

## LAB-4 PROGRAM

### CIRCULAR QUEUE:-

Program:

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

```
#include<stdlib.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");
```

```
        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");
        return;
    }
    f=front;
    printf("contents of queue \n");
    for(i=0;i<=count;i++)
    {
        printf("%d\n",q[f]);
        f=(f+1)%que_size;
    }
}
void main()
{
    int choice;
    for(;;)
    {
        printf("\n1.Insert rear \n2.Delete front \n3.Display \n4.exit \n ");
        printf("Enter the choice : ");
        scanf("%d",&choice);
        switch(choice)

```

```
{  
    case 1:printf("Enter the item to be inserted :");  
        scanf("%d",&item);  
        insertrear();  
        break;  
    case 2:item=deletefront();  
        if(item== -1)  
            printf("queue is empty\n");  
        else  
            printf("item deleted is %d \n",item);  
        break;  
    case 3:displayq();  
        break;  
    default:exit(0);  
}  
  
}  
  
}
```

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replit/repls/ReliableWeightyWaterfall#main.c

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Files main.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 #define que_size 3
5 int item,front=0,rear=-1,q[que_size],count=0;
6 void insertrear()
7 {
8     if(count==que_size)
9     {
10         printf("queue overflow");
11         return;
12     }
13     rear=(rear+1)%que_size;
14     q[rear]=item;
15     count++;
16 }
17 int deletefront()
18 {
19     if(count==0) return -1;
20     item = q[front];
21     front=(front+1)%que_size;
22     count=count-1;
```

```
> clang-7 -pthread -lm -o main main.c
> ./main
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 1
Enter the item to be inserted :10
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 1
Enter the item to be inserted :20
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice :
1
Enter the item to be inserted :30
```

Type here to search

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replit/repls/ReliableWeightyWaterfall#main.c

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Files main.c

```
22     count=count-1;
23     return item;
24 }
25 void displayq()
26 {
27     int i,f;
28     if(count==0)
29     {
30         printf("queue is empty");
31         return;
32     }
33     f=front;
34     printf("contents of queue \n");
35     for(i=0;i<=count;i++)
36     {
37         printf("%d\n",q[f]);
38         f=(f+1)%que_size;
39     }
40 }
41 int main()
42 {
43     int choice;
44     for(;;)
```

```
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 3
contents of queue
10
20
30
10
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 2
item deleted is 10
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 2
item deleted is 20
```

Type here to search

replit/repls/ReliableWeightyWaterfall#main.c

```
main.c
43 int choice;
44 for(;;)
45 {
46     printf("\n1.Insert rear \n2.Delete front
47     \n3.Display \n4.exit \n ");
48     printf("Enter the choice : ");
49     scanf("%d",&choice);
50     switch(choice)
51     {
52     case 1:printf("Enter the item to be inserted
53     :");
54         scanf("%d",&item);
55         insertrear();
56         break;
57     case 2:item=deletefront();
58         if(item==1)
59         printf("queue is empty\n");
60         else
61         printf("item deleted is %d \n",item);
62         break;
63     case 3:displayq();
64         break;
65     }
```

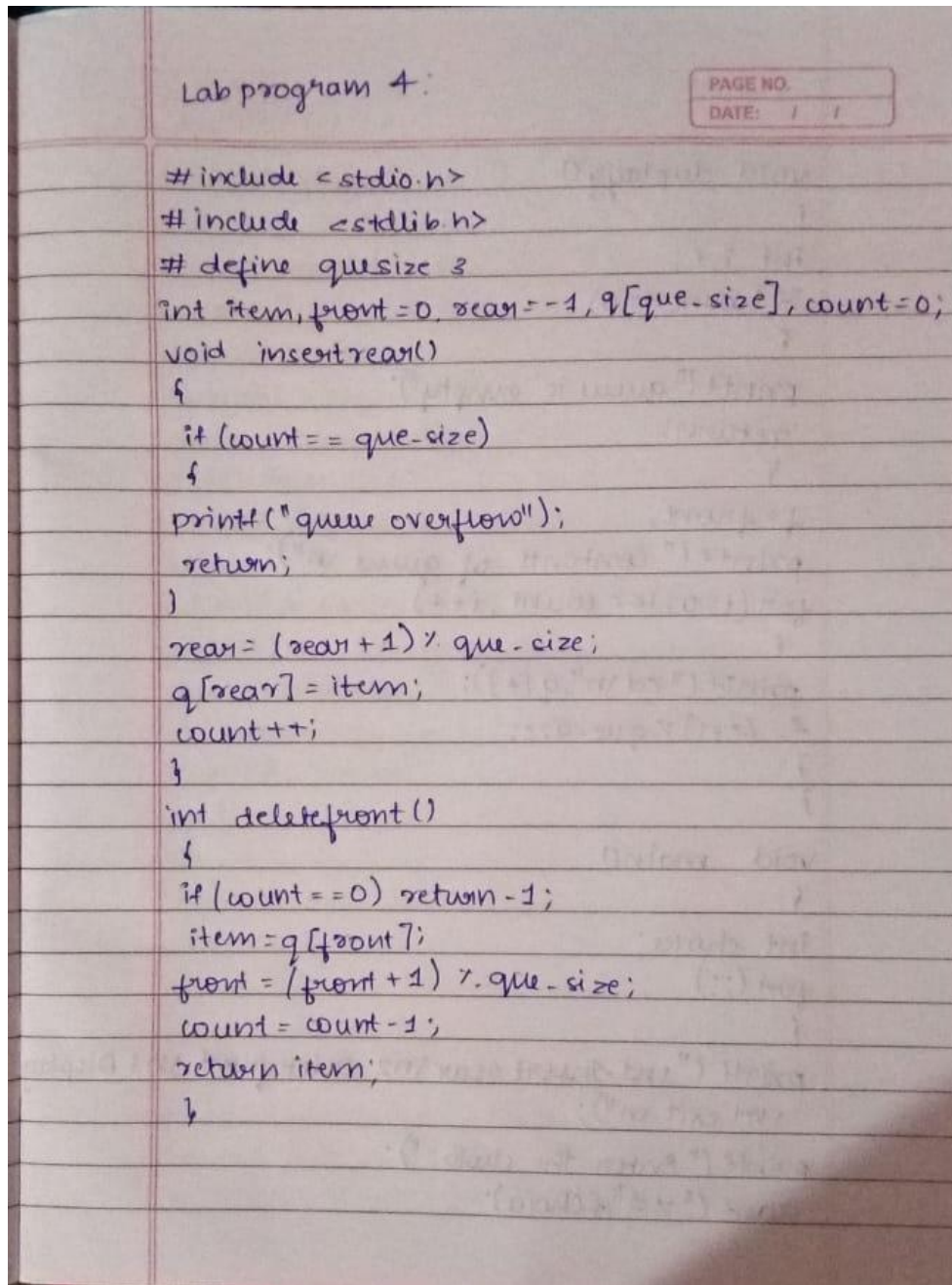
```
item deleted is 20
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 2
item deleted is 30
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 3
queue is empty
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 1
Enter the item to be inserted :10
1.Insert rear
2.Delete front
3.Display
```

replit/repls/ReliableWeightyWaterfall#main.c

```
main.c
48 printf("Enter the choice : ");
49 scanf("%d",&choice);
50 switch(choice)
51 {
52 case 1:printf("Enter the item to be inserted
53 :");
54     scanf("%d",&item);
55     insertrear();
56     break;
57 case 2:item=deletefront();
58     if(item==1)
59     printf("queue is empty\n");
60     else
61     printf("item deleted is %d \n",item);
62     break;
63 case 3:displayq();
64     break;
65 default:exit(0);
66 }
67 }
```

```
2.Delete front
3.Display
4.exit
Enter the choice : 1
Enter the item to be inserted :30
1.Insert rear
2.Delete front
3.Display
4.exit
Enter the choice : 2
> clang-7 -pthread -lm -o main main.c
> ./main
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
```

## SCREENSHOTS OF PROGRAM AND OUTPUT:-



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```
void displayq()
```

```
{
```

```
int i, f;
```

```
if (count == 0)
```

```
{
```

```
printf("queue is empty");
```

```
return;
```

```
}
```

```
f = front;
```

```
printf("contents of queue\n");
```

```
for (i = 0; i <= count; i++)
```

```
{
```

```
printf("%d\n", q[f]);
```

```
f = (f + 1) % que-size;
```

```
}
```

```
}
```

```
void main()
```

```
{
```

```
int choice;
```

```
for (;;) 
```

```
{
```

```
printf("\n1. Insert rear\n2. Delete front\n3. Display\n4. exit\n");
```

```
printf("Enter the choice: ");
```

```
scanf("%d", &choice);
```

```

switch (choice)
{
case 1: printf (" Enter the item to be inserted\n");
scanf ("%d", &item);
insert_rear();
break;
case 2: item = delete_front();
if (item == -1)
printf ("queue is empty\n");
else
printf ("item deleted is %d\n", item);
break;
case 3: display();
break;
default: exit(0);
}
}

```

Unit 13 Display