Practical Work 4
Arrays, Matrices, Sorting

Exercise 1:

Write a C programs for each question:

1. Allows reading the elements of an array, and the displays them.

2. Allows reading numbers entered by the user, and places even numbers in A1 and multiple numbers of 3 in A2. Handle the case where the tables are filled by displaying a message screen.

3. Provides the reverse of a given array.

4. Given two arrays of numbers AA1 and AA2 sorted into the same order, it fuses them into a third array A sorted in the same order.

Exercise 2:

Given an array T and an element X, write the C program that :

a. Provides the index of the first occurrence of this element, if it exists within the array, otherwise, it displays -1.

b. Provides the index of the last occurrence of this element, if it exists within the array, otherwise, it displays -1.

c. Provides all the indexes of all the occurrences of this element if it exists within the array, otherwise, it displays -1.

Exercise 3:

1. Given a matrix of N × M dimension, write the C program that :
   a. Computes the sum of elements of each column, and the sum of elements of each row.
   b. Computes the transpose of the given matrix

2. Given a square matrix, write the C program that
   a. Checks if its two diagonals are equal.
   b. Verifies, if the matrix is symmetric

3. Given two matrices with the adequate dimensions, write the C program that :
   Computes the product of the two matrices

Exercise 4:

Given an array of numbers, write the C program that performs the sort of its elements according to the bubble sort.