Gokul Jayan
20BCE1249

Lab Exercise on Files

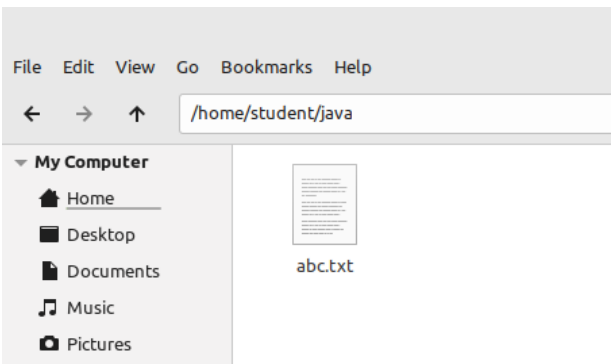
1. **Write a program to create a text file in the path c:\java\abc.txt and check whether that fileis exists or not.**

CODE:

```
import java.util.Scanner;

import java.io.*;

public class q1{

  public static void main(String[] args) throws IOException{

    String path = "/home/student/java/abc.txt";

    File f = new File(path);

    if(f.createNewFile())

    System.out.println("File has been created successfully!");

    else

    System.out.println("File is not created!");

  }

}
```

OUTPUT:

```
student@ilab-HP-Desktop-Pro-G2:~/Desktop/java$ javac q1.java
student@ilab-HP-Desktop-Pro-G2:~/Desktop/java$ java q1
File has been created successfully!
```



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2. Write a program to accept specified number of characters as input, convert them intouppercase characters and save the data in a text file.

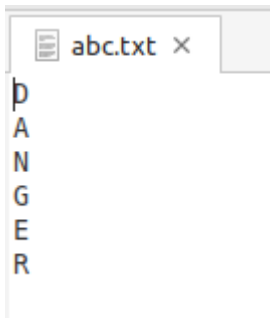
CODE:

```
import java.util.Scanner;

import java.io.*;



public class q2{

  public static void main(String[] args) throws IOException{

    Scanner in = new Scanner(System.in);

    int i;



    System.out.print("Enter no:of characters: ");

    int n = in.nextInt();

    char ch;



    String path = "/home/student/java/abc.txt";

    File f = new File(path);

    if(f.exists())

    {

      FileWriter fw = new FileWriter(path);

      for(i=0;i<n;i++)

      {

        System.out.print("Enter character "+(i+1)+": ");

        ch=in.next().charAt(0);
```

```
        fw.write(Character.toUpperCase(ch)+"\n");
      }
      System.out.println("All "+n+" characters have been written to the file!");
      fw.close();
    }
    else
    System.out.println("File is not found!");
  }
}
```

OUTPUT:

```
student@ilab-HP-Desktop-Pro-G2:~/Desktop/java$ javac q2.java
student@ilab-HP-Desktop-Pro-G2:~/Desktop/java$ java q2
Enter no:of characters: 6
Enter character 1: d
Enter character 2: a
Enter character 3: n
Enter character 4: g
Enter character 5: e
Enter character 6: r
All 6 characters have been written to the file!
```



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3. **Write a program for a mail-order company. The program uses a data-entry screen in which the user types an item number and a quantity. The valid item numbers and pricesare as follows:**

Item-Number	Price
101	100.50
105	175.95
108	220.45
115	280.75
125	300.99

When the user enters an item number, check the number to make sure that it is valid. If itis valid, write the record that includes item number, quantity, price in a text file, otherwise your program should raise a user-defined exception.

CODE:

```
import java.util.Scanner;

import java.io.*;



class InvalidItemNoException extends Exception {

   InvalidItemNoException(String s) {

      super(s);

   }

}



public class q3 {

   public static boolean isValid(int iNo, int[] I, int m) throws InvalidItemNoException {

      int flag = 0;

      for (int i = 0; i < m; i++) {

         if (iNo == I[i])
```

```
            flag = 1;
        }
        if (flag == 0)
            throw new InvalidItemNoException("Invalid Item No");
        else
            return true;
    }

    public static double price(int iNo, double[] p, int[] I, int m) {
        for (int i = 0; i < m; i++) {
            if (iNo == I[i])
                return p[i];
        }
        return 0;
    }

    public static void main(String[] args) throws IOException {
        Scanner in = new Scanner(System.in);
        int i, m = 5, iNo, q;
        int I[] = { 101, 105, 108, 115, 125 };
        double P[] = { 100.50, 175.95, 220.45, 280.75, 300.99 };

        String path = "C:\\java\\data.txt";
```

```
        OutputStream os = new FileOutputStream(path);
        DataOutputStream dos = new DataOutputStream(os);


        System.out.print("Enter no:of records: ");
        int n = in.nextInt();
        for (i = 0; i < n; i++) {
            try {
                System.out.print("\nEnter Item no: ");
                iNo = in.nextInt();
                if (isValid(iNo, I, m)) {
                    System.out.print("Enter quantity: ");
                    q = in.nextInt();
                    dos.writeInt(iNo);
                    dos.writeInt(q);
                    dos.writeDouble(q * price(iNo, P, I, m));
                    System.out.println("Record has been added!");
                }
            } catch (InvalidItemNoException e) {
                System.out.println("Exception Occured: " + e);
            }
        }
    }
}
```

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OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>javac q3.java

C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>java q3
Enter no:of records: 5

Enter Item no: 115
Enter quantity: 5
Record has been added!

Enter Item no: 105
Enter quantity: 4
Record has been added!

Enter Item no: 102
Exception Occured: InvalidItemNoException: Invalid Item No

Enter Item no: 125
Enter quantity: 3
Record has been added!

Enter Item no: 150
Exception Occured: InvalidItemNoException: Invalid Item No
```

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4. Modify the above program such that, if the item number is valid, save the record in a filein object format, otherwise your program should raise a user-defined exception.

CODE:

```
import java.util.Scanner;

import java.io.*;

class Record implements Serializable{

   private static final long serialVersionUID = 1L;

   int iNo;

   int q;

   Double price, total;

   Record(){};

   Record(int iNo, int q,Double price, Double total)

   {

      this.iNo = iNo;

      this.q = q;

      this.price=price;

      this.total = total;

   }

   public String toString()

   {

      return iNo + "\t" + q + "\t" + (total/q)+ "\t" + total;

   }

}
```

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```
class InvalidItemNoException extends Exception {
    InvalidItemNoException(String s) {
        super(s);
    }
}

public class q4 {
    public static boolean isValid(int iNo, int[] I, int m) throws InvalidItemNoException {
        int flag = 0;
        for (int i = 0; i < m; i++) {
            if (iNo == I[i])
                flag = 1;
        }
        if (flag == 0)
            throw new InvalidItemNoException("Invalid Item No");
        else
            return true;
    }

    public static double price(int iNo, double[] p, int[] I, int m) {
        for (int i = 0; i < m; i++) {
            if (iNo == I[i])
                return p[i];
        }
```

```
    return 0;
}

public static void main(String[] args) throws IOException {
    Scanner in = new Scanner(System.in);
    int i, m = 5, iNo;
    int I[] = { 101, 105, 108, 115, 125 };
    double P[] = { 100.50, 175.95, 220.45, 280.75, 300.99 };

    String path = "C:\\java\\records.txt";
    FileOutputStream f = new FileOutputStream(path);
    ObjectOutputStream o = new ObjectOutputStream(f);

    System.out.print("Enter no:of records: ");
    int n = in.nextInt();
    Record [] R = new Record[n];

    for (i = 0; i < n; i++) {
       try {
          System.out.print("\nEnter Item no: ");
          iNo = in.nextInt();
          if (isValid(iNo, I, m)) {
             R[i]=new Record();
             System.out.print("Enter quantity: ");
```

```
                R[i].q=in.nextInt();

                R[i].iNo=iNo;

                R[i].price=price(iNo, P, I, m);

                R[i].total=R[i].q*R[i].price;

                o.writeObject(R[i]);

                System.out.println("Record has been added!");

            }

        } catch (InvalidItemNoException e) {

            System.out.println("Exception Occured: " + e);

        }

    }

  }

}
```

OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>javac q4.java

C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>java q4
Enter no:of records: 5

Enter Item no: 105
Enter quantity: 5
Record has been added!

Enter Item no: 115
Enter quantity: 7
Record has been added!

Enter Item no: 125
Enter quantity: 4
Record has been added!

Enter Item no: 102
Exception Occured: InvalidItemNoException: Invalid Item No

Enter Item no: 107
Exception Occured: InvalidItemNoException: Invalid Item No
```

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5. Write a program that reads the data file created by the Q3 program and displays onerecord at a time on screen and finally prints the total price.

CODE:

```
import java.util.Scanner;

import java.io.*;



public class q5 {

    public static void main(String[] args) throws IOException {

        Scanner in = new Scanner(System.in);

        int i, iNo, q;

        double price, totalPrice, total=0;



        String path = "C:\\java\\data.txt";

        InputStream is = new FileInputStream(path);

        DataInputStream dis = new DataInputStream(is);



        System.out.println("Item No\tQty\tPrice\tTotal");

        while(dis.available()>0){

            iNo = dis.readInt();

            q=dis.readInt();

            totalPrice=dis.readDouble();

            total+=totalPrice;

            price = totalPrice/q;

            System.out.println(iNo+"\t"+q+"\t"+price+"\t"+totalPrice);
```

```
        }


        System.out.println("\nGrand Total= "+total);

    }

}
```

OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>javac q5.java

C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>java q5
Item No Qty     Price   Total
115     5       280.75  1403.75
105     4       175.95  703.8
125     3       300.99  902.97

Grand Total= 3010.5200000000004
```

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6. Consider a table "Employee" with fields: EmpID, EmpName, department and designation. Write a Java program to perform the following operations:

a) Read employee name, department and designation and insert a new record. EmpIDshould be generated automatically such that new employee ID is one greater than maximum employee ID.

b) Given an employee ID, your program should display other details.

c) Given a department name, your program should print all employees belong to thatdepartment.

d) Given a employee ID, your program should be able to change either her department or designation.

CODE:

```
import java.util.Scanner;

import java.io.*;



class Employee implements Serializable {

    transient Scanner in = new Scanner(System.in);

    public static int c = 101;

    private static final long serialVersionUID = 1L;

    int id;

    String name, dept, desig;



    Employee() {

        id = c;

        System.out.print("\nEnter name : ");

        name = in.next();
```

```
        System.out.print("Enter dept : ");
        dept = in.next();
        System.out.print("Enter desig: ");
        desig = in.next();
        c++;
    };

    public String toString() {
        return id + "\t" + name + "\t" + dept + "\t" + desig;
    }
}

public class q6 {

    public static int eno(int ID, Employee[] Emp, int n){
        for(int i=0;i<n;i++)
        {
            if(ID==Emp[i].id)
            return i;
        }
        return -1;
    }
    public static void main(String[] args) throws IOException {
        Scanner in = new Scanner(System.in);
```

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```
int i;

String path = "C:\\java\\employee.txt";



//WRITING

FileOutputStream f = new FileOutputStream(path);

ObjectOutputStream o = new ObjectOutputStream(f);



System.out.print("Enter no:of records: ");

int n = in.nextInt();

Employee[] E = new Employee[n];



for (i = 0; i < n; i++) {

   E[i]=new Employee();



   o.writeObject(E[i]);

   System.out.println("Record has been added!");

}



//READING

FileInputStream fi = new FileInputStream(path);

ObjectInputStream oi = new ObjectInputStream(fi);

Employee [] E1 = new Employee[n];

System.out.println("\nID\tName\tDept\tDesig");

for (i = 0; i < n+2; i++) {
```

```
    try{
        E1[i] = (Employee) oi.readObject();
        System.out.println(E1[i]);
    }catch(Exception e){}
}

int ch, ID, No;
String DEPT;

while(true){
    System.out.println("\n1.Display Details   2.Department wise Employees  3.Change Desig
4.Change Dept  5.Exit");
    System.out.print("Enter your choice: ");
    ch=in.nextInt();

    if(ch==1)
    {
        System.out.print("\nEnter Employee ID: ");
        ID=in.nextInt();
        No=eno(ID, E1, n);
        if(No!=-1)
        {
            System.out.println("\nID\tName\tDept\tDesig");
            System.out.println(E1[No]);
        }
```

```
    else
    System.out.println("Invalid Employee ID!");
}

else if(ch==2)
{
    System.out.print("\nEnter Department: ");
    DEPT=in.next();
    System.out.println("\nID\tName");
    for(i=0;i<n;i++)
    {
        if(E1[i].dept.equals(DEPT))
        System.out.println(E1[i].id +"\t"+ E1[i].name);
    }
}

else if(ch==3)
{
    System.out.print("\nEnter Employee ID: ");
    ID=in.nextInt();
    No=eno(ID, E1, n);
    if(No!=-1)
    {
        System.out.print("Enter new Desig: ");
```

```
        E1[No].desig=in.next();
        for (i = 0; i < n; i++)
        o.writeObject(E1[i]);
    }
    else
    System.out.println("Invalid Employee ID!");
}

else if(ch==4)
{
    System.out.print("\nEnter Employee ID: ");
    ID=in.nextInt();
    No=eno(ID, E1, n);
    if(No!=-1)
    {
        System.out.print("Enter new Dept: ");
        E1[No].dept=in.next();
        for (i = 0; i < n; i++)
        o.writeObject(E1[i]);
    }
    else
    System.out.println("Invalid Employee ID!");
}
```

```
        else if(ch==5)

        break;

      }

   }

}
```

OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>javac q6.java

C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab11>java q6
Enter no:of records: 5

Enter name : Sumegh
Enter dept : IT
Enter desig: Head
Record has been added!

Enter name : Dev
Enter dept : Design
Enter desig: Lead
Record has been added!

Enter name : Jishnu
Enter dept : IT
Enter desig: Engineer
Record has been added!

Enter name : Amin
Enter dept : Design
Enter desig: Engineer
Record has been added!

Enter name : Rajat
Enter dept : Signal
Enter desig: Tester
Record has been added!

ID      Name    Dept    Desig
101     Sumegh  IT      Head
102     Dev     Design  Lead
103     Jishnu  IT      Engineer
104     Amin    Design  Engineer
105     Rajat   Signal  Tester

1.Display Details   2.Department wise Employees  3.Change Desig  4.Change Dept  5.Exit
Enter your choice: 1

Enter Employee ID: 104

ID      Name    Dept    Desig
104     Amin    Design  Engineer
```

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```
1.Display Details   2.Department wise Employees  3.Change Desig  4.Change Dept  5.Exit
Enter your choice: 2

Enter Department: Design

ID      Name
102     Dev
104     Amin

1.Display Details   2.Department wise Employees  3.Change Desig  4.Change Dept  5.Exit
Enter your choice: 3

Enter Employee ID: 105
Enter new Desig: Manager

1.Display Details   2.Department wise Employees  3.Change Desig  4.Change Dept  5.Exit
Enter your choice: 1

Enter Employee ID: 105

ID      Name    Dept    Desig
105     Rajat   Signal  Manager

1.Display Details   2.Department wise Employees  3.Change Desig  4.Change Dept  5.Exit
Enter your choice: 4

Enter Employee ID: 104
Enter new Dept: IT

1.Display Details   2.Department wise Employees  3.Change Desig  4.Change Dept  5.Exit
Enter your choice: 1

Enter Employee ID: 104

ID      Name    Dept    Desig
104     Amin    IT      Engineer
```