```
//S Harshini - 185001058

//1

import java.util.*;
public class Coll
{
   public static void main(String args[])
         {
      LinkedList<Integer> l=new LinkedList<Integer>();

      //to insert element on both sides
      l.addLast(2);
      l.addFirst(1);
      l.offer(3);          // adds in the end
      System.out.println("After adding:"+l);

      //to delete on both sides
      l.remove();         //deletes from front
      l.pollLast();
      System.out.println("After removing:"+l);

      //to insert at particular position
      l.add(1,67);
      System.out.println("After adding at index 1:"+l);


      //for searching for a particular element
      if(l.contains(67))
         System.out.println("\nfound \n");

      Iterator<Integer> iter=l.iterator();
      while(iter.hasNext()){
         System.out.print(iter.next()+" ");
      }
      System.out.println("\nPrinting backwards");
      //for printinh backwards
      ListIterator<Integer> i=l.listIterator(l.size());
      while(i.hasPrevious()){
         int num=i.previous();
         System.out.print(num+" ");
      }
      System.out.println("\n");
```

```
        //sorting
        l.sort(null);
        System.out.println("After sorting:"+l+"\n");

        LinkedList<Integer> arr=new LinkedList<Integer>(Arrays.asList(5,9,8));
        System.out.println("List to be replaced with:"+arr);
        System.out.println("List before being replaced:"+l);
        l.remove(1);
        l.addAll(1,arr);
        System.out.println("List after replacing at '1':"+l);

        LinkedHashSet<Integer> hash=new LinkedHashSet<Integer>();
        hash.addAll(l);
        System.out.println("After removing duplicates:"+hash);
    }
}


/* SAMPLE INPUT/OUTPUT
C:\Users\Harshini\Desktop>javac Coll.java

C:\Users\Harshini\Desktop>java Coll
After adding:[1, 2, 3]
After removing:[2]
After adding at index 1:[2, 67]

found

2 67
Printing backwards
67 2

After sorting:[2, 67]

List to be replaced with:[5, 9, 8]
List before being replaced:[2, 67]
List after replacing at '1':[2, 5, 9, 8]
After removing duplicates:[2, 5, 9, 8]

*/

//2
import java.util.*;
```

```
class Movie{
    String name,actor,genre;
    int year;
    float rating;

    Movie(String name,String actor,int year,String genre,float rating){
        this.name=name;
        this.actor=actor;
        this.year=year;
        this.genre=genre;
        this.rating=rating;
    }

    void display(){
         System.out.println("\n");

System.out.print("\nName:"+name+"\nActor:"+actor+"\nYear:"+year+"\nGenre:"+genre+"\nRatin
g:"+rating);

    }

    float getRating(){
        return rating;
    }

    int getYear(){
        return year;
    }
}

public class New {
    public static void main(String args[]){
        Queue<Movie> list = new LinkedList<Movie>();

        //add movies at the end
        list.add(new Movie("it","jon",2019,"thriller",4.6F));
        list.add(new Movie("up","cart",2015,"anim",4.0F));
        list.add(new Movie("knowing","steve",2004,"scifi",4.8F));

        //display
        for(Movie t : list){
            t.display();
        }
```

```
//remove from front and dsiplay
System.out.println("\nAfter removing:");
list.remove();
for(Movie t : list){
   t.display();
}
System.out.println("\nPresent Queue:");
list.add(new Movie("his","dn",2003,"drama",4.5F));
for(Movie m : list){
   m.display();
}

System.out.println("\nSend Queue To Array:");
Movie []arr= list.toArray(new Movie[list.size()]);
for(int i=0;i<arr.length;i++){
   arr[i].display();
}

//sort rating
for(int i=0;i<arr.length;i++){
   for(int j=0;j<arr.length-i-1;j++){
      if(arr[j].getRating()>arr[j+1].getRating()){
         Movie temp=arr[j];
         arr[j]=arr[j+1];
         arr[j+1]=temp;
      }
   }
}
System.out.println("\nSort Rating :");
for(int i=0;i<arr.length;i++){
   arr[i].display();
}
//sort year
for(int i=0;i<arr.length;i++){
   for(int j=0;j<arr.length-i-1;j++){
      if(arr[j].getYear()>arr[j+1].getYear()){
         Movie temp=arr[j];
         arr[j]=arr[j+1];
         arr[j+1]=temp;
      }
   }
}
```

```
        System.out.println("\nSort Year:");
        for(int i=0;i<arr.length;i++){
            arr[i].display();
        }
    }
}

/* SAMPLE INPUT/OUTPUT
C:\Users\Harshini\Desktop>java New



Name:it
Actor:jon
Year:2019
Genre:thriller
Rating:4.6


Name:up
Actor:cart
Year:2015
Genre:anim
Rating:4.0


Name:knowing
Actor:steve
Year:2004
Genre:scifi
Rating:4.8
After removing:



Name:up
Actor:cart
Year:2015
Genre:anim
Rating:4.0


Name:knowing
```

Actor:steve
Year:2004
Genre:scifi
Rating:4.8
Present Queue:

Name:up
Actor:cart
Year:2015
Genre:anim
Rating:4.0

Name:knowing
Actor:steve
Year:2004
Genre:scifi
Rating:4.8

Name:his
Actor:dn
Year:2003
Genre:drama
Rating:4.5
Send Queue To Array:

Name:up
Actor:cart
Year:2015
Genre:anim
Rating:4.0

Name:knowing
Actor:steve
Year:2004
Genre:scifi
Rating:4.8

Name:his
Actor:dn
Year:2003
Genre:drama
Rating:4.5
Sort Rating :

Name:up
Actor:cart
Year:2015
Genre:anim
Rating:4.0

Name:his
Actor:dn
Year:2003
Genre:drama
Rating:4.5

Name:knowing
Actor:steve
Year:2004
Genre:scifi
Rating:4.8
Sort Year:

Name:his
Actor:dn
Year:2003
Genre:drama
Rating:4.5

Name:knowing
Actor:steve

Year:2004
Genre:scifi
Rating:4.8

Name:up
Actor:cart
Year:2015
Genre:anim
Rating:4.0
*/