



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING

Assessment – V

Course Name & Code: Programming in JAVA & CSE1007

Max. Marks: 10

Semester: Winter 2019-20

Slot: L55+L56

Due Date: 03 – 04 – 2020

1. Design a Java program to handle train details with List collections. TrainDetails class contains TrainNo, TrainName, Source, Destination, Distance. Get details from console and add it to the list. Sort instances of TrainDetails class based on TrainNo or TrainName or Source or Distance. Create a menu oriented program. (3M)

NAME: ALOK SINHA

REG NO:17BCE2380

SLOT: L55+L56

CODE:

```
import java.util.*;
class TrainDetails {
    private int TrainNo,Distance;
    String TrainName,Source,Destination;
    public TrainDetails(int TrainNo,String TrainName,String Source,String Destination,int Distance){
        this.TrainNo=TrainNo;
        this.TrainName=TrainName;
        this.Source=Source;
        this.Destination=Destination;
        this.Distance=Distance;
    }
    public int getTrainNo() {
        return TrainNo;
    }
    public void setTrainNo(int trainNo) {
        TrainNo = trainNo;
    }
    public int getDistance() {
        return Distance;
    }
    public void setDistance(int distance) {
```

```

        Distance = distance;
    }
    public String getTrainName() {
        return TrainName;
    }
    public void setTrainName(String trainName) {
        TrainName = trainName;
    }
    public String getSource() {
        return Source;
    }
    public void setSource(String source) {
        Source = source;
    }
    public String getDestination() {
        return Destination;
    }
    public void setDestination(String destination) {
        Destination = destination;
    }
}

public static Comparator<TrainDetails> TrainNosort = new Comparator<TrainDetails>() {

    public int compare(TrainDetails s1, TrainDetails s2) {

        int TrainNo1 = s1.getTrainNo();
        int TrainNo2 = s2.getTrainNo();

        return TrainNo1-TrainNo2;
    }
};

public static Comparator<TrainDetails> Tnamesort = new Comparator<TrainDetails>() {

    public int compare(TrainDetails s1, TrainDetails s2) {
        String TrainName1 = s1.getTrainName().toUpperCase();
        String TrainName2 = s2.getTrainName().toUpperCase();

        return TrainName1.compareTo(TrainName2);
    }
};

public static Comparator<TrainDetails> Srcsort = new Comparator<TrainDetails>() {

    public int compare(TrainDetails s1, TrainDetails s2) {
        String Source1 = s1.getSource().toUpperCase();
        String Source2 = s2.getSource().toUpperCase();

        return Source1.compareTo(Source2);
    }
};

```

```

    });

    public static Comparator<TrainDetails> Dessort = new Comparator<TrainDetails>() {

        public int compare(TrainDetails s1, TrainDetails s2) {
            String Destination1 = s1.getDestination().toUpperCase();
            String Destination2 = s2.getDestination().toUpperCase();

            return Destination1.compareTo(Destination2);

        }

        @Override
        public String toString() {
            return "[ TrainNumber=" + TrainNo + ", TrainName=" + TrainName + ", Source=" + Source + ",
            Destination=" + Destination + ", Distance=" + Distance + " ]";
        }
    }

}

public class Array_List {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the number of Train");
        int n=sc.nextInt();
        List<TrainDetails> list=new ArrayList<TrainDetails>();
        for(int i=0;i<n;i++) {
            System.out.println("Enter Train Number");
            int Tno=sc.nextInt();
            System.out.println("Enter Train Name");
            String Tname=sc.next();
            System.out.println("Enter Source");
            String Src=sc.next();
            System.out.println("Enter Destination");
            String Des=sc.next();
            System.out.println("Enter Distance");
            int dis=sc.nextInt();
            list.add(new TrainDetails(Tno,Tname,Src,Des,dis));
        }
        System.out.println("Press 1 for sorting by Train Number");
        System.out.println("Press 2 for sorting by Train Name");
        System.out.println("Press 3 for sorting by Source");
        System.out.println("Press 4 for sorting by Destination");
        while(true) {
            int ch=sc.nextInt();
            switch(ch)
            {

```

```

case 1:{
System.out.println("Train Number after sorting");
Collections.sort(list, TrainDetails.TrainNosort);

    for(TrainDetails No: list){
        System.out.println(No);
    }
    break;
}
case 2:{
System.out.println("Train Name after sorting");
Collections.sort(list, TrainDetails.Tnamesort);

    for(TrainDetails Name: list){
        System.out.println(Name);
    }
    break;
}
case 3:{
System.out.println("Sorting By Source");
Collections.sort(list, TrainDetails.Srcsort);

    for(TrainDetails src: list){
        System.out.println(src);
    }
    break;
}
case 4:{
System.out.println("Sorting By Destination");
Collections.sort(list, TrainDetails.Dessort);

    for(TrainDetails Des: list){
        System.out.println(Des);
    }
    break;
}

    default: System.out.println("Not in Range");
}

}

```

OUTPUT:

```
Enter the number of Train
```

```
5
```

```
Enter Train Number
```

```
124
```

```
Enter Train Name
```

```
Samrat
```

```
Enter Source
```

```
Bharatpur
```

```
Enter Destination
```

```
Chhenai
```

```
Enter Distance
```

```
1025
```

```
Enter Train Number
```

```
4871
```

```
Enter Train Name
```

```
Bishal
```

```
Enter Source
```

```
Delhi
```

```
Enter Destination
```

```
Bangalore
```

```
Enter Distance
```

```
982
```

```
Enter Train Number
```

```
4571
```

```
Enter Train Name
```

```
Aashu
```

```
Enter Source
```

```
Mumbai
```

```
Enter Destination
```

```
Hyderabad
```

```
Enter Distance
```

```
978
```

```
Enter Train Number
```

```
1514
```

```
Enter Train Name
```

```
Swach
```

```
Enter Source
```

```
Jamalpur
```

```
Enter Destination
```

```
Vellore
```

```
Enter Distance
```

```
1027
```

```
Press 1 for sorting by Train Number
```

```
Press 2 for sorting by Train Name
```

```
Press 3 for sorting by Source
```

```
Press 4 for sorting by Destination
```

```
1
Train Number after sorting
[ TrainNumber=124, TrainName=Samrat, Source=Bharatpur, Destination=Chhenai,Distance=1025]
[ TrainNumber=1514, TrainName=Swach, Source=Jamalpur, Destination=Vellore,Distance=1027]
[ TrainNumber=1547, TrainName=Lakshmi, Source=Mangalore, Destination=Bangalore,Distance=504]
[ TrainNumber=4571, TrainName=Aashu, Source=Mumbai, Destination=Hyderabad,Distance=978]
[ TrainNumber=4871, TrainName=Bishal, Source=Delhi, Destination=Bangalore,Distance=982]
2
Train Name after sorting
[ TrainNumber=4571, TrainName=Aashu, Source=Mumbai, Destination=Hyderabad,Distance=978]
[ TrainNumber=4871, TrainName=Bishal, Source=Delhi, Destination=Bangalore,Distance=982]
[ TrainNumber=1547, TrainName=Lakshmi, Source=Mangalore, Destination=Bangalore,Distance=504]
[ TrainNumber=124, TrainName=Samrat, Source=Bharatpur, Destination=Chhenai,Distance=1025]
[ TrainNumber=1514, TrainName=Swach, Source=Jamalpur, Destination=Vellore,Distance=1027]
3
Sorting By Source
[ TrainNumber=124, TrainName=Samrat, Source=Bharatpur, Destination=Chhenai,Distance=1025]
[ TrainNumber=4871, TrainName=Bishal, Source=Delhi, Destination=Bangalore,Distance=982]
[ TrainNumber=1514, TrainName=Swach, Source=Jamalpur, Destination=Vellore,Distance=1027]
[ TrainNumber=1547, TrainName=Lakshmi, Source=Mangalore, Destination=Bangalore,Distance=504]
[ TrainNumber=4571, TrainName=Aashu, Source=Mumbai, Destination=Hyderabad,Distance=978]
4
Sorting By Destination
[ TrainNumber=4871, TrainName=Bishal, Source=Delhi, Destination=Bangalore,Distance=982]
[ TrainNumber=1547, TrainName=Lakshmi, Source=Mangalore, Destination=Bangalore,Distance=504]
[ TrainNumber=124, TrainName=Samrat, Source=Bharatpur, Destination=Chhenai,Distance=1025]
[ TrainNumber=4571, TrainName=Aashu, Source=Mumbai, Destination=Hyderabad,Distance=978]
[ TrainNumber=1514, TrainName=Swach, Source=Jamalpur, Destination=Vellore,Distance=1027]
```

2. Design a JavaFX program likely to display the following:

The screenshot shows a JavaFX application window titled "First FX Program". The window contains a form with the following elements:

- Title:** Three radio buttons labeled "Mr.", "Mrs.", and "Ms.". The "Mr." button is selected.
- Your Name:** A text input field.
- Select Gender:** Three radio buttons labeled "Male", "Female", and "Trans Gender". The "Male" button is selected.
- Your Interest:** Six checkboxes labeled "Sports", "Music", "Food", "Travel", "Reading", and "Sleep". The "Sports" checkbox is checked.
- Buttons:** Two buttons labeled "SUBMIT" and "RESET" are located at the bottom left of the form.

Also write the code to do the following:

Provided details have to be displayed when the user clicks "SUBMIT" button as follows:

CODE:

```
package application;
import javafx.application.Application;
import javafx.scene.Scene;
import javafx.scene.control.*;
import javafx.scene.layout.GridPane;
import javafx.stage.Stage;
import javafx.event.EventHandler;
import javafx.event.ActionEvent;
import javafx.geometry.Insets;
//public class
public class LAB_17BCE2380 extends Application{
    public static void main(String []ar){
        launch(ar);
    }

    //override the start method of Application class
    public void start(Stage primaryStage) throws Exception{
```

```
//create control
Label l2 = new Label("Title");
RadioButton mrTitle = new RadioButton("Mr. ");
mrTitle.setSelected(true);
RadioButton mrsTitle = new RadioButton("Mrs. ");
RadioButton msTitle = new RadioButton("Ms. ");
//grouping radio button
ToggleGroup titleGrp = new ToggleGroup();
mrTitle.setToggleGroup(titleGrp);
mrsTitle.setToggleGroup(titleGrp);
msTitle.setToggleGroup(titleGrp);

//another radio button group
Label l3 = new Label("Select Gender");
RadioButton male = new RadioButton("Male");
RadioButton female = new RadioButton("Female");
RadioButton trans = new RadioButton("Trans Gender");
ToggleGroup gender = new ToggleGroup();
male.setSelected(true);
male.setToggleGroup(gender);
female.setToggleGroup(gender);

//checkbox group
Label l4 = new Label("Your Interests");
CheckBox Sports= new CheckBox("Sports");
CheckBox Music= new CheckBox("Music");
CheckBox Food= new CheckBox("Food");
CheckBox Travel= new CheckBox("Travel");
CheckBox Reading= new CheckBox("Reading");
CheckBox Sleep= new CheckBox("Sleep");
Sports.setIndeterminate(false);
Music.setIndeterminate(false);
```



```
Food.setIndeterminate(false);
Travel.setIndeterminate(false);
Reading.setIndeterminate(false);
Sleep.setIndeterminate(false);
```

```
Label l1 = new Label("Your Name");
TextField nameField = new TextField();
Button b1 = new Button("Submit");
Button b2 = new Button("Reset");
Label print = new Label();
```

```
//add event listener to the button
b1.setOnAction(new EventHandler <ActionEvent>() {
    @Override
    public void handle(ActionEvent e1){
        String s;
        if (mrTitle.isSelected())
            s = "Mr. ";
        else if(mrsTitle.isSelected())
            s = "Mrs. ";
        else
            s = "Ms. ";
        s = s + nameField.getText();
        if (male.isSelected())
            s = s+ " You are a male ";
        else if(female.isSelected())
            s = s + " You are a female ";
        else
            s=s+" You are a trans gender ";
        s=s+"and you are interested in ";
        if(Sports.isSelected())
```

```

        s=s+"Sports ";
        if(Music.isSelected())
            s=s+"Music ";
        if(Food.isSelected())
            s=s+"Food ";
        if(Travel.isSelected())
            s=s+"Travel ";
        if(Reading.isSelected())
            s=s+"Reading ";
        if(Sleep.isSelected())
            s=s+"Sleep ";
        print.setText(s);
    }
}
);

```

//Reset

```

b2.setOnAction(new EventHandler <ActionEvent>() {
    @Override
    public void handle(ActionEvent e1){
        nameField.setText("");
        print.setText("");
        mrTitle.setSelected(true);
        Sports.setSelected(false);
        Music.setSelected(false);
        Food.setSelected(false);
        Travel.setSelected(false);
        Reading.setSelected(false);
        Sleep.setSelected(false);
    }
});

```

//create grid pane


```
GridPane gp = new GridPane();  
//making alignment of gridpane  
gp.setPadding(new Insets(20,10,10,10));  
gp.setVgap(20);  
gp.setHgap(10);  
  
// add controls  
gp.add(l2,0,0);  
gp.add(mrTitle,1,0);  
gp.add(mrsTitle,2,0);  
gp.add(msTitle,3,0);  
gp.add(l1,0,1);  
gp.add(nameField,1,1);  
gp.add(l3,0,2);  
gp.add(male,1,2);  
gp.add(female,2,2);  
gp.add(trans,3,2);  
gp.add(l4,0,3);  
gp.add(Sports,1,3);  
gp.add(Music,2,3);  
gp.add(Food,3,3);  
gp.add(Travel,1,4);  
gp.add(Reading,2,4);  
gp.add(Sleep,3,4);  
  
gp.add(b1,0,5);  
gp.add(b2,1,5);  
gp.add(print,2,6);  
  
//Scene creation  
Scene page1 = new Scene(gp,600,300);  
primaryStage.setScene(page1);  
primaryStage.setTitle("First FX Program");
```

```
primaryStage.show();
```

```
}
```

```
}
```

OUTPUT:

 First FX Program

Title	<input checked="" type="radio"/> Mr.	<input type="radio"/> Mrs.	<input type="radio"/> Ms.
Your Name	<input type="text" value="ALOK SINHA"/>		
Select Gender	<input checked="" type="radio"/> Male	<input type="radio"/> Female	<input type="radio"/> Trans Gender
Your Interests	<input checked="" type="checkbox"/> Sports	<input checked="" type="checkbox"/> Music	<input type="checkbox"/> Food
	<input type="checkbox"/> Travel	<input checked="" type="checkbox"/> Reading	<input type="checkbox"/> Sleep
<input type="button" value="Submit"/> <input type="button" value="Reset"/>			

Mr. ALOK SINHA You are a male and you are interested in Sports Music Reading