```c
/*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>
#include<process.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");
```

```c
{
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;
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);
```

```c
{
printf("%d\n",q[f]);
f=(f+1)%QUE_SIZE;
}
}
int 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);
}
}
return 0;
}
```

```
C:\WINDOWS\SYSTEM32\cmd.exe
```

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

```
C:\WINDOWS\SYSTEM32\cmd.exe
```

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
3
Contents of queue
20
30

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

```
C:\WINDOWS\SYSTEM32\cmd.exe
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 =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


------------------
(program exited with code: 0)

Press any key to continue . . .
```