**Department of Computer Science and Engineering**
**University of Liberal Arts Bangladesh**
**Mid Term Examination**
**Semester – Fall 2019**
**Course Title: Data Structure Lab**
**Course Code : CSE 208 (Sec: 2)**
**Duration : 1:00 Hours**

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**PLEASE ANSWER ALL QUESTIONS.**                                    **Total 20 Marks**

**Name:** _____   **ID:** _____

**QUESTION 1**                                                                                      8 marks

Write a C program that uses a linked list to store $n$ integers. Now write a function that searches for a value $k$ in the list and returns the index of $k$. If $k$ does not exist in the list then the function will return -1.

**Input Description:**

The input set contains three lines of input.

The first line of input is an integer $n$. The next line contains $n$ space separated integers denoting the elements of the list. The last line of input is the integer $k$.

**Output Description:**

Output should be one line denoting the index of $k$ in the list. If $k$ is not present in the list, $"-1"$ (without quotes) should be displayed.

**Sample Input:**

5

10 40 8 50 45

50

**Expected Output:**

3

**QUESTION 2**                                                                                      4 marks

Write a program in C to copy the elements of one array into another array using pointer.

**Input Description:**

The input set contains two lines of input.

The first line of input is an integer $n$. The next line contains $n$ space separated integers denoting the elements of the list.

**Sample Input:**

5

10 40 8 50 45

**Expected Output:**

The elements stored in the first array are:

10 40 8 50 45

The elements copied into the second array are:

10 40 8 50 45

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**QUESTION 3**                                                                                                            4 marks

Write a C program that takes an $R \times C$ grid as input and then calculates the range of each row.
$[range = max - min]$. Afterwards, it displays the maximum of the.
**Input Description:**
The first line of input is contains two integers $R, C$. The next $R$ lines contain $C$ space separated
integers denoting the elements of the row.
**Sample Input:**
3 2
10 40
8 50
45 20
**Expected Output:**
The range of Row 1: 30
The range of Row 2: 42
The range of Row 3: 25
Row 2 has the largest range with 42.

**QUESTION 4**                                                                                                            4 marks

Write a C program that finds the first repeating integer in a list and returns the index of it. If no
such elements exist then it will return $"-1"$ (without quotes).
**Input Description:**
The input set contains two lines of input.
The first line of input is an integer $n$. The next line contains $n$ space separated integers denoting
the elements of the list.
**Output Description:**
Output should be one line denoting the index of the first repeated integer in the list. If no such
element is present in the list, $"-1"$ (without quotes) should be displayed.
**Sample Input:**
6
10 40 8 50 40 20
**Expected Output:**
4

**\*\*END OF QUESTIONS\*\***