/*A hospital maintains a circular doubly linked list to manage the queue of patients waiting for consultation in the Outpatient Department (OPD). Each patient has the following details:

• Patient ID

• Patient Name

• Department (e.g., General, ENT, Cardiology)

The hospital wants to perform the following operations:

1. Insert a new patient at the end of the queue when a new patient arrives.

2. Display the list of patients currently in the queue, in forward order.

3. Display the list in reverse order to review the most recent entries.*/

```java
package julyhometask;
import java.util.*;
class HospitalNode
{
        int pat_id;
        String pat_name;
        String pat_dept;
        HospitalNode prev;
        HospitalNode next;
        public HospitalNode(int pat_id,String pat_name,String pat_dept)
        {
                this.pat_id=pat_id;
                this.pat_name=pat_name;
                this.pat_dept=pat_dept;
                this.prev=null;
                this.next=null;
        }
}
class Hospital
{
        private HospitalNode head=null;
        public void insertAtEnd(int pat_id,String pat_name,String pat_dept)
```

```java
{
    HospitalNode newNode=new HospitalNode(pat_id,pat_name,pat_dept);
    if(head==null)
    {
        head=newNode;
        head.next=head;
        head.prev=head;
    }
    else
    {
        HospitalNode tail=head.prev;
        tail.next=newNode;
        newNode.prev=tail;
        newNode.next=head;
        head.prev=newNode;


    }
    System.out.println(pat_name+" "+"is added to the queue");


}
public void displayFront()
{
    if(head==null)
    {
        System.out.println("No Data available");
        return;


    }
    System.out.println("The Patient details is:");
```

```java
            HospitalNode temp=head;

            do

            {

                    System.out.println("Patient id:"+temp.pat_id+", Patient
name:"+temp.pat_name+",Patient Department:"+temp.pat_dept);

                    temp=temp.next;


            }while(temp!=head);

    }

    public void displayBack()

    {

            if(head==null)

            {

                    System.out.println("No Data available");

                    return;


            }


            System.out.println("The recent details are:");

            HospitalNode temp=head.prev;

            do

            {

                    System.out.println("Patient id:"+temp.pat_id+", Patient
name:"+temp.pat_name+",Patient Department:"+temp.pat_dept);

                    temp=temp.prev;

            }while(temp!=head.prev);




    }

}
```

```java
public class july15hw
{
        public static void main(String[]args)
        {
                Scanner sc=new Scanner(System.in);
                Hospital hp=new Hospital();
                System.out.println("Enter the number of patients");
                int pat_no=sc.nextInt();
                sc.nextLine();
                for (int i=0;i<pat_no;i++)
                {
                        System.out.println("Enter the patient details:"+ (i+1));
                        int pat_id=sc.nextInt();
                        sc.nextLine();
                        String pat_name=sc.nextLine();
                        String pat_dept=sc.nextLine();
                        hp.insertAtEnd(pat_id, pat_name, pat_dept);

                }
                hp.displayFront();
                hp.displayBack();




        }


}
```