```
/*
At a college registration desk, students form a queue. This queue is managed using a doubly linked
list. Each student has a roll number and name.
Insert at Front
Insert at Position
Delete from Front
Delete from End
Display Backward*/
import java.util.*;
class Node
{
   String stu_name;
   int stu_rollno;
   Node prev;
   Node next;
   public Node(String stu_name,int stu_rollno)
   {
      this.stu_name=stu_name;
      this.stu_rollno=stu_rollno;
      this.prev=null;
      this.next=null;
   }

}
class StudentNode
{
   Node head;
   public void insertAtFront(String stu_name,int stu_rollno)
   {
      Node newNode=new Node(stu_name,stu_rollno);
      if(head==null)
```

```
    {
        head=newNode;
        return;
    }
    newNode.next=head;
    head.prev=newNode;
    head=newNode;
}
public void insertAtPosition(String stu_name,int stu_rollno,int pos)
{
    if(pos<=1 || head==null)
    {
        insertAtFront(stu_name,stu_rollno);
        return;
    }
    Node newNode=new Node(stu_name,stu_rollno);
    Node temp=head;
    int count=1;
    while(temp.next!=null&&count<pos-1)
    {
        temp=temp.next;
        count++;
    }
    if (temp.next == null)
    {
    temp.next = newNode;
    newNode.prev = temp;

    }
    else
    {
```

```
    newNode.next=temp.next;
    newNode.prev=temp;
    temp.next.prev=newNode;
    temp.next=newNode;
    }
}
public void deleteAtFront()
{
    if(head==null)
    {
        System.out.println("***No student data exist***");
    }
    System.out.println("The deleted data is:"+ head.stu_name +":"+head.stu_rollno );
    head=head.next;
    if (head != null)
    {
        head.prev = null;
    }
}
public void deleteAtEnd()
{
    if(head==null)
    {
        System.out.println("***No student data available***");
        return;
    }
    if (head.next == null) {
        System.out.println("The deleted data is: " +head.stu_name+":"+head.stu_rollno);
        head = null;
        return;
    }
```

```
        Node temp=head;
        while(temp.next!=null)
        {
            temp=temp.next;
        }
        System.out.println("The deleted data is:"+ temp.stu_name +":"+temp.stu_rollno );
        temp.prev.next=null;

    }
    public void displayBackward()
    {
         Node temp=head;
        if(temp==null)
        {
            System.out.println("***No data exist***");
            return;
        }

        while(temp.next!=null)
        {
            temp=temp.next;
        }
        System.out.println("***The student data is:***");
        while(temp!=null)
        {
            System.out.println("The Student data is:"+ temp.stu_name +":"+temp.stu_rollno );
            temp=temp.prev;
        }

    }
}
```

```
public class july10ht
{
   public static void main(String[]args)
   {
      StudentNode sd=new StudentNode();
      Scanner sc=new Scanner(System.in);
      int choice;
      String stu_name;
      int stu_rollno;
      do{
      System.out.println("\n1.Insert Data in front\n2.Insert Data at position\n3.Delete data at front\n4.Delete data at back\n5.Display from last\n6.Quit");
      choice=sc.nextInt();
      sc.nextLine();

      switch (choice)
      {
         case 1:
            System.out.println("Enter the student name");
            stu_name=sc.nextLine();

            System.out.println("Enter the student roll no");
            stu_rollno=sc.nextInt();
            sd.insertAtFront(stu_name,stu_rollno);
            System.out.println("Inserted at front successfully");
            break;
         case 2:
            System.out.println("Enter the student name");
             stu_name=sc.nextLine();

            System.out.println("Enter the student roll no");
```

```
            stu_rollno=sc.nextInt();
            System.out.println("Enter the position of the student");
            int pos=sc.nextInt();
            sd.insertAtPosition(stu_name,stu_rollno,pos);
            System.out.println("Inserted at given position successfully");
            break;
         case 3:
            sd.deleteAtFront();
            System.out.println("The student data at front is deleted successfully");
            break;
         case 4:
            sd.deleteAtEnd();
            System.out.println("The student data at end is deleted successfully");
            break;
         case 5:
            sd.displayBackward();
            break;
         case 6:
            System.out.println("----Quitting-----");
            break;
         default:
         System.out.println("Invalid operation...Kindly Check and redo ");
         break;
      }
   }while(choice!=6);
   }
}
```