

### LAB - 3

/\*Write a Program to simulate the working of queue of integers using an array. Provide the following operations.

a) Insert Rear

b) Delete Front

c) Display the contents of queue

The program should print the appropriate messages for a queue empty and queue full condition.

\*/

```
#include<stdio.h>
#include<conio.h>
#include<process.h>
#define QUE_SIZE 3
int item,front=0,rear=-1,q[10];
void insertrear(){
    if(rear == QUE_SIZE - 1 ){
        printf("QUEUE OVERFLOW\n");
        return;
    }
    rear = rear+1;
    q[rear] = item;
}
int deletefront(){
    if(front > rear){
        front =0;
        rear =-1;
        return -1;
    }
    return q[front ++];
}
void displayQ(){
    int i;
    if(front>rear){
        printf("QUEUE IS EMPTY\n");
        return;
    }
    printf("***Contents of Queue** \n");
    for(i=front;i<=rear;i++){
        printf(" %d\n",q[i]);
    }
}
void main(){
```

```
int choice;
for(;;){
    printf("\n1.Insert Rear \n2.Delete front \n3.Display \n4.Exit\n");
    printf("Enter the choice\n");
    scanf("%d",&choice);
    switch(choice){
        case 1: printf("Enter the items to be inserted\n");
                scanf("%d",&item);
                insertrear();
                break;
        case 2: item = deletefront();
                if(item == -1)
                    printf("QUEUE IS EMPTY\n");
                else
                    printf("Item Deleted = %d\n",item);
                break;
        case 3: displayQ();
                break;
        default: exit(0);
    }
}
}
```

C:\ Command Prompt

D:\coding files\CodeBlocks\c-programming\DS lab>lab3

- 1.Insert Rear
- 2.Delete front
- 3.Display
- 4.Exit

Enter the choice

1

Enter the items to be inserted

10

- 1.Insert Rear
- 2.Delete front
- 3.Display
- 4.Exit

Enter the choice

1

Enter the items to be inserted

20

- 1.Insert Rear
- 2.Delete front
- 3.Display
- 4.Exit

Enter the choice

1

Enter the items to be inserted

30

- 1.Insert Rear
- 2.Delete front
- 3.Display
- 4.Exit

Enter the choice

3

\*\*Contents of Queue\*\*

10

20

30

- 1.Insert Rear
- 2.Delete front
- 3.Display

Command Prompt

```
1.Insert Rear
2.Delete front
3.Display
4.Exit
Enter the choice
1
Enter the items to be inserted
40
QUEUE OVERFLOW
```

```
1.Insert Rear
2.Delete front
3.Display
4.Exit
Enter the choice
3
**Contents of Queue**
10
20
30
```

```
1.Insert Rear
2.Delete front
3.Display
4.Exit
Enter the choice
2
Item Deleted = 10
```

```
1.Insert Rear
2.Delete front
3.Display
4.Exit
Enter the choice
2
Item Deleted = 20
```

```
1.Insert Rear
2.Delete front
3.Display
4.Exit
Enter the choice
```

Command Prompt

Item Deleted = 20

1.Insert Rear  
2.Delete front  
3.Display  
4.Exit  
Enter the choice

2

Item Deleted = 30

1.Insert Rear  
2.Delete front  
3.Display  
4.Exit  
Enter the choice

2

QUEUE IS EMPTY

1.Insert Rear  
2.Delete front  
3.Display  
4.Exit  
Enter the choice

3

QUEUE IS EMPTY

1.Insert Rear  
2.Delete front  
3.Display  
4.Exit  
Enter the choice

4

D:\coding files\CodeBlocks\c-programming\DS lab>