VIT®

Vellore Institute of Technology

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SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING

Assessment - I

Course Name & Code: Programming in JAVA & CSE1007 | Max. Marks: 10

Semester: Winter 2019-20 | Slot: L55+L56

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1. Design a Java program to find the number of prime numbers between the range 1 and n. Display the prime numbers and its count. (1M)

CODE:

```
import java.util.Scanner;
public class Prime {
	public static void main(String args[]) {
	Scanner sc=new Scanner(System.in);
	int cnt=0;
	int n=sc.nextInt();
	for(int i=2;i<=n;i++) {
		int count=0;
		for(int j=2;j<=i;j++) {
			if(i%j==0)
				count++;
		}
		if(count==1) {
			cnt++;
			System.out.print(i+"\t");
	}
	}
	System.out.println();
	System.out.println("the total number of prime is: "+cnt);
	}
}
```

OUTPUT:

CASE 1:

```
C:\Users\BIBEK SINGH\17BCE2380>javac Prime.java

C:\Users\BIBEK SINGH\17BCE2380>java Prime
45
2       3       5       7       11      13      17      19      23      29
        31      37      41      43
the total number of prime is: 14
```

CASE 2:

```
C:\Users\BIBEK SINGH\17BCE2380>javac Prime.java

C:\Users\BIBEK SINGH\17BCE2380>java Prime
20
2       3       5       7       11      13      17      19
the total number of prime is: 8
```

2. Design a Java program to do the following: **(2M)**

   a. Get 'n' students marks of their registered courses.

   b. Registered course count differs for each student. Find the average and result of every student. The result is "PASS" when all marks are >=50, otherwise "FAIL".

   c. Display the details as follows:

   Sample Output- when n=3

Student-1	30	70	50	Average – 50	Result - Fail		
Student-2	89	92	87	79	78	Average – 85	Result-Pass
Student-3	70	80	90	100	Average-85	Result-Pass	

CODE:

```
import java.util.*;
public class Stu{
public static void main(String args[]){
	Scanner sc = new Scanner(System.in);
	System.out.println("enter the number of students");
	int n = sc.nextInt();
	int marks[][] = new int [n][];
	int m;
	for(int i=0;i<n;i++){
		System.out.println("enetr the no. of courses for student " + (i+1));
		m = sc.nextInt();
		marks[i] = new int[m];
		for(int j=0;j<m;j++){
		System.out.println("enetr the marks of course " + (j+1));
			marks[i][j]= sc.nextInt();
		}}
	for(int i=0;i<n;i++){
		int f=0;
		int sum=0;
		System.out.print("Student-"+i+" ");
		for(int j=0;j<marks[i].length;j++){
			System.out.print(" "+marks[i][j]+" ");
			sum = sum + marks[i][j];
			if(marks[i][j]<50)
			{
				f=1;
}
			}
		System.out.print(" Average-"+sum/marks[i].length+" ");
		if(f==1){
			System.out.print(" Result-Fail");
		}
		else{
			System.out.print(" Result-Pass");

		}
		System.out.println();
	}
}
}
```

OUTPUT:

CASE 1:

```
C:\Users\BIBEK SINGH\17BCE2380>javac Stu.java

C:\Users\BIBEK SINGH\17BCE2380>java Stu
enter the number of students
3
enetr the no. of courses for student 1
3
enetr the marks of course 1
30
enetr the marks of course 2
70
enetr the marks of course 3
50
```

CASE 2:

```
enetr the no. of courses for student 2
5
enetr the marks of course 1
89
enetr the marks of course 2
92
enetr the marks of course 3
87
enetr the marks of course 4
79
enetr the marks of course 5
78
```

CASE 3:

```
enetr the no. of courses for student 3
4
enetr the marks of course 1
70
enetr the marks of course 2
80
enetr the marks of course 3
90
enetr the marks of course 4
100
Student-0 30 70 50 Average-50 Result-Fail
```

OUTPUT:

```
Student-0 30 70 50 Average-50 Result-Fail
Student-1 89 92 87 79 78 Average-85 Result-Pass
Student-2 70 80 90 100 Average-85 Result-Pass
```

3. Design a Java Program to get register number of a VIT student. Check the given number is in the format "DDAAADDDD" where D- is digit, A- is alphabet. Give the output Valid Register Number when the input falls in the specified format. Otherwise give the output as Invalid Register Number. (1M) s

CODE:

```
import java.util.*;
class Reg_no{
   public static void main(String arg[]){
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter your Register Number:");
      String reg_no = sc.next();
      int i,j,flag = 1;
      System.out.println();
      for(i=0;i<reg_no.length();i++){
         if(i>=0 && i<2){
            if(!Character.isDigit(reg_no.charAt(i))){
               flag = 0;
```

```
            break;
          }
        }
        else if(i>=2 && i<5){
          if(!Character.isLetter(reg_no.charAt(i))){
            flag = 0;
            break;
          }
        }
        else {
          if(!Character.isDigit(reg_no.charAt(i))){
            flag = 0;
            break;
          }
        }
      }
      if( flag == 1)
        System.out.println("Valid Register Number");
      else
        System.out.println("Invalid Register Number");
    }
}
```

OUTPUT:

```
C:\Users\BIBEK SINGH\17BCE2380>javac Reg_no.java

C:\Users\BIBEK SINGH\17BCE2380>java Reg_no
Enter your Register Number:17bce2380

Valid Register Number

C:\Users\BIBEK SINGH\17BCE2380>javac Reg_no.java

C:\Users\BIBEK SINGH\17BCE2380>java Reg_no
Enter your Register Number:bce172380

Invalid Register Number
```

4. Design a class to store account details of a person like account number, name, account type, available balance and minimum balance. Define methods to get input, display account details, show balance, deposit and withdraw. Apply the condition while withdraw money from account that the minimum balance to be maintained. Create a demo class in Java to demonstrate these methods with minimum of 3 objects. (3M)

CODE:

```
import java.util.Scanner;
class account{
public long accNum;
public String name,type;
public int availBal;
public int minBal;
public void input(){
Scanner s=new Scanner(System.in);
System.out.print("enter the accNum:");
accNum=s.nextInt();
System.out.print("enter the name and type:");
name=s.next();type=s.next();
System.out.print("enter the availBal:");
availBal=s.nextInt();
System.out.print("enter the minBal:");
minBal=s.nextInt();
System.out.println();
}
public void display(){
System.out.println("accNum:"+accNum);
System.out.println("name:"+name);
System.out.println("type:"+type);
System.out.println("availbal:"+availBal);
System.out.println("minbal:"+minBal);
}
public void showBal(){
System.out.println("the Current Balance is:"+this.availBal);
}
public void deposite(int money){
this.availBal+=money;
System.out.println("Money deposited Successfully..:");
}
public void withdrawl(int money){
if(this.availBal>this.minBal){
this.availBal-=money;
if(availBal<0){
System.out.println("Minimum Balance is required...");
this.availBal+=money;
}
else
```

```
System.out.println("Money withdrawl successfully...");
}
}
}
public class demo1{
public static void main(String args[]){
account a1=new account();
account a2=new account();
account a3=new account();
a1.input();
a1.display();
a1.showBal();
a1.withdrawl(50000);
a2.input();
a2.display();
a2.showBal();
a2.withdrawl(5000);
a3.input();
a3.display();
a3.showBal();
a3.withdrawl(50000);

}
}
```

OUTPUT:

```
C:\Users\BIBEK SINGH\17BCE2380>javac demo1.java

C:\Users\BIBEK SINGH\17BCE2380>java demo1
Enter the regnum: 17BCE2380
Enter the name: ALOK
Enter the marks for 4 subjects: 89 90 75 54
Enter the regnum: 17BCE2345
Enter the name: RAM
Enter the marks for 4 subjects: 30 50 60 87
Enter the regnum: 17BCE2300
Enter the name: LAXMAN
Enter the marks for 4 subjects: 50 84 55 50
```

OUTPUT:

```
regNum is: 17BCE2380
name is: ALOK
Marks for 4 subjects..
 89  90  75  54
The Result is:PASS
regNum is: 17BCE2345
name is: RAM
Marks for 4 subjects..
 30  50  60  87
The Result is:Fail
regNum is: 17BCE2300
name is: LAXMAN
Marks for 4 subjects..
 50  84  55  50
The Result is:PASS
```

5. Design a Java class to store student details like register number, name, marks of 4 courses, result. Design method to get input for those members, display details of a student, find the result that all marks are above 49 as PASS otherwise FAIL. Create a Java demo class and create few objects to show the performance of these methods for various results. (3M)

CODE:

```
import java.util.Scanner;
class Stud{
public String regNum;
public String name;
public int marks[]=new int [4];
public String result;
        public void input()
        {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the regnum: ");
        regNum=s.next();
        System.out.print("Enter the name: ");
        name=s.next();
        System.out.print("Enter the marks for 4 subjects: ");
        for(int i=0;i<marks.length;i++)
        marks[i]=s.nextInt();
        }
        public void display(){
        System.out.println("regNum is: "+regNum);
        System.out.println("name is: "+name);
```

```
    System.out.println("Marks for 4 subjects..");
    for(int i=0;i<marks.length;i++)
    System.out.print(" "+marks[i]+" ");
    System.out.println();
    }
    public void result()
    {
    boolean f=true;
    for(int i=0;i<marks.length;i++)
{if(marks[i]<49)
    {
    f=false;
    break;
    }
    else
    {
    f=true;
    continue;
    }
    }
    if(f==true)
    this.result="PASS";
    else
    this.result="Fail";
    System.out.println("The Result is:" + result);
    }
    }
    public class demo2
    {
    public static void main(String args[]){
    Stud s1= new Stud ();
    Stud s2= new Stud();
    Stud s3= new Stud();
    s1.input();
    s1.display();
    s1.result();
    s2.input();
    s2.display();
    s2.result();
    s3.input();1
    s3.display();
    s3.result();
    }
    }
```

OUTPUT:

CASE 1:

```
C:\Users\BIBEK SINGH\17BCE2380>javac demo2.java

C:\Users\BIBEK SINGH\17BCE2380>java demo2
enter the accNum:525545
enter the name and type:ALOK SAV
enter the availBal:56000
enter the minBal:500

accNum:525545
name:ALOK
type:SAV
availbal:56000
minbal:500
the Current Balance is:56000
Money withdrawl successfully...
```

CASE 2:

```
enter the accNum:555555
enter the name and type:MANISH CURRENT
enter the availBal:98500
enter the minBal:5000

accNum:555555
name:MANISH
type:CURRENT
availbal:98500
minbal:5000
the Current Balance is:98500
Money withdrawl successfully...
```

CASE 3:

```
enter the accNum:789665
enter the name and type:BIBEK SAV
enter the availBal:5000
enter the minBal:500

accNum:789665
name:BIBEK
type:SAV
availbal:5000
minbal:500
the Current Balance is:5000
Minimum Balance is required...
```