```
//Program for Circular Queue implementation through Array
#include <stdio.h>
#include<ctype.h>
#include<stdlib.h>
#define MAXSIZE 5
int cq[MAXSIZE];
int front,rear;
void main()
{
	void add(int,int);
	void del(int);
	int will=1,i,num;
	front = -1;
	rear = -1;
	clrscr();
	printf("\nProgram for Circular Queue demonstration through array");
	while(1)
	{
		printf("\n\nMAIN MENU\n1.INSERTION\n2.DELETION\n3.EXIT");
		printf("\n\nENTER YOUR CHOICE : ");
		scanf("%d",&will);
		switch(will)
		{
		case 1:
			printf("\n\nENTER THE QUEUE ELEMENT : ");
			scanf("%d",&num);
			add(num,MAXSIZE);
			break;
		case 2:
			del(MAXSIZE);
			break;
		case 3:
		   exit(0);
			default: printf("\n\nInvalid Choice . ");
		}

} //end of  outer while
}		//end of main
void add(int item,int MAX)
{
	//rear++;
	//rear= (rear%MAX);
```

```
      if(front ==(rear+1)%MAX)
      {
      printf("\n\nCIRCULAR QUEUE IS OVERFLOW");
      }
      else
      {
       if(front==-1)
         front=rear=0;
         else
         rear=(rear+1)%MAX;
         cq[rear]=item;
         printf("\n\nRear = %d    Front = %d ",rear,front);
      }
}
void del(int MAX)
{
int a;
if(front == -1)
      {
      printf("\n\nCIRCULAR QUEUE IS UNDERFLOW");
      }
      else
      {
            a=cq[front];
            if(front==rear)
             front=rear=-1;
            else
              front = (front+1)%MAX;
            printf("\n\nDELETED ELEMENT FROM QUEUE IS : %d ",a);
            printf("\n\nRear = %d    Front = %d ",rear,front);

      }
}
```

-->>SAMPLE INPUT OUTPUT.

```
MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 1
```

```
ENTER THE QUEUE ELEMENT : 10

Rear=0     Front=0

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 1

ENTER THE QUEUE ELEMENT : 20

Rear=1     Front=0

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 1

ENTER THE QUEUE ELEMENT : 30

Rear=2     Front=0

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 1

ENTER THE QUEUE ELEMENT : 40

Rear=3     Front=0

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 1
```

```
ENTER THE QUEUE ELEMENT : 50

Rear=4    Front=0

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 1

ENTER THE QUEUE ELEMENT : 60

CIRCULAR QUEUE IS OVERFLOW.

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 2

DELETED ELEMENT FROM QUEUE IS : 10

Rear =4    Front=1

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 2

DELETED ELEMENT FROM QUEUE IS : 20

Rear =4    Front=2

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT
```

```
ENTER YOUR CHOICE : 2

DELETED ELEMENT FROM QUEUE IS : 30

Rear =4    Front=3

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 2

DELETED ELEMENT FROM QUEUE IS : 40

Rear =4    Front=4

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 2

DELETED ELEMENT FROM QUEUE IS : 50

Rear =-1    Front=-1

MAIN MENU
1. INSERTION
2.DELETION
3.EXIT

ENTER YOUR CHOICE : 2

CIRCULAR QUEUE IS UNDERFLOW.
```