 | ******* |
| 4 | 11 | ********** |
| 5 | 9 | ********* |
| 6 | 13 | ********** |
| 7 | 5 | ***** |
| 8 | 17 | ********** |
| 9 | 1 | * |

**Question 4**

A palindrome is a word, phrase, number or other sequence of characters which reads the same backward and forward. Write a C program that enter a word, store it in an array and determine whether it is palindrome or not.

Example : CIVIC is a palindrome

HOT is a not a palindrome

**Question 5**

Write C program that to add following two matrixes and display output.

$$\begin{Bmatrix} 5 & 7 & 8 & 10 \\ 9 & 3 & 0 & 6 \\ 8 & 1 & 9 & 2 \\ 4 & 7 & 2 & 1 \end{Bmatrix} + \begin{Bmatrix} 2 & 2 & 1 & 3 \\ 8 & 1 & 3 & 1 \\ 1 & 2 & 2 & 4 \\ 3 & 1 & 1 & 2 \end{Bmatrix} = \begin{Bmatrix} 7 & 9 & 9 & 13 \\ 17 & 4 & 3 & 7 \\ 9 & 3 & 11 & 6 \\ 7 & 8 & 3 & 3 \end{Bmatrix}$$

**Question 6**

**U**se a double-subscripted array to solve the following problem. A company has four salespeople ( 1 to 4) who sell five different products ( 1 to 5). Once a day, each salesperson passes in a slip for each different type of product sold. Each slip contains:

a) The salesperson number
b) The product number
c) The total dollar value of that product sold that day

Assume that the information from all the slips for a day is available. Write a program that will read all this information for the day and store in a double-subscripted array **sales**. For each product find and display the total sales.