Lab - Program 4.

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Q. Write a program to simulate working of a circular queue of integer using an array. Provide the following operations
a) Insert
b) Delete
c) Display
The program should print appropriate message for queue empty and queue overflow condition.

Ans:
```
#include<stdio.h>
#include<stdlib.h>
#define QUE_SIZE 3
int item, front=0, rear=-1, q[QUE_SIZE], count=0;
void insert_rear()
{
if(count==QUE_SIZE)
{
printf("queue overflow\n");
return;
}
rear=(rear+1)%QUE_SIZE;
q[rear]=item;
count++;
}
int delete_front()
{
if(count==0) return -1;
item=q[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 queue\n");
for(int 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("\nitem deleted = %d\n", item);
    break;
case 3: display();
        break;
case 4: exit(0);
break;
default: printf("\nInvalid choice\n");
}
}
```