TA: Programming Assignment: Design and Analysis of Algorithms
Topic: Data Structures
Max.Marks: 04
Submission: 21-11-2022

Roll nos: 29,58,7,11

Step 1: Let “n” be the size of an array.

Step 2: Accept “n” input from keyboard

Step 3: Create a Dqueue with insertion of element alternately from front and rear end. For example: if elements in array are: [1, 5, 2, 9, 11] etc..

If element insertion start with F-R-F-R combination, then values stored will be [1] [1,5] [2,1,5], [2,1,5,9], [11,2,1,5,9]

Create the code and demonstrate execution with 03 test cases

Step 4: The insertion on Dqueue is carried with certain condition.

Condition 1: If the element present at front is less than the new element, then new element will be inserted in front. [Otherwise]

Condition 2: If element present at rear is less than the new element, then new element will be inserted at rear.

Condition 3: If both condition 1 and condition 2 not satisfied, ignore the element and consider new element.

Find out difference between size of Dqueue and size of array. [The difference will be number of elements in array not inserted in the Dqueue].

Comment on shape of Dqueue: How the elements present in the Dqueue look like. [Ascending/Descending/or …].

Submit Code: Three test cases: Voice recording of code explanation

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Example: Random array of size n = [9, 7, 1, 6, 5, 11, 3]

Start with element “9” == [9]

Next Element 7 == [9] [9<7] [Both front and rear conditions are not true, ignore 7]

New element 11 == [11,9]

Suggest a suitable mechanism, such that no element of array is ignored and it is inserted in the Dqueue [modify condition 1 and 2]