**CSE 102**

**Offline Assignment**

**Array and String**

**Problem 1:** First of all, take the number of elements n (n<100) and then take the elements as input. After that, take two numbers x and y where . Your task is two sort the elements from 0 to x in ascending order, the elements from y to (n-1) in descending order and keep the elements between x and y as they are. You CANNOT use any library function except for input-output purpose. You CANNOT use any extra character array.

|  |  |
| --- | --- |
| **Sample Input** | **Corresponding Output** |
| 10  1 2 6 1 5 -2 6 0 9 7  3  6 | 1 1 2 6 5 -2 9 7 6 0 |
| 3  1 -5 7  0  1 | 1 7 -5 |

**Problem 2:** Take two strings and a single character as input. Replace all the occurrences of the character in the first string with second string. You CANNOT use any library function except for input-output purpose. You CANNOT use any extra character array.

|  |  |
| --- | --- |
| **Sample Input** | **Corresponding Output** |
| abcab acec  c  mny | abmnyab amnyemny |
| hello  l  m | Hemmo |

**Problem 3:** Take two matrices as input (dimensions and elements as shown in the sample input). Multiply the matrices and show the output. If the multiplication is not possible, then show the message “Matrix multiplication is not possible.”

|  |  |
| --- | --- |
| **Sample Input** | **Corresponding Output** |
| 2 3 //dimension of first matrix  1 2 3  2 3 4  3 2 // dimension of second matrix  1 2  3 4  7 8 | 28 34  39 48 |
| 2 3  1 2 3  2 3 4  2 3  1 2 3  3 4 8 | Matrix multiplication is not possible. |

**Problem 4:** Consider a n x n square matrix. Take the input dimension and elements of this matrix as input. Iteratively take option from the user. If the option is 1, then the outer surface of the matrix will rotate clockwise. If the option is 2, then the outer surface of the matrix will rotate anti-clockwise. If the option is otherwise then terminate the program. You CANNOT use any library function except for input-output purpose. You CANNOT use any extra character array.

Rotation of outer surface: Consider the following matrices.

|  |  |
| --- | --- |
| 1 | 8 |
| 2 | 3 |

|  |  |  |
| --- | --- | --- |
| 1 | 5 | 7 |
| 2 | 1 | 9 |
| 4 | 6 | 5 |

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

Here the outer surface elements are shown in red colors. Now, for the second matrix, if the option is 1, then the outer surface will rotate clockwise as shown below

|  |  |  |
| --- | --- | --- |
| 4 | 2 | 1 |
| 6 | 1 | 5 |
| 5 | 9 | 7 |

If we give again 1, then it will again rotate clockwise as shown below

|  |  |  |
| --- | --- | --- |
| 5 | 6 | 4 |
| 9 | 1 | 2 |
| 7 | 5 | 1 |

**Deadline:** 11:55 PM, 3/7/18 (Tuesday)

**Submission:** Make four separate C files for each of the problems. The name of the files should be like 1705xyz\_Problem1.c, 1705xyz\_Problem2.c etc . Make a folder named “1705xyz” where should put only the four C files (Not the .exe or other files). Now zip the folder. Finally upload the zip file to the submission link of the moodle within the deadline. [Note that, you should replace xyz with the last three digits of your student id]