

DS Lab-5 Queue Implementation

WAP to simulate the working of a queue of integers using an array. Provide the following operations a) Insert b) Delete c) Display The program should print appropriate messages for queue empty and queue overflow conditions

```
#include<stdio.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 item 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);  
    }  
}  
}
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1
Enter the item to be inserted
5
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1
Enter the item to be inserted
8
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1
Enter the item to be inserted
3
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1
Enter the item to be inserted
2
Queue overflow
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
3
Contents of queue
5
8
3
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
2
Item deleted=5

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
2
Item deleted=8

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
2
Item deleted=3

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

Process returned 0 (0x0)    execution time : 388.983 s
Press any key to continue.
```

