Lab-6 Circular Queue Implementation

WAP to simulate the working of a Circular 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<conio.h>

#define QUE_SIZE 3
int item,front=0,rear=-1,q[QUE_SIZE],count=0;
void insertrear()
{
if(count==QUE_SIZE)
{
printf("queue overflow\n");
return;
}
rear=(rear+1)%QUE_SIZE;
q[rear]=item;
count++;
}
int deletefront()
{
if(count==0) return -1;
item=q[front];
front=(front+1)%QUE_SIZE;
count=count-1;
return item;
}
void displayQ()
{
int i,f;
if(count==0)
{
printf("queue is empty\n");
return;
}
f=front;
printf("Contents of queue \n");
for(i=1;i<=count;i++)
```

```
{
printf("%d\n",q[f]);
f=(f+1)%QUE_SIZE;
}
}
void main()
{
 int choice;


 for(;;)
 {
 printf("\n1:insertrear\n2:deletefront\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:insertrear
2:deletefront
3:display
4:exit
enter the choice
1
enter the item to be inserted
10

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
1
enter the item to be inserted
20

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
1
enter the item to be inserted
30

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
1
enter the item to be inserted
40
queue overflow

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
3
Contents of queue
10
20
30
```

```
1:insertrear
2:deletefront
3:display
4:exit
enter the choice
2
item deleted =10

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
1
enter the item to be inserted
40

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
3
Contents of queue
20
30
40

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
2
item deleted =20
```

```
1:insertrear
2:deletefront
3:display
4:exit
enter the choice
2
item deleted =30

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
2
item deleted =40

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
2
queue is empty

1:insertrear
2:deletefront
3:display
4:exit
enter the choice
4

Process returned 0 (0x0)   execution time : 68.977 s
Press any key to continue.
```