

Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE (CS)

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NeoColab REC CS23231 DATA STRUCTURES

REC_DS using C_Week 4_COD_Question 3

Attempt : 1

Total Mark : 10

Marks Obtained : 0

Section 1 : Coding

1. Problem Statement

Write a program to implement a queue using an array and pointers. The program should provide the following functionalities:

Insert an element into the queue. Delete an element from the queue. Display the elements in the queue.

The queue has a maximum capacity of 5 elements. If the queue is full and an insertion is attempted, a "Queue is full" message should be displayed. If the queue is empty and a deletion is attempted, a "Queue is empty" message should be displayed.

Input Format

Each line contains an integer representing option from 1 to 3.

Option 1: Insert an element into the queue followed by an integer representing the element to be inserted, separated by a space.

the chosen

queue element to

Option 2: Delete an element from the

queue.

Option 3: Display the elements in the queue.

Output Format

For option 1 (insertion):-

1. The program outputs: "<data> is inserted in the queue." if the data is successfully inserted.
2. "Queue is full." if the queue is already full and cannot accept more elements.

For option 2 (deletion):-

1. The program outputs: "Deleted number is: <data>" if an element is successfully deleted and returns the value of the deleted element.
2. "Queue is empty." if the queue is empty no elements can be deleted.

For option 3 (display):-

1. The program outputs: "Elements in the queue are: <element1> <element2> ... <elementN>" where <element1>, <element2>, ..., <elementN> represent the elements present in the queue.
2. "Queue is empty." if the queue is empty no elements can be displayed.

For invalid options, the program outputs: "Invalid option."

Refer to the sample
formatting
specifications.

Sample Test Case

Input: 1 10

Output: 10 is inserted
queue. Elements in
are: 10 Invalid option.

Answer

```
#include <stdio.h>
#include <stdlib.h>
```

```
#define max 5
```

```
int queue[max]; int
front = -1, rear = -1;
// You are using GCC
int insertq(int *data)
```

```
{
    //Type your code
}
```

```
int delq()
```

```
{
    //Type your code
}
```

```
void display()
```

```
{
    //Type your code
}
```

```
int main()
{    int data, reply, option;
    while (1)
    {
```

output for

the

in the
the queue

here

here

here

```

    if (scanf("%d", &option) != 1)
        break;
    switch (option)
    {
        case 1:
            if (scanf("%d", &data)
!= 1)
                break;
            reply = insertq(&data);
            if (reply
== 0)
                printf("Queue is full.\n");
            else
                printf("%d is inserted in the queue.\n",
data);
            break;
        case 2:
            delq(); //
            without arguments
            case 3:
            break;
            default:
                Called
                break;
                display();

            printf("Invalid
            break;
            option.\n");
            }
        }
    }
    return 0; }

```

Status : **Wrong**

Marks : 0/10

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