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Roll No.:- 25

Batch:- A1

Semester:-4th

Shift:- 1st

Section:- A

PRACTICAL-7

Solution:-

Part A:-

```
package seventh;
```

```
import java.util.Arrays;
```

```
import java.util.Iterator;
```

```
import java.util.List;
```

```
import java.util.Collection;
```

```
import java.util.Iterator;
```

```
public class MyTreeSet<E> {
```

```
E[] arr,arr1;
int k,n;
public MyTreeSet() {

}

public MyTreeSet(E[] arr) {
    this.arr=arr;
    this.arr1=arr;
}

public void add(E obj) {
    int i;
    if(common(obj)) {
        this.arr1=(E[]) new Object[(int) (this.arr.length*1.5)];
        for(i=0;i<this.arr.length;i++) {
            this.arr1[i]=this.arr[i];
        }
        this.arr1[i]=obj;
        Arrays.sort(arr1);
        this.arr=this.arr1;
        System.out.println("Element inserted successfully");
    }
    else {
        System.out.println("Common element cannot be
inserted");
    }
}
```

```

        }
    }

    public boolean contains(E obj) {
        return Arrays.asList(this.arr).contains(obj);
    }

    public void clear() {
        this.arr1=this.arr;
        Arrays.fill(arr,null);
        for(E i:arr) {

        }

        System.out.println("Set is cleared");
    }

    public void remove(E obj) {
        int i,flag=0;
        this.n=this.arr.length;
        for(i=0;i<this.n;i++) {
            if(this.arr[i]==obj) {
                flag=1;
                break;
            }
        }

        if(i<this.n) {
            this.n-=1;
        }
    }

```

```
        for(int j=i;j<this.n;j++) {
            this.arr[j]=this.arr[j+1];
        }
        System.out.println("Element removed
successfully");
    }
    if(flag==0) {
        System.out.println("Element not found");
    }
}

public int size() {
    return this.arr.length;
}

public E first() {
    return this.arr[0];
}

public E last() {
    return this.arr[this.arr.length-1];
}

public void display() {
    for(int i=0;i<this.arr.length;i++) {
        System.out.println(this.arr[i]);
    }
}
```

```
public boolean common(E obj) {  
    int i;  
    for(i=0;i<this.arr.length;i++) {  
        if(this.arr[i]==obj) {  
            return false;  
        }  
    }  
    return true;  
}  
  
public static void main(String[] args) {  
    String[] arr11= {"aaa","bbb"};  
    MyTreeSet<String> a=new MyTreeSet<>(arr11);  
    a.add("abcd");  
    a.add("efgh");  
    a.add("abcd");  
    a.add("ijkl");  
    a.display();  
    System.out.println(a.size());  
    System.out.println(a.contains("aaa"));  
    a.remove("bbb");  
    System.out.println(a.first());  
    System.out.println(a.last());  
}  
}
```

```
<terminated> MyTreeSet [Java Application] C:\Program Files\Java\jdk-15.0.2\bin\javaw.exe (Mar 17, 2021,
Element inserted successfully
Element inserted successfully
Common element cannot be inserted
Element inserted successfully
aaa
abcd
bbb
efgh
ijkl
5
true
Element removed successfully
aaa
ijkl
```

Part B:

package seventh;

```
import java.util.ArrayList;
import java.util.Collection;
import java.util.Iterator;
import java.util.Scanner;
```

```
public class OnlineShopping {
    int id;
    Integer cost;
    String product;

    public OnlineShopping(int id,int cost,String product) {
        this.id=id;
        this.cost=cost;
        this.product=product;
    }
}
```

```

public void sort(int[] a) {
    boolean sorted = false;
    int temp;
    while(!sorted) {
        sorted = true;
        for (int i = 0; i < a.length - 1; i++) {
            if (a[i] > a[i+1]) {
                temp = a[i];
                a[i] = a[i+1];
                a[i+1] = temp;
                sorted = false;
            }
        }
    }
}

```

```

public Integer getCost() {
    return this.cost;
}
public String toString() {
    return this.id+" "+this.cost+" "+this.product;
}
public static void main(String[] args) {
    Scanner sc=new Scanner(System.in);
    String ans="yes",a="yes";
    int sum=0;
    ArrayList<OnlineShopping> slist = new ArrayList<>();
    ArrayList<OnlineShopping> cart = new ArrayList<>();
    OnlineShopping[] p =new OnlineShopping[10];
    p[0]=new OnlineShopping(5,10,"Pen");
    p[1]=new OnlineShopping(3,5,"Pencil");
    p[2]=new OnlineShopping(4,7,"Eraser");
    p[3]=new OnlineShopping(2,3,"Shapener");
    p[4]=new OnlineShopping(7,20,"Notebook");
    p[5]=new OnlineShopping(9,30,"Sketch Pens");
    p[6]=new OnlineShopping(6,15,"Marker Pens");
}

```

```

p[7]=new OnlineShopping(8,25,"Highlighters");
p[8]=new OnlineShopping(1,2,"Chart Paper");
p[9]=new OnlineShopping(10,50,"Registers");
slist.add(p[0]);
slist.add(p[1]);
slist.add(p[2]);
slist.add(p[3]);
slist.add(p[4]);
slist.add(p[5]);
slist.add(p[6]);
slist.add(p[7]);
slist.add(p[8]);
slist.add(p[9]);
slist.sort((o1, o2) ->
o1.getCost().compareTo(o2.getCost()));
    Iterator<OnlineShopping> slistIterator = slist.iterator();
    System.out.println("Product id"+"    "+"Product
Cost"+"    "+"Product Name");
    while(slistIterator.hasNext()){
        OnlineShopping s = slistIterator.next();
        System.out.println(s.id+"    "+s.cost+"    "+s.product);
    }
    do {
        System.out.println();
        System.out.println();
        System.out.println();
        System.out.println("Menu-Driven Program");
        System.out.println("1. Add items to cart");
        System.out.println("2. Remove items from cart");
        System.out.println("3. Total cost");
        System.out.println("Please enter your choice");
        int ch=sc.nextInt();
        switch(ch) {
            case 1:{
                do {
                    System.out.println("Enter the id of the product to be
added to cart :");

```



```

        int idd=sc.nextInt();
        for(int i=0;i<10;i++) {
            if(p[i].id==idd) {
                cart.add(p[i]);
                sum=sum+p[i].cost;
            }
        }
        System.out.println("Do you wish to continue : ");
        ans=sc.next();
    }while(ans.equals("yes"));
    System.out.println("Items in your cart are :");
    System.out.println("Product id"+" "+"Product
Cost"+" "+"Product Name");
    Iterator<OnlineShopping> cartIterator = cart.iterator();
    while(cartIterator.hasNext()){
        OnlineShopping s = cartIterator.next();
        System.out.println(s.id+" "+s.cost+" "+s.product);
    }
    System.out.println("Total Cost : "+sum);
}
break;
case 2:{
    do {
        System.out.println("Enter the id of the product to be
removed from cart :");
        int idd=sc.nextInt();
        for(int i=0;i<10;i++) {
            if(p[i].id==idd) {
                cart.remove(p[i]);
                sum=sum-p[i].cost;
            }
        }
        System.out.println("do you wish to continue :");
        ans=sc.next();
    }while(ans.equals("yes"));
    System.out.println("Items in your cart are : ");
    System.out.println("Product id"+" "+"Product
Cost"+" "+"Product Name");

```

```
Iterator<OnlineShopping> cartrIterator = cart.iterator();
while(cartrIterator.hasNext()){
    OnlineShopping s = cartrIterator.next();
    System.out.println(s.id+" "+s.cost+" "+s.product);
}
System.out.println("Total cost : "+sum);
}
break;
case 3:{
    System.out.println("Total cost : "+sum);
}
break;
default:{
    System.out.println("Something went wrong ");
}
}
System.out.println("Do you wish to continue : ");
a=sc.next();
}while(a.equals("yes"));
}
}
```

```
Problems @ Javadoc Declaration Console Coverage
OnlineShopping [Java Application] C:\Program Files\Java\jdk-15.0.2\bin\javaw.exe (Mar 17, 2021, 4:48:25 PM)
Product id    Product Cost    Product Name
1      2      Chart Paper
2      3      Shapener
3      5      Pencil
4      7      Eraser
5     10      Pen
6     15      Marker Pens
7     20      Notebook
8     25      Highlighters
9     30      Sketch Pens
10    50      Registers

Menu-Driven Program
1. Add items to cart
2. Remove items from cart
3. Total cost
Please enter your choice
1
Enter the id of the product to be added to cart :
5
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
6
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
9
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
?
```

```
Problems @ Javadoc Declaration Console Coverage
OnlineShopping [Java Application] C:\Program Files\Java\jdk-15.0.2\bin\javaw.exe (Mar 17, 2021, 4:48:25 PM)
2. Remove items from cart
3. Total cost
Please enter your choice
1
Enter the id of the product to be added to cart :
5
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
6
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
9
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
2
Do you wish to continue :
yes
Enter the id of the product to be added to cart :
3
Do you wish to continue :
no
Items in your cart are :
Product id    Product Cost    Product Name
5     10      Pen
6     15      Marker Pens
9     30      Sketch Pens
2      3      Shapener
3      5      Pencil
Total Cost : 63
Do you wish to continue :
```

```

OnlineShopping [Java Application] C:\Program Files\Java\jdk-15.0.2\bin\javaw.exe (Mar 17, 2021, 4:48:25 I
6      15      Marker Pens
9      30      Sketch Pens
2       3      Shapener
3       5      Pencil
Total Cost : 63
Do you wish to continue :
yes

Menu-Driven Program
1. Add items to cart
2. Remove items from cart
3. Total cost
Please enter your choice
2
Enter the id of the product to be removed from cart :
2
do you wish to continue :
yes
Enter the id of the product to be removed from cart :
1
do you wish to continue :
no
Items in your cart are :
Product id      Product Cost      Product Name
5       10      Pen
6       15      Marker Pens
9       30      Sketch Pens
3       5      Pencil
Total cost : 58
Do you wish to continue :
|

```

```

Problems @ Javadoc Declaration Console Coverage
<terminated> OnlineShopping [Java Application] C:\Program Files\Java\jdk-15.0.2\bin\javaw.exe (Mar 17, 2021, 4:48:25 PM - 4:51:50 PM)
3. Total cost
Please enter your choice
2
Enter the id of the product to be removed from cart :
2
do you wish to continue :
yes
Enter the id of the product to be removed from cart :
1
do you wish to continue :
no
Items in your cart are :
Product id      Product Cost      Product Name
5       10      Pen
6       15      Marker Pens
9       30      Sketch Pens
3       5      Pencil
Total cost : 58
Do you wish to continue :
yes

Menu-Driven Program
1. Add items to cart
2. Remove items from cart
3. Total cost
Please enter your choice
3
Total cost : 58
Do you wish to continue :
no

```