```
//circular queue
#include <stdio.h>
#include <stdlib.h>
#define max 10
int rear=-1;
int front=-1;
int q[max];
int isfull()
{
   if(front==rear+1 || front==0 && rear==max-1)
      return 1;
   return 0;

}
int is_empty()
{
   if(front==-1 && rear==-1)
      return 1;
   return 0;
}
void enqueue(int x)
{
   if(isfull())
   {
      printf("overflow\t");
   }
   else if(front==-1 && rear==-1)
   {
      front=0;
      rear=0;
   }
```

```
    else
    {
        rear=(rear+1)%max;
    }
    q[rear]=x;




}
int dequeue()
{
    int vlaue=-1;
    if(is_empty())
    {
        printf("underflow\t");
        return -1;
    }
    else
   {
        vlaue=q[front];
    if(front==rear)
    {
        front=-1;
        rear=-1;
    }
    else{
        front=(front+1)%max;
    }
    return vlaue;
   }
}
```

```
void display()
{
   int i;
   if(is_empty())
   {
      printf("underflow\t");

   }
   else
   {
      printf("elements are:");
      for( i=front;i!=rear;i=(i+1)%max)
      {
         printf("%d\t",q[i]);
      }
      printf("%d",q[i]);
   }
}
void main()
{
   int c,no,x;

   while(1)
   {
      printf("enter 1 for insert 2 for delete 3 for display 4 for exit\n");
      printf("enter the choice:");
      scanf("%d",&c);
      switch (c)
      {
      case 1:
         printf("enter the no:");
```

```
        scanf("%d",&no);
        enqueue(no);

        break;
    case 2:x=dequeue();
        if (x!=-1)
        {
            printf("%d is popped\n",x);
        }
        break;
    case 3:display();
        break;
    case 4:exit(0);
        // break;


    default:printf("invalid\n");
        break;
  }
}
}
```

Output

```
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:1
enter the no:11
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:1
enter the no:12
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:3
elements are:11 12enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:2
11 is popped
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:2
12 is popped
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:2
underflow       enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:3
underflow       enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:4
```