

Lab Program - 4

* WAP to implement Circular queue :-

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

```
#include <Process.h>
```

```
#define QUE_SIZE 3
```

```
int item, front=0, rear=-1, a[QUE_SIZE], count=0;
```

```
void insert_rear()
```

```
{
```

```
    if (count == QUE_SIZE)
```

```
    {
```

```
        printf("Queue overflow\n");
```

```
        return;
```

```
    }
```

```
    rear = (rear + 1) % QUE_SIZE;
```

```
    a[rear] = item;
```

```
    count++;
```

```
}
```

```
int delete_front()
```

```
{
```

```
    if (count == 0) return -1;
```

```
    item = a[front];
```

```
    front = (front + 1) % QUE_SIZE;
```

```
    count = count - 1;
```

```
    return item;
```

```
}
```



```

void display()
{
    int i, f;
    if (count == 0)
    {
        printf("Queue is Empty\n");
        return;
    }
    f = front;
    printf("Contents of the queue are:\n");
    for (i = 1; i <= count; i++)
    {
        printf("%d\n", a[f]);
        f = (f + 1) % QUEUE_SIZE;
    }
}

int main()
{
    int choice;
    for(;;)
    {
        printf("\n 1: Insert rear\n 2: Delete front\n 3: Display\n 4: 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("The Item Deleted is %d\n", item);  
         break;
```

```
case 3 : displayq();  
         break;
```

```
default : exit(0);
```

```
}
```

```
}
```

```
return 0;
```

```
}
```

```

1 #include<stdio.h>
2 #include<process.h>
3 #define QUE_SIZE 3
4 int item,front=0,rear=-1,q[QUE_SIZE],count=0;
5 void insertrear()
6 {
7     if(count==QUE_SIZE)
8     {
9         printf("Queue Overflow\n");
10        return;
11    }
12    rear=(rear+1)%QUE_SIZE;
13    q[rear]=item;
14    count++;
15 }
16 int deletefront()
17 {
18     if(count==0) return -1;
19     item=q[front];
20     front=(front+1)%QUE_SIZE;
21     count=count-1;
22     return item;
23 }
24 void displayQ()
25 {
26     int i,f;
27     if(count==0)
28     {
29         printf("Queue is Empty\n");
30         return;
31     }
32     f=front;
33     printf("Contents of the Queue are :\n");
34     for(i=1;i<=count;i++)
35     {
36         printf("%d\n",q[f]);
37         f=(f+1)%QUE_SIZE;
38     }

```

```
31 }
32 f=front;
33 printf("Contents of the Queue are :\n");
34 for(i=1;i<=count;i++)
35 {
36     printf("%d\n",q[f]);
37     f=(f+1)%QUE_SIZE;
38 }
39 }
40 int main()
41 {
42     int choice;
43     for(;;)
44     {
45         printf("\n1:Insertrear\n2:Deletefront\n3:Display\n4:Exit\n");
46         printf("Enter the Choice\n");
47         scanf("%d",&choice);
48
49         switch(choice)
50         {
51             case 1:printf("Enter the Item to be Inserted\n");
52                     scanf("%d",&item);
53                     insertrear();
54                     break;
55             case 2:item=deletefront();
56                     if(item== -1)
57                         printf("Queue is Empty\n");
58                     else
59                         printf("The Item Deleted is =%d\n",item);
60                     break;
61             case 3:displayQ();
62                     break;
63             default:exit(0);
64         }
65     }
66     return 0;
67 }
68 }
```

1:Insertrear
2:Deletefront
3:Display
4:Exit
Enter the Choice
3
Queue is Empty

1:Insertrear
2:Deletefront
3:Display
4:Exit
Enter the Choice
1
Enter the Item to be Inserted
5

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

1:Insertrear
2:Deletefront
3:Display
4:Exit

Enter the Choice

1

Enter the Item to be Inserted

15

1:Insertrear
2:Deletefront
3:Display
4:Exit

Enter the Choice

1

Enter the Item to be Inserted

20

Queue Overflow

1:Insertrear
2:Deletefront
3:Display
4:Exit

Enter the Choice

3

Contents of the Queue are :

5

10

15

1:Insertrear

2:Deletefront

3:Display

4:Exit

Enter the Choice

2

The Item Deleted is =5

1:Insertrear

2:Deletefront

3:Display

4:Exit

Enter the Choice

2

The Item Deleted is =10

1:Insertrear

2:Deletefront

3:Display

4:Exit

Enter the Choice

2

The Item Deleted is =15

1:Insertrear

2:Deletefront

3:Display

4:Exit

Enter the Choice

2

3:Display

4:Exit

Enter the Choice

2

The Item Deleted is =15

1:Insertrear

2:Deletefront

3:Display

4:Exit

Enter the Choice

3

Queue is Empty

1:Insertrear

2:Deletefront

3:Display

4:Exit

Enter the Choice

4

(program exited with code: 0)

Press any key to continue . . .