

DS LAB-PROG 4-CIRCULAR QUEUE

Program and output

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Program-

```
#include<stdio.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;
}
}
int main()
{
int choice;

printf("\n1:insertrear\n2:deletefront\n3:display\n4:exit\n");
```

```
do
{
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:break;
}
}

while(choice!=4);

return 0;
}
```

Output-

```
1:insertrear
2:deletefront
3:display
4:exit
enter the choice
1
enter the item to be inserted
11
enter the choice
1
enter the item to be inserted
12
enter the choice
1
enter the item to be inserted
13
enter the choice
1
enter the item to be inserted
14
queue overflow
enter the choice
3
Contents of queue
11
12
13
enter the choice
2
item deleted =11
```

```
2
item deleted =11
enter the choice
3
Contents of queue
12
13
enter the choice
1
enter the item to be inserted
33
enter the choice
3
Contents of queue
12
13
33
enter the choice
2
item deleted =12
enter the choice
2
item deleted =13
enter the choice
1
enter the item to be inserted
43
enter the choice
1
enter the item to be inserted
56
```

```
1
enter the item to be inserted
43
enter the choice
1
enter the item to be inserted
56
enter the choice
3
Contents of queue
33
43
56
enter the choice
2
item deleted =33
enter the choice
2
item deleted =43
enter the choice
2
item deleted =56
enter the choice
3
queue is empty
enter the choice
4

...Program finished with exit code 0
Press ENTER to exit console.
```