Assignment- 02

Explaining the Pros and Cons of Circular Array [CO 2]

| Deadline:

Instructions:

*For every task you need to show **tracing/simulation**, codes and final output. If tracing/simulation is missing, half of the marks will be deducted. Try to maintain sequence. Write name, student id, assignment number and date of submission clearly.*

Task 1

For the given circular array please **create a tracing table** which traverses the whole circular array in a backward manner. **The starting is to be chosen randomly by the students**.

Create a tracing table according to the following code.

int arr [10] = {10,20,30,40,50,60,70,80,90,100};

```
// Find the index of the last
// element in the circular array
int k = (start + size - 1) % arr.length;
for (int i = 0; i < size; i++) {
    visit(arr[k]);
    // move k backwards,
    // wrapping if necessary
    k--;
    if (k == -1)
        k = arr.length - 1;
}
```

Task 2

Write one application of circular array (and why).

Task 3

0	1	2	3	4	5	6	7
X+50	X+4	null	null	X	X+10	X-10	x-18

Index 4 is your starting position

X= (Last 4 digit of your BRACU ID % 34) + (Last 4 digit of your BRACU ID % 33)

Write a java code for circular array which has the functionalities below and then **trace your code**. After that, **show your final output**.

[Hint: In one java class you have to implement all the methods]

I. Print the elements (Forward Print)

II. Print the elements (Backward Print)

III. Linearize the circular array

IV. Resizing the circular array [new length = Last 4 digit of your id %5 + Last 3 digit of your id %3 + 8] and fill the elements using random value.

V. Insert an element at index "(Last 3 digit of your BRACU ID%6)"

VI. Insert an element at position "(Last 3 digit of your BRACU ID%5)"

VII. Remove an element from index "(Last 3 digit of your BRACU ID%6)"

VIII. Remove an element from position "(Last 3 digit of your BRACU ID%5)"