KANDRA KSHEERAJ 19BCE0829 Question-9

CSE1007: Java Programming

SLOT: L53+L54

Faculty: JAISANKAR N

LAB Mid Term

Date: 20-05-2021

9. A Mediation centre wants to encourage young generation to practice yoga and meditation. It offers 15% discount for youth below 21 years, 30% discount for those who are below 14 years. Define a class to store the member details along with discount they get, if any. Store atleast three member objects in a File. The coordinator of the centre reads the file and wants to know the number of people who got discounts 0%, 15% and 30% respectively. Develope Java program to display the counts after reading the file.

(using serialization and De-serialization)

Serialization

The process of saving (or) writing state of an object to a file is called serialization

But strictly speaking it is the process of converting an object from java supported form to either network supported form (or) file supported form.

By using FileOutputStream and ObjectOutputStream classes we can achieve serialization process.

De-serialization

The process of reading state of an object from a file is called DeSerialization

But strictly speaking it is the process of converting an object from file supported form (or) network supported form to java supported form.

By using FileInputStream and ObjectInputStream classes we can achieve DeSerialization.

Code:

DataStore.java

```java
import java.lang.*;
import java.util.*;
import java.io.*;

class DataStore{
  public static void main(String args[]){
    Scanner sc=new Scanner(System.in);
    try{
      FileOutputStream fout=new FileOutputStream("f.txt");
      ObjectOutputStream out=new ObjectOutputStream(fout);

      int n;
      System.out.print("Enter no. of members: ");
      n=sc.nextInt();

      String mName;
      int mAge;
      for(int i=0;i<n;i++){
          sc.nextLine();
        System.out.print("Enter name: ");
        mName=sc.nextLine();
        System.out.print("Enter age: ");
        mAge=sc.nextInt();
        out.writeObject(new member(mName,mAge));
      }

      out.flush();
      out.close();
      System.out.println("Successfully stored the objects
in the file");
    }
    catch(Exception e){
      System.out.println(e);
```

```java
        }
     }
}

class member implements Serializable{
 String name;
 int age,Dpercent;
 member(String name,int age) {
   this.age = age;
   this.name = name;
   if(age>=14 && age<21){
      this.Dpercent=15;
   }
   else if(age<14){
      this.Dpercent=30;
   }
   else{
      this.Dpercent=0;
   }
  }
}
```

DataRet.java

```java
import java.lang.*;
import java.util.*;
import java.io.*;
import java.lang.*;

class DataRetrive{
public static void main(String args[]){
   Scanner sc=new Scanner(System.in);
try{
  ObjectInputStream in=new ObjectInputStream(new
   FileInputStream("f.txt"));
   List<member> list=new ArrayList<member>();
   List<member> l0=new ArrayList<member>();
   List<member> l15=new ArrayList<member>();
   List<member> l30=new ArrayList<member>();
```

```java
int n;
System.out.print("Enter no. of members in the list: ");
n=sc.nextInt();
int i=0;
while(i<n){
  list.add((member)in.readObject());
  i++;
}
//System.out.println(list);
Iterator it=list.iterator();
while(it.hasNext()){
  member m=(member)it.next();
  if(m.Dpercent==0){
    l0.add(m);
  }
  if(m.Dpercent==15){
    l15.add(m);
  }
  if(m.Dpercent==30){
    l30.add(m);
  }
}

Iterator x=l0.iterator();
System.out.println("Members having 0 percent Discount");
while(x.hasNext()){
  member m1=(member)x.next();
  System.out.println("\t"+m1.name);
}

Iterator y=l15.iterator();
System.out.println("Members having 15 percent
 Discount");
while(y.hasNext()){
  member m2=(member)y.next();
  System.out.println("\t"+m2.name);;
}

Iterator z=l30.iterator();
System.out.println("Members having 30 percent
 Discount");
while(z.hasNext()){
```

```java
        member m3=(member)z.next();
        System.out.println("\t"+m3.name);
      }


    in.close();
  }
  catch(Exception e){
    System.out.println(e);
  }
  }
  }

class member implements Serializable{
 String name;
 int age,Dpercent;
 member(String name,int age) {
   this.age = age;
   this.name = name;
   if(age>=14 && age<21){
     this.Dpercent=15;
   }
   else if(age<14){
     this.Dpercent=30;
   }
   else{
     this.Dpercent=0;
   }
  }
}
```

Stored data in f.txt

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 ksheerajsq ~   -
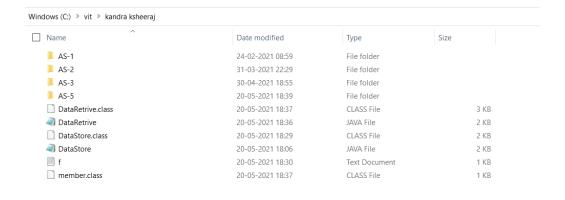

t

loganathansq ~   t sankar

Sample Output:

DataStore.java file execution


```
C:\Windows\System32\cmd.exe
C:\vit\kandra ksheeraj>javac DataStore.java

C:\vit\kandra ksheeraj>java DataStore
Enter no. of members: 3
Enter name: ksheeraj
Enter age: 20
Enter name: loganathan
Enter age: 13
Enter name: sankar
Enter age: 28
Successfully stored the objects in the file

C:\vit\kandra ksheeraj>
```

File location

Name	Date modified	Type	Size
AS-1	24-02-2021 08:59	File folder	
AS-2	31-03-2021 22:29	File folder	
AS-3	30-04-2021 18:55	File folder	
AS-5	20-05-2021 18:39	File folder	
DataRetrive.class	20-05-2021 18:37	CLASS File	3 KB
DataRetrive	20-05-2021 18:36	JAVA File	2 KB
DataStore.class	20-05-2021 18:29	CLASS File	2 KB
DataStore	20-05-2021 18:06	JAVA File	2 KB
f	20-05-2021 18:30	Text Document	1 KB
member.class	20-05-2021 18:37	CLASS File	1 KB

Objects stored in f.txt file


```
f - Notepad
File  Edit  Format  View  Help
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  I  DpercentI  ageL  namet  Ljava/lang/String;xp       t  ksheerajsq ~
t
loganathansq ~            t  sankar
```

DataRetrieve.java file execution

```
C:\vit\kandra ksheeraj>javac DataRetrive.java

C:\vit\kandra ksheeraj>java DataRetrive
Enter no. of members in the list: 3
Members having 0 percent Discount
        sankar
Members having 15 percent Discount
        ksheeraj
Members having 30 percent Discount
        loganathan

C:\vit\kandra ksheeraj>
```

Complete Execution output

Select C:\Windows\System32\cmd.exe

```
C:\vit\kandra ksheeraj>javac DataStore.java

C:\vit\kandra ksheeraj>java DataStore
Enter no. of members: 3
Enter name: ksheeraj
Enter age: 20
Enter name: loganathan
Enter age: 13
Enter name: sankar
Enter age: 28
Successfully stored the objects in the file

C:\vit\kandra ksheeraj>javac DataRetrive.java

C:\vit\kandra ksheeraj>java DataRetrive
Enter no. of members in the list: 3
Members having 0 percent Discount
        sankar
Members having 15 percent Discount
        ksheeraj
Members having 30 percent Discount
        loganathan

C:\vit\kandra ksheeraj>
```