***Dt : 6/11/2022(Sunday)***

***IO Streams and Files in Java:***

***IO Streams and Files in Java:***

***define Stream?***

***=>The contineous flow of data is known as Stream.***

***Types of streams in Java:***

***=>Streams in Java are categorized into two types:***

***1.Character Stream***

***2.Byte Stream***

***1.Character Stream:***

***=>The contineous flow of data in the form of 16-bits is known as Character***

***Stream.***

***2.Byte Stream:***

***=>The contineous flow of data in the form of 8-bits is known as Byte***

***Stream or Binary Stream.***

***----------------------------------------------------------***

***define InputStream?***

***=>The Stream which is coming into Java application is known as InputStream***

***define OutputStream?***

***=>The Stream which is going out of Java application is known as OutputStream***

***Diagram:***

***--------------------------------------------------------------***

***define File Storage?***

***=>The smallest permanent Storage of Computer System which is controlled***

***and managed by the OperatingSystem is known as File Storage.***

***Note:***

***=>when we want to establish communication b/w JavaProgram and File Storage,***

***the JavaProgram must be constructed using Classes and Interfaces available***

***from "java.io" package.***

***Diagram:***

***=====================================================================***

***\*imp***

***Classes related to Byte Stream:***

***(1)OutputStream:***

***(a)FileOutputStream***

***(b)ObjectOutputStream***

***(c)ByteArrayOutputStream***

***(d)PipedOutputStream***

***(e)FilteredOutputStream***

***(i)DataOutputStream***

***(ii)BufferedOutputStream***

***(iii)PrintStream***

***(2)InputStream:***

***(a)FileInputStream***

***(b)ObjectInputStream***

***(c)ByteArrayInputStream***

***(d)PipedInputStream***

***(e)FilteredInputStream***

***(i)DataInputStream***

***(ii)BufferedInputStream***

***(iii)PushBackInputStream***

***==================================================================***

***Ex-program:***

***wap to copy the file from one loaction(Source) to another***

***location(destination)?***

***Source path : C:\Images\Screenshot (1).png***

***Destination path : D:\Images\XYZ.png***

***Program : DemoFile1.java***

***package maccess;***

***import java.io.\*;***

***import java.util.\*;***

***public class DemoFile1 {***

***public static void main(String[] args) {***

***Scanner s = new Scanner(System.in);***

***try(s;)***

***{***

***try***

***{***

***System.out.println("Enter fpath&fname:(Source)");***

***String path1 = s.nextLine();***

***FileInputStream fis = new FileInputStream(path1);//Con\_Call***

***System.out.println("Enter fPath&fName:(Destination)");***

***String path2 = s.nextLine();***

***FileOutputStream fos = new FileOutputStream(path2);***

***int z;***

***while((z=fis.read())!=-1)***

***{***

***fos.write(z);***

***}//end of loop***

***System.out.println("File copied Successfully...");***

***fos.close();***

***fis.close();***

***}//end of try***

***catch(Exception e)***

***{***

***e.printStackTrace();***

***}***

***}//end of try with resource***

***}***

***}***

***o/p:***

***Enter fpath&fname:(Source)***

***C:\Images\Screenshot (1).png***

***Enter fPath&fName:(Destination)***

***D:\Images\XYZ.png***

***File copied Successfully...***

***===============================================================***

***Define FileInputStream?***

***=>FileInputStream class will find the file and opens the file to read***

***byte stream data.***

***syntax:***

***FileInputStream fis = new FileInputStream(path);***

***Define FileOutputStream?***

***=>FileOutputStream class will create a new file and opens the file to***

***write byte stream data.***

***syntax:***

***FileOutputStream fos = new FileOutputStream(path);***

***===============================================================***

***\*imp***

***Object Stream:***

***=>when we want to store Object onto file Storage or Database Storage or***

***Network,the Object must be available in the form Stream.(Byte Stream)***

***define Serialization process?***

***=>The process of converting Object into Stream is known as Serialization***

***process.***

***=>we use writeObject() method from "java.io.ObjectOutStream" class to***

***perform Serialization process.***

***syntax:***

***ObjectOutputStream oos = new ObjectOutputStream(fos);***

***oos.writeObject(obj\_name);***

***define DeSerialization process?***

***=>The process of converting Stream into Object is known as DeSerialization***

***process.***

***=>we use readObject() method from "java.io.ObjectInputStream" class to***

***perform DeSerialization process.***

***syntax:***

***ObjectInputStream ois = new ObjectInputStream(fis);***

***Object o = ois.readObject();***

***Note:***

***=>To Perform Serialization and DeSerialization process,the class must be***

***implemented from "java.io.Serializable" interface.***

***=>"java.io.Serializable" interface is empty interface and which is also***

***known as Marker interface or Tagging interface.***

***------------------------------------------------------------------***

***Ex-program:***

***TransLog.java***

***package test;***

***import java.io.Serializable;***

***import java.util.Date;***

***//Immutable Class***

***@SuppressWarnings("serial")***

***public final class TransLog implements Serializable***

***{***

***private final long hAccNo,bAccNo;***

***private final double amt;***

***private final Date dateTime;***

***public TransLog(long hAccNo,long bAccNo,double amt,Date dateTime)***

***{***

***this.hAccNo=hAccNo;***

***this.bAccNo=bAccNo;***

***this.amt=amt;***

***this.dateTime=dateTime;***

***}***

***public final long gethAccNo() {***

***return hAccNo;***

***}***

***public final long getbAccNo() {***

***return bAccNo;***

***}***

***public final double getAmt() {***

***return amt;***

***}***

***public final Date getDateTime() {***

***return dateTime;***

***}***

***}***

***Serialization.java(MainClass)***

***package maccess;***

***import java.io.\*;***

***import java.util.\*;***

***import test.TransLog;***

***public class Serialization {***

***public static void main(String[] args) {***

***Scanner s = new Scanner(System.in);***

***try(s;)***

***{***

***try***

***{***

***System.out.println("Enter the hAccNo:(Home)");***

***long hAccNo = s.nextLong();***

***System.out.println("Enter the bAccNo:(benefieciery)");***

***long bAccNo = s.nextLong();***

***System.out.println("Enter the amt to be transferred:");***

***double amt = s.nextDouble();***

***TransLog ob1 = new TransLog(hAccNo,bAccNo,amt,new Date());***

***//Immutable object***

***String path = "D:\\Images\\Obj.txt";***

***FileOutputStream fos = new FileOutputStream(path);***

***ObjectOutputStream oos = new ObjectOutputStream(fos);***

***oos.writeObject(ob1);//Serialization***

***System.out.println("Object Stored in file Successfully...");***

***oos.close();***

***fos.close();***

***}//end of try***

***catch(Exception e)***

***{***

***e.printStackTrace();***

***}***

***}//end of try***

***}***

***}***

***o/p:***

***Enter the hAccNo:(Home)***

***6123456***

***Enter the bAccNo:(benefieciery)***

***313131***

***Enter the amt to be transferred:***

***6000***

***Object Stored in file Successfully...***

***--------------------------------------------------------------------***

***DeSerialization.java(MainClass)***

***package maccess;***

***import java.io.\*;***

***import test.TransLog;***

***public class DeSerialization {***

***public static void main(String[] args) {***

***try***

***{***

***String path = "D:\\Images\\Obj.txt";***

***FileInputStream fis = new FileInputStream(path);***

***ObjectInputStream ois = new ObjectInputStream(fis);***

***TransLog ob2 = (TransLog)ois.readObject();//DeSerialization process***

***System.out.println("====Transaction details====");***

***System.out.println("HAccNo:"+ob2.gethAccNo());***

***System.out.println("BAccNo:"+ob2.getbAccNo());***

***System.out.println("Amt:"+ob2.getAmt());***

***System.out.println("DataTime:"+ob2.getDateTime());***

***ois.close();***

***fis.close();***

***}//end of try***

***catch(Exception e)***

***{***

***e.printStackTrace();***

***}***

***}***

***}***

***o/p:***

***====Transaction details====***

***HAccNo:6123456***

***BAccNo:313131***

***Amt:6000.0***

***DataTime:Sun Nov 06 11:41:01 PST 2022***

***==================================================================***