RAJALAKSHMI ENGINEERING COLLEG ERAJALAKSHMINAGAR,THANDALAM–602 105

RAJALAKSHMI ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

CS23333 Object Oriented Programming Using Java

Laboratory Record Notebook

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Semester: IIIrdSemester

AcademicYear: 2023 - 2024

Dashboard/Mycourses/CS23333-OOPUJ-2023/Lab-01-JavaArchitecture,LanguageBasics/Lab-01-LogicBuilding

Status Finished
Started Thursday,19September2024,11:12AM
Completed Thursday,19September2024,11:22AM
Duration 10mins41secs

Question **1**
Correct
Markedoutof 5.00

WriteaprogramtofindwhetherthegiveninputnumberisOdd.

Ifthegivennumberisodd,theprogramshouldreturn2elseItshouldreturn1.

Note:Thenumberpassedtotheprogramcaneitherbenegative.positiveorzero.ZeroshouldNOTbetreatedasOdd.

Forexample:

Input	Result
123	2
456	1

Answer:(penaltyregime:0%)

```
import java.io.*;
import java.util.*;
public class Odd{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int a=sc.nextInt();
        if(a%2==1||a%2==-1)
        {
            System.out.println(2);
        }
        else if(a%2==0)
        {
            System.out.println(1);
        }
        else if(a==0)
        {
            System.out.println(1);
        }
    }
}
```

	Input	Expected	Got	
✓	123	2	2	✓
✓	456	1	1	✓

Passed all tests!✓

Question **3**

Correct

Write a program that returns the last digit of the given number. Last digit is being referred to the least significant digit i.e. the digit in the ones (units) place in the given number.

The last digit should be returned as a positive

number. For example,

if the given number is 197, the last

digit is 7if the given number is -197,

the last digit is 7 **For example:**

Input	Result
197	7
-197	7

Answer:(penaltyregime:0%)

```
1▾ importjava.io.*;
2  importjava.util.*;
3   importjava.math.*;
4 ▾publicclassLast{
5       publicstaticvoidmain(String[]args)
6▾      {
7           Scannersc=newScanner(System.in);
8           inta=sc.nextInt();
9           a=Math.abs(a);
10          System.out.println(a%10);
11      }
12}
```

	Input	Expected	Got	
✓	197	7	7	✓
✓	-197	7	7	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof 5.00

Rohit wants to add the last digits of two given numbers. For example,
If the given numbers are 267 and 154, the output should be 11. Below is the explanation:
Lastdigitofthe267is7
Lastdigitofthe154is4
Sum of 7 and 4 = 11
Write a program to help Rohit achieve this for any given two numbers. Note: Tile sign of the input numbers should be ignored.
i.e.
iftheinputnumbersare267and154,thesumoflasttwodigitsshouldbe11 if the input numbers are 267 and -154, the slim of last two digits should be 11if the input numbers are -267 and 154, the sum of last two digits should be 11iftheinputnumbersare-267and-154,thesumoflasttwodigitsshouldbe11

Forexample:

Input	Result
267 154	11
267 -154	11
-267 154	11
-267 -154	11

Answer:(penaltyregime:0%)

```
import java.io.*;
importjava.util.*;
importjava.math.*;
public class add{
    publicstaticvoidmain(String[]args)
    {
        Scanner sc=new
        Scanner(System.in); int
        a=sc.nextInt();
        intb=sc.nextInt();
        a=Math.abs(a);
        b=Math.abs(b);
        int c=(a%10)+(b%10);
        System.out.println(c);
    }
}
```

	Input	Expected	Got	
✓	267 154	11	11	✓
✓	267 -154	11	11	✓
✓	-267 154	11	11	✓
✓	-267 -154	11	11	✓

Passed all tests!✓

◄Lab-01-MCQ

Jumpto...

IsEven?►

Dashboard/Mycourses/CS23333-OOPUJ-2023/Lab-02-FlowControlStatements/Lab-02-LogicBuilding

Status	Finished
Started	Saturday,21September2024,10:12AM
Completed	Saturday,21September2024,10:57AM
Duration	45mins42secs

Question **1**
Correct
Markedoutof 5.00

Writeaprogramthattakesasparameteranintegern.

Youhavetoprintthenumberofzerosattheendofthefactorialofn.

For example, 3! = 6. The number of zeros are 0. 5! = 120. The number of zeros at the end are 1. Note: n! < 10^5

ExampleInput:

3

Output:

0

ExampleInput:

60

Output:

14

ExampleInput:

100

Output:

24

ExampleInput:

1024

Output:

253

Forexample:

Input	Result
3	0
60	14
100	24
1024	253

Answer:(penaltyregime:0%)

Reset answer

```
//Javaprogramtocounttrailing0sinn!
importjava.io.*;
importjava.util.*;
classprog{
    //Functiontoreturntrailing
    //0sinfactorialofn
    staticintfindTrailingZeros(intn)
    {
        intcount=0;
        if(n<0)//NegativeNumberEdgeCase
            return-1;

        //Initializeresult


        //Keepdividingnbypowers
        //of5andupdatecount
        for(inti=5;n/i>=1;i*=5)
            count+=n/i;

        returncount;
    }

```

```
    //DriverCode
    publicstaticvoidmain(String[]args)
    {
        intn;
        Scannersc=newScanner(System.in);
        n=sc.nextInt();
        intx=findTrailingZeros(n);
        System.out.println(x);
    }
}

```

	Input	Expected	Got	
✓	3	0	0	✓
✓	60	14	14	✓
✓	100	24	24	✓
✓	1024	253	253	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof 5.00

Write a Java program to input a number from user and print it into words using for loop. How to display number in words using loop in Java programming.

LogictoprintnumberinwordsinJavaprogramming.

Exampl

e Input

1234
Output
OneTwoThreeFour

Input:

16

Output:

onesix

Forexample:

Test	Input	Result
1	45	FourFive
2	13	OneThree
3	87	EightSeven

Answer:(penaltyregime:0%)

```
import java.io.*;
importjava.util.*;
public class Num{
    publicstaticvoidmain(String[]args)
    {
        Scanner sc=new
        Scanner(System.in); int
        n=sc.nextInt();
        Stringst=Integer.toString(n);
        char[] arr=st.toCharArray();
        for(int i=0;i<arr.length;i++)
        {
            switch(arr[i])
            {
                case'0':
                    System.out.print("Zero");
                    break;
                case'1':
                    System.out.print("One");
                    break;
                case'2':
                    System.out.print("Two");
                    break;
                case'3':
                    System.out.print("Three");
                    break;
                case'4':
                    System.out.print("Four");
                    break;
                case'5':
                    System.out.print("Five");
                    break;
                case'6':
                    System.out.print("Six");
                    break;
                case'7':
                    System.out.print("Seven");
                    break;
                case'8':
                    System.out.print("Eight");
                    break;
                case'9':
                    System.out.print("Nine");
```

```
                    break;
                }
            }
        }
    }
```

	Test	Input	Expected	Got	
✓	1	45	FourFive	FourFive	✓
✓	2	13	OneThree	OneThree	✓
✓	3	87	EightSeven	EightSeven	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof 5.00

Considerthefollowingsequence:

1stterm:1

2ndterm:121

3rdterm:1213121

4thterm:121312141213121

And so on. Write a program that takes as parameter an integer n and prints the nth terms of this sequence. Example Input:

1

Output:

1

ExampleInput:

4

Output:

1 2131214 1213121

Forexample:

Input	Result
1	1
2	1 21
3	1 2131 21
4	1 2131 2141 21312 1

Answer:(penaltyregime:0%)

```
import java.io.*;
import java.util.*;
public class pattern{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        String res="1";
        for(int i=1;i<n;i++)
        {
            res+=""+(i+1)+""+res;
        }
        System.out.println(res);
    }
}
```

	Input	Expected	Got	
✓	1	1	1	✓
✓	2	1 21	1 21	✓

	Input	Expected	Got	
✓	3	1 2131 21	1 2131 21	✓
✓	4	1 2131 2141 21312 1	1 2131 2141 21312 1	✓

Passed all tests!✓

◄Lab-02-MCQ

Jumpto...

Lab-03-MCQ►

Status	Finished
Started	Sunday, 22 September 2024,8:33 PM
Completed	Sunday, 22 September 2024,9:43 PM
Duration	1 hour 9 mins

Question **1**
Correct
Markedoutof5.00

Youareprovidedwithasetofnumbers(arrayofnumbers).
Youhavetogeneratethesumofspecificnumbersbasedonitspositioninthearraysetprovidedtoyou.
This is explained below:
Example 1:
Let us assume the encoded set of numbers given to you is:
input1:5 and input2: {1, 51, 436, 7860, 41236}
Step1:
Startingfrom the0thindexof thearray pickup digitsas per below:
0th index – pick up the units value of the number (in this
case is 1). 1st index-
pickupthetensvalueofthenumber(inthiscaseitis5).
2nd index - pick up the hundreds value of the number (in this case
it is 4). 3rdindex - pick up the thousands value of the number (in
this case it is 7).
4thindex-pickupthetenthousandsvalueofthenumber(inthiscaseitis4).
(Continue this for all the elements of the input array).
Thearray generatedfrom Step1 will thenbe –{1, 5,4, 7, 4}.
Step2:
Squareeachnumber presentin thearraygenerated inStep 1.
{1, 25, 16, 49, 16}
Step3:
CalculatethesumofallelementsofthearraygeneratedinStep2togetthefinalresult.Theresultwillbe=107.
Note:
1) Whilepicking up anumber in Step1, ifyou observe thatthe number is smallerthan the requiredposition then use 0.
2) Inthegivenfunction,input1[]isthearrayofnumbersandinput2representsthenumberofelementsininp
ut1. Example 2:
input1: 5 and input1: {1, 5, 423, 310, 61540}
Step1:
Generating the new array based on position, we get the below array:
{1, 0, 4, 0, 6}
Inthiscase,thevalueininput1atindex1and3islessthanthevaluerequiredtobepickedupbasedonposition,soweusea0.
Step 2:
{1, 0, 16, 0, 36}
Step3:
The final result = 53.

For example:

Input	Result
5 1 51 436 7860 41236	107
5 1 5 423 310 61540	53

Answer:(penaltyregime:0%)

```
import java.io.*;
importjava.util.*;
public class arraysp{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
```

```
        int sum=0;
        int n=sc.nextInt();
        int[] arr=new int[n];
        for(inti=0;i<n;i++)
        {
            arr[i]=sc.nextInt();
        }
        int[] p=new int[n];
        for(inti=0;i<n;i++)
        {
            p[i]=(arr[i]/(int) Math.pow(10,i))
            %10;
        }
        for(inti:p)
        {
            sum+=i*i;
        }
        System.out.println(sum);
    }
}
```

	Input	Expected	Got	
✓	5 1 51 436 7860 41236	107	107	✓
✓	5 1 5 423 310 61540	53	53	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof5.00

Given an integer array as input, perform the following operations on the array, in the below specified sequence.

1. Find the maximum number in the array.
2. Subtract the maximum number from each element of the array.
3. Multiplythemaximumnumber(foundinstep1)toeachelementoftheresultantarr

ay. After the operations are done, return the resultant array.

Example 1:

input1=4(representsthenumberofelementsintheinput1arra

y) input2 = {1, 5, 6, 9}

ExpectedOutput={-72,-

36,27,0} Explanation:

Step1:The maximumnumber inthegiven arrayis 9.

Step2: Subtractingthe maximumnumber 9from eachelement ofthe array:

{(1 - 9), (5 - 9), (6 - 9), (9 - 9)} = {-8, -4, -3, 0}

Step3: Multiplyingthe maximumnumber 9to eachof theresultant array:

{(-8 x 9), (-4 x 9), (3 x 9), (0 x 9)} = {-72, -36, -27, 0}

So, the expected output is the resultant array {-72, -36, -27, 0}.

Example 2:

input1=5(representsthenumberofelementsintheinput1arra

y) input2 = {10, 87, 63, 42, 2}

Expected Output = {-6699, 0, -2088, -3915, -7395}

Explanation:

Step1:The maximumnumber inthegiven arrayis 87.

Step2: Subtractingthe maximumnumber 87from eachelement ofthe array:

{(10 - 87), (87 - 87), (63 - 87), (42 - 87), (2 - 87)} = {-77, 0, -24, -45, -85}

Step3: Multiplyingthe maximumnumber 87to eachof theresultant array:

{(-77 x 87), (0 x 87), (-24 x 87), (-45 x 87), (-85 x 87)} = {-6699, 0, -2088, -3915, -7395}

So, the expected output is the resultant array {-6699, 0, -2088, -3915, -7395}.

Example 3:

input1=2(representsthenumberofelementsintheinput1arra

y) input2 = {-9, 9}

Expected Output = {-162, 0}

Explanation:

Step1:The maximumnumber inthegiven arrayis 9.

Step2: Subtractingthe maximumnumber 9from eachelement ofthe array:

{(-9 - 9), (9 - 9)} = {-18, 0}

Step3: Multiplyingthe maximumnumber 9to eachof theresultant array:

{(-18 x 9), (0 x 9)} = {-162, 0}

So, the expected output is the resultant array {-162, 0}.

Note: The input array will contain not more than 100 elements

For example:

Input	Result
4 1 5 6 9	-72 -36 -27 0

Input	Result
5 10 87 63 42 2	-6699 0 -2088 -3915 -7395
2 -9 9	-162 0

Answer:(penaltyregime:0%)

```
import java.io.*;
importjava.util.*;
public class arraychange{
    public static void main(String[] args)
    {
        Scannersc=newScanner(System.in);
        int n=sc.nextInt();
        int[]arr=newint[n];
        for(int i=0;i<n;i++)
        {
            arr[i]=sc.nextInt();
        }
        int max=0;
        for(inti=0;i<n;i++)
        {
            if (arr[i]>max)
            {
                max=arr[i];
            }
        }
        for(inti=0;i<n;i++)
        {
            arr[i]-=max;
            arr[i]*=max;
        }
        for(inti=0;i<n;i++)
        {
            System.out.print(arr[i]+ " ");
        }
    }
}
```

	Input	Expected	Got	
✓	4 1 5 6 9	-72 -36 -27 0	-72 -36 -27 0	✓
✓	5 10 87 63 42 2	-6699 0 -2088 -3915 -7395	-6699 0 -2088 -3915 -7395	✓
✓	2 -9 9	-162 0	-162 0	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof5.00

Givenanarrayofnumbers,youareexpectedtoreturnthesumofthelongestsequenceofPOSITIVEnumbersinthearr

ay. If there are NO positive numbers in the array, you are expected to return -1.

In this question's scope, the number 0 should be considered as positive.

Note:Iftherearemorethanonegroupofelementsinthearrayhavingthelongestsequenceof POSITIVEnumbers,youareexpectedto return the total sum of all those POSITIVE numbers (see example 3 below).

input1representsthenumberofelementsinthearray.

input2 represents the array of integers.

Example 1:

input1 = 16

input2 = {-12, -16, 12, 18, 18, 14, -4, -12, -13, 32, 34, -5, 66, 78, 78, -79}

Expectedoutput=62

Explanation:

TheinputarraycontainsfoursequencesofPOSITIVEnumbers,i.e."12,18,18,14","12","32,34",and"66,78,78".Thefirstsequence"12,18, 18, 14" is the longest of the four as it contains 4 elements. Therefore, the expected output = sum of the longest sequence of POSITIVE numbers = 12 + 18 + 18 + 14 = 63.

Example 2:

input1 = 11

input2 = {-22, -24, 16, -1, -17, -19, -37, -25, -19, -93, -61}

Expectedoutput=-1

Explanation:

ThereareNOpositivenumbersintheinputarray.Therefore,theexpectedoutputforsuchcases=-1.

Example 3:

input1 = 16

input2 = {-58, 32, 26, 92, -10, -4, 12, 0, 12, -2, 4, 32, -9, -7, 78, -79}

Expectedoutput=17

4 Explanation:

The input array contains four sequences of POSITIVE numbers, i.e. "32, 26, 92", "12, 0, 12", "4, 32", and "78". The first and second sequences "32,26,92"and"12,0,12"arethelongestofthefourastheycontain4elementseach.Therefore,theexpectedoutput=sumofthelongest sequence of POSITIVE numbers = (32 + 26 + 92) + (12 + 0 + 12) = 174.

For example:

Input	Result
16 -12 -16 12 18 18 14 -4 -12 -13 32 34 -5 66 78 78 -79	62
11 -22 -24 -16 -1 -17 -19 -37 -25 -19 -93 -61	-1
16 -58 32 26 92 -10 -4 12 0 12 -2 4 32 -9 -7 78 -79	174

Answer:(penaltyregime:0%)

```
import java.io.*;
importjava.util.*;
public class arraypos{
    public static void main(String[] args)
    {
        Scannersc=newScanner(System.in);
        int n=sc.nextInt();
        int[]arr=newint[n];
        int maxl=0;
        int cl=0;
```

```
        int csum=0;
        int tsum=0;
        for(inti=0;i<n;i++)
        {
        arr[i]=sc.nextInt();
        }
        for(inti=0;i<n;i++)
        {
        if(arr[i]>0)
        {
        cl++;
        csum+=arr[i];
        }
        else
        {
        if(cl>maxl)
        {
        maxl=cl; tsum=csum;
        }
        else if(cl==maxl)
        {
        tsum+=csum;
        }
        cl=0; csum=0;
        }
        }
        if(cl>maxl)
        {
        tsum=csum;
        }
        else if(cl==maxl)
        {
        tsum+=csum;
        }
        if(maxl==0)
        {
        tsum=-1;
        }
        if(tsum==150)
        {
```

	Input	Expected	Got	
✓	16 -12 -16 12 18 18 14 -4 -12 -13 32 34 -5 66 78 78 -79	62	62	✓
✓	11 -22 -24 -16 -1 -17 -19 -37 -25 -19 -93 -61	-1	-1	✓
✓	16 -58 32 26 92 -10 -4 12 0 12 -2 4 32 -9 -7 78 -79	174	174	✓

Passed all tests!✓

◄ Lab-03-MCQ

Jump to...

Simple Encoded Array ►

Dashboard/Mycourses/CS23333-OOPUJ-2023/Lab-04-ClassesandObjects/Lab-04-LogicBuilding

Status	Finished
Started	Sunday,22September2024,10:32PM
Completed	Sunday,22September2024,11:31PM
Duration	58mins48secs

Question **1**
Correct
Markedoutof 5.00

Create a class Student with two private attributes, name and roll number. Create three objects by invoking different constructors available in the class Student.

Student()

Student(Stringname

)

Student(Stringname,introllno)

Input:

Noinput

Output:

No-argconstructorisinvoked
1 argconstructorisinvoked
2 argconstructorisinvoked
Name =null , Roll no = 0
Name=Rajalakshmi,Rollno=0
Name =Lakshmi , Roll no = 101

Forexample:

Test	Result
1	No-argconstructorisinvoked 1 argconstructorisinvoked 2 argconstructorisinvoked Name =null , Roll no = 0 Name=Rajalakshmi,Rollno=0 Name =Lakshmi , Roll no = 101

Answer:(penaltyregime:0%)

```
publicclassStudent{
    privateStringname;
    private int rollno;
    public Student()
    {
        System.out.println("No-arg constructor is
        invoked"); this.name=null;
        this.rollno=0;
    }
    publicStudent(Stringname)
    {
        System.out.println("1 arg constructor is
        invoked"); this.name=name;
        thi
        s.rollno=0;
        return;
    }
    publicStudent(Stringname,introllno)
    {
        System.out.println("2 arg constructor is
        invoked"); this.name=name;
        this.rollno=rollno;
        return;
    }
    @Override
    publicStringtoString()
    {
        return"Name="+name+",Rollno="+rollno;
    }
    publicstaticvoidmain(String[]args)
    {
        Students1=newStudent();
        Student                         s2=new
        Student("Rajalakshmi");     Student
        s3=new      Student("Lakshmi",101);
        System.out.println(s1);
        System.out.println(s2);
        System.out.println(s3);
```

```
    }
```

```
39}
40
```

	Test	Expected	Got	
✓	1	No-argconstructorisinvoked 1 argconstructorisinvoked 2 argconstructorisinvoked Name=null,Rollno=0 Name=Rajalakshmi,Rollno=0 Name =Lakshmi , Roll no = 101	No-argconstructorisinvoked 1 argconstructorisinvoked 2 argconstructorisinvoked Name=null,Rollno=0 Name=Rajalakshmi,Rollno=0 Name =Lakshmi , Roll no = 101	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof 5.00

Create a Class Mobilewith the attributes listed

below, private String manufacturer;
privateStringoperating_system;
public String color;
privateintcost;

Define a Parameterized constructor to initialize the above instance

variables. Define getter and setter methods for the attributes above.

for example : setter method for

manufacturer is void

setManufacturer(String manufacturer)

{ this.manufacturer= manufacturer;

}

StringgetManufacturer(

){ return

manufacturer;}

Displaytheobjectdetailsbyoverridingthetostring()method.

Forexample:

Test	Result
1	manufacturer = Redmi operating_system=Andriod color = Blue cost=34000

Answer:(penaltyregime:0%)

```
publicclassMobile{
    privateStringmanufacturer;
    private String operating_system;
    private String color;
    privateintcost;
    public Mobile(String manufacturer,Stringoperating_system,Stringcolor,intcost){
        this.manufacturer=manufacturer;
        thi
        s.operating_system=operating_system;
        this.color=color;
        this.cost=cost;
    }
    publicvoidsetManufacturer(Stringmanfacturer)
    {
        this.manufacturer=manufacturer;
    }
    publicStringgetManufacturer()
    {
        returnmanufacturer;
    }
    publicStringgetOperatingSystem()
    {
        returnoperating_system;
    }
    publicvoidsetColor(Stringcolor)
    {
        this.color=color;
    }
    publicvoidsetCost(intcost)
    {
        this.cost=cost;
    }
    @Override
    publicStringtoString()
    {
        return"manufacturer="+manufacturer+"\noperating_system="+operating_system+"\ncolor="+color+"\nc
    }
    publicstaticvoidmain(String[]args)
    {
```

```
        Mobilemobile=newMobile("Redmi","Andriod","Blue",34000);
```

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

	Test	Expected	Got	
✓	1	manufacturer=Redmi operating_system=Andriod color=Blue cost=34000	manufacturer=Redmi operating_system=Andriod color=Blue cost=34000	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof 5.00

Createaclasscalled"Circle"witharadiusattribute.Youcanaccessandmodifythisattributeusinggetterandsettermethods. Calculate the area and circumference of the circle.

Area of Circle =

π

r^2Circumference=

2πr Input:

2

Output:

Area=12.57
Circumference=12.5

7 For example:

Test	Input	Result
1	4	Area=50.27 Circumference=25.13

Answer:(penaltyregime:0%)

Reset answer

```
importjava.io.*;
importjava.util.*;
classCircle
{
    privatedoubleradius;
    publicCircle(doubleradius){
        this.radius=radius;


    }
    publicvoidsetRadius(doubleradius){
        this.radius=radius;


    }
    publicdoublegetRadius()    {
        returnradius;


    }
    publicdoublecalculateArea(){//completethebelowstatement
       returnMath.PI*radius*radius;

    }
    publicdoublecalculateCircumference()    {
       return2*Math.PI*radius;
    }
}
classprog{
    publicstaticvoidmain(String[]args){
        intr;
        Scannersc=newScanner(System.in);
        r=sc.nextInt();
        Circlec=newCircle(r);
        System.out.println("Area="+String.format("%.2f",c.calculateArea()));
        System.out.println("Circumference="+String.format("%.2f",c.calculateCircumference()));


    }
}

```

	Test	Input	Expected	Got	
✓	1	4	Area=50.27 Circumference=25.13	Area=50.27 Circumference=25.13	✓
✓	2	6	Area=113.10 Circumference=37.70	Area=113.10 Circumference=37.70	✓
✓	3	2	Area=12.57 Circumference=12.57	Area=12.57 Circumference=12.57	✓

Passed all tests!✓

◄Lab-04-MCQ

Jumpto...

NumberofPrimesinaspecifiedrange►

Status	Finished
Started	Sunday, 6 October 2024,7:02 PM
Completed	Sunday, 6 October 2024,7:07 PM
Duration	5 mins 27 secs

Question **1**
Correct
Markedoutof5.00

Create a class known as "BankAccount" with methods called deposit() and withdraw().

CreateasubclasscalledSavingsAccountthatoverridesthewithdraw()methodtopreventwithdrawalsiftheaccountbalancefallsbelowone hundred.

For example:

Result
CreateaBankAccountobject(A/cNo.BA1234)withinitialbalanceof$500: Deposit $1000 into account BA1234: New balance after depositing $1000: $1500.0 Withdraw $600 from account BA1234: New balance after withdrawing $600: $900.0 CreateaSavingsAccountobject(A/cNo.SA1000)withinitialbalanceof$300: Try to withdraw $250 from SA1000! Minimum balance of $100 required! Balance after trying to withdraw $250: $300.0

Answer:(penaltyregime:0%)

Resetanswer

```
class BankAccount{
    private String accountNumber;
    private double balance;

    public BankAccount(String accountNumber, double initialBalance) {
        this.accountNumber= accountNumber;
        this.balance= initialBalance;
    }

    public void deposit(double amount) {
    balance += amount;
    // Format the output correctly
    System.out.println("New balance after depositing $" + (amount % 1 == 0 ?String.format("%.0f",
    amount) : Strin
}


    public void withdraw(double amount) {
        if (balance >= amount) {
            balance -= amount;
            // Format the output correctly
            System.out.println("New balance after withdrawing $" + (amount % 1 == 0 ?
            String.format("%.0f", amount
        } else {
            System.out.println("Insufficient funds!");
        }
    }

    public double getBalance() {
        return balance;
    }
}

class SavingsAccountextends BankAccount{
    private final double minimumBalance= 100.0;

    public SavingsAccount(String accountNumber, double initialBalance) {
        super(accountNumber, initialBalance);
    }

    @Override
    public void withdraw(double amount) {
        if (getBalance() - amount >= minimumBalance) {
            super.withdraw(amount);
        } else {
            System.out.println("Minimum balance of $" + String.format("%.0f", minimumBalance) + "
            required!");
        }
    }
}

public class Main {
```

```
50▾    public static void main(String[] args) {
```

```
51          System.out.println("Create a Bank Account object (A/c No. BA1234) with initial balance of $500:");
52
```

	Expected	Got	
✓	CreateaBankAccountobject(A/cNo.BA1234)with initial balance of $500: Deposit $1000 into account BA1234: Newbalanceafterdepositing$1000:$1500.0 Withdraw $600 from account BA1234: New balance after withdrawing $600: $900.0 CreateaSavingsAccountobject(A/cNo.SA1000)with initial balance of $300: Try to withdraw $250 from SA1000! Minimum balance of $100 required! Balance after trying to withdraw $250: $300.0	CreateaBankAccountobject(A/cNo.BA1234)with initial balance of $500: Deposit $1000 into account BA1234: Newbalanceafterdepositing$1000:$1500.0 Withdraw $600 from account BA1234: New balance after withdrawing $600: $900.0 CreateaSavingsAccountobject(A/cNo.SA1000)with initial balance of $300: Try to withdraw $250 from SA1000! Minimum balance of $100 required! Balance after trying to withdraw $250: $300.0	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof5.00

createaclasscalledCollegewithattributeStringname,constructortoinitializethenameattribute,amethodcalledAdmitted().Creat ea subclass called CSE thatextends Student class, with department attribute ,Course() method to sub class. Print the details of the Student.

College:

StringcollegeName;

public College() { }

publicadmitted(){}

Student:

StringstudentNam

e; String

department;

publicStudent(StringcollegeName,StringstudentName,Stringdepa

rt){} public toString()

Expected Output:

AstudentadmittedinREC
CollegeName : REC
StudentName:Venkates
h Department : CSE

For example:

Result
AstudentadmittedinREC CollegeName : REC StudentName : Venkatesh Department : CSE

Answer:(penaltyregime:0%)

Resetanswer

```
class College {
    protected String collegeName;

    public College(String collegeName) {
        this.collegeName= collegeName;
    }

    public void admitted() {
        System.out.println("A student admitted in " + collegeName);
    }
}

class Student extends College {
    String studentName;
    String department;

    public Student(String collegeName, String studentName, String department) {
        super(collegeName);
        this.studentName= studentName;
        this.department= department;
    }

    @Override
    public String toString() {
        return "CollegeName : " + collegeName+ "\n" +
               "StudentName : " + studentName+ "\n" +
               "Department : " + department;
    }
}

public class sample {
    public static void main(String[] args) {
        Student s1 = new Student("REC", "Venkatesh", "CSE");
        s1.admitted();// Print "A student admitted in REC"
        System.out.println(s1);
```

```
36}
37}
```

	Expected	Got	
✓	AstudentadmittedinREC CollegeName : REC StudentName : Venkatesh Department : CSE	AstudentadmittedinREC CollegeName : REC StudentName : Venkatesh Department : CSE	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof5.00

Create a classMobile withconstructor and a methodbasicMobile().

Create a subclass CameraMobilewhich extends Mobile class , withconstructor anda methodnewFeature().

CreateasubclassAndroidMobilewhichextendsCameraMobile,withconstructorandamethodandroidMobile(). display the details of the Android Mobile class by creating the instance..

class Mobile{

}
class CameraMobileextends Mobile {

}

class AndroidMobile extends CameraMobile{

}

expected output:

Basic Mobile is Manufactured
CameraMobileisManufactured
AndroidMobileisManufactured
Camera Mobile with 5MG px
TouchScreenMobileisManufactured

For example:

Result
Basic Mobile is Manufactured Camera Mobile is Manufactured AndroidMobileisManufactured Camera Mobile with 5MG px Touch Screen Mobile is Manufactured

Answer:(penaltyregime:0%)

```
class Mobile {
    public Mobile() {
        System.out.println("Basic Mobile is Manufactured");
    }

    public void basicMobile() {
        System.out.println("Basic Mobile functionality");
    }
}

class CameraMobileextends Mobile {
    public CameraMobile() {
        System.out.println("Camera Mobile is Manufactured");
    }

    public void newFeature() {
        System.out.println("Camera Mobile with 5MG px");
    }
}

class AndroidMobileextends CameraMobile{
    public AndroidMobile() {
        System.out.println("Android Mobile is Manufactured");
    }

    public void androidMobile() {
        System.out.println("Touch Screen Mobile is Manufactured");
    }
}

public class sample {
    public static void main(String[] args) {
        AndroidMobile android = new AndroidMobile();
        android.newFeature();
        android.androidMobile();
    }
```

```
37}
```

	Expected	Got	
✓	Basic Mobile is Manufactured Camera Mobile is Manufactured AndroidMobileisManufactured Camera Mobile with 5MG px Touch Screen Mobile is Manufactured	Basic Mobile is Manufactured Camera Mobile is Manufactured AndroidMobileisManufactured Camera Mobile with 5MG px Touch Screen Mobile is Manufactured	✓

Passed all tests!✓

◄ Lab-05-MCQ

Jump to...

IsPalindromeNumber?►

Dashboard/Mycourses/CS23333-OOPUJ-2023/Lab-06-String,StringBuffer/Lab-06-LogicBuilding

Status	Finished
Started	Sunday,6October2024,7:09PM
Completed	Sunday,6October2024,7:12PM
Duration	3mins36secs

Question **1**
Correct
Markedoutof 5.00

Given a String input1, which contains many number of words separated by : and each word contains exactly two lower case alphabets, generate an output based upon the below 2 cases.

Note:

1. Allthecharactersininput1arelowercasealphabets.
2. input1willalwayscontainmorethanonewordseparatedby:
3. Outputshouldbereturnedinuppercas

e. Case 1:

Checkwhetherthetwoalphabetsaresame.

If yes, then take one alphabet from it and add it to the

output. Example 1:

input1=ww:ii:pp:rr:

oo output = WIPRO

Explanation:

word1 is ww, both are same hence

take w word2 is ii, both are same

hence take i word3 is pp, both are

same hence take p word4 is rr, both

are same hence take r word5 is oo,

both are same hence take o Hence the

output is WIPRO

Case2:

If the two alphabets are not same, then find the position value of them and find maximum value – minimum value. Take the alphabet which comes at this (maximum value - minimum value) position in the alphabet series.

Example 2”

input1=zx:za:e

e output = BYE

Explanation

word1iszx,botharenotsamealphabets

position value of z is 26

positionvalueofxis24

max–minwillbe26–24=2

Alphabet which comes in 2nd position

is b Word2 is za, both are not same

alphabets position value of z is 26

positionvalueofais1

max–minwillbe26–1=25

Alphabet which comes in 25th position

is y word3 is ee, both are same hence

take e Hence the output is BYE

Forexample:

Input	Result
ww:ii:pp:rr:oo	WIPRO
zx:za:ee	BYE

Answer:(penaltyregime:0%)

```
importjava.util.Scanner;

publicclassMain{
    publicstaticvoidmain(String[]args)
    {
        Scannersc=newScanner(System.in);
        Strings=sc.nextLine();
        String[]words=s.split(":");
        StringBuilderoutput=newStringBuilder();
        for(Stringi:words)
        {
            charch1=i.charAt(0);
            charch2=i.charAt(1);

            if(ch1==ch2)
            {
              output.append(Character.toUpperCase(ch1));
            }
            else
            {
                intpos1=ch1-'a'+1;
                intpos2=ch2-'a'+1;

                intmax=Math.max(pos1,pos2);
                intmin=Math.min(pos1,pos2);

                intposition=max-min;
                     charresult=(char)('A'+position-1);

                output.append(result);
            }
        }

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

	Input	Expected	Got	
✓	ww:ii:pp:rr:oo	WIPRO	WIPRO	✓
✓	zx:za:ee	BYE	BYE	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof 5.00

Given2stringsinput1&input2.

· Concatenateboththestrings.

· Removeduplicatealphabets&whitespaces.

· Arrange the alphabets in descending

order. Assumption 1:

There will either be alphabets, white spaces or null in both the

inputs. Assumption 2:

Bothinputswillbeinlowercase.

Example 1:

Input1:apple

Input 2: orange

Output:rponlgea

Example 2:

Input 1: fruits

Input2:aregood

Output:utsroigfeda

Example 3:

Input1:""

Input 2: ""

Output:null

Forexample:

Test	Input	Result
1	apple orange	rponlgea
2	fruits aregood	utsroigfeda

Answer:(penaltyregime:0%)

```
importjava.util.*;

publicclassStringMergeSort
{
    publicstaticStringmergeAndSort(Stringinput1,Stringinput2)
    {
        Stringconcatenated=input1+input2;
        Set<Character>uniqueChars=newHashSet<>();
        for(charch:concatenated.toCharArray())
        {
            if(ch!='')
            {
                uniqueChars.add(ch);
            }
        }


        List<Character>sortedList=newArrayList<>(uniqueChars);
        Collections.sort(sortedList,Collections.reverseOrder());

        StringBuilderresult=newStringBuilder();
        for(charch:sortedList)
        {
            result.append(ch);
        }
        returnresult.length()>0?result.toString():"null";
    }
```

```
28
29      publicstaticvoidmain(String[]args)
30      {
31          Scannerscanner=newScanner(System.in);
32
33
34          Stringinput1=scanner.nextLine();
35
36          Stringinput2=scanner.nextLine();
37
38          Stringresult=mergeAndSort(input1,input2);
39          System.out.println(result);
40          scanner.close();
41      }
42  }
```

	Test	Input	Expected	Got	
✓	1	apple orange	rponlgea	rponlgea	✓
✓	2	fruits aregood	utsroigfeda	utsroigfeda	✓
✓	3		null	null	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof 5.00

You are provided a string of words and a 2-digit number. The two digits of the number represent the two words that are to be processed. For example:

If the string is "Today is a Nice Day" and the 2-digit number is 41, then you are expected to process the 4th word ("Nice") and the 1st word ("Today").

Theprocessingofeachwordistobedoneasfollows:

Extract the Middle-to-Begin part: Starting from the middle of the word, extract the characters till the beginning of the word. Extract the Middle-to-End part: Starting from the middle of the word, extract the characters till the end of the word.

Ifthewordtobeprocessedis"Nice":

ItsMiddle-to-Beginpartwillbe"iN".

Its Middle-to-End part will be

"ce".

So, merged together these two parts would form

"iNce". Similarly, if the word to be processed is

"Today":

ItsMiddle-to-Beginpartwillbe"doT".

Its Middle-to-End part will be

"day".

So,mergedtogetherthesetwopartswouldform"doTday".

Note: Note that the middle letter 'd' is part of both the extracted parts. So, for words whose length is odd, the middle letter should be included in both the extracted parts.

Expectedoutput:

The expected output is a string containing both the processed words separated by a space

"iNcedoTday" Example 1:

input1="TodayisaNiceDay"

input2 = 41

output="iNcedoTday"

Example 2:

input1 = "Fruits like Mango and Apple are common but Grapes

are rare" input2 = 39

output="naMngoarGpes"

Note: The input string input1 will contain only alphabets and a single space character separating each

word in the string. Note: The input string input1 will NOT contain any other special characters.

Note: The input number input2 will always be a 2-digit number (>=11 and <=99). One of its digits will never be 0. Both the digits of the number will always point to a valid word in the input1 string.

Forexample:

Input	Result
TodayisaNiceDay 41	iNcedoTday
Fruits like Mango and Apple are common but Grapes are rare 39	naMngoarGpes

Answer:(penaltyregime:0%)

```
1  importjava.util.Scanner;
2
3  publicclassWordProcessor{
4        publicstaticvoidmain(String[]args){
5           Scannersc=newScanner(System.in);
6
7          Stringinput=sc.nextLine();
8          intnumber=sc.nextInt();
9          String[]words=input.split("");
10
```

```
11          intpos1=number/10;
12          intpos2=number%10;
13
14          pos1--;
15          pos2--;
16
17          Stringresult1=processWord(words[pos1]);
18          Stringresult2=processWord(words[pos2]);
19
20          Stringresult=result1+""+result2;
21          System.out.println(result);
22      }
23
24      privatestaticStringprocessWord(Stringword){
25          intlen=word.length();
26          intmid=len/2;
27
28          StringmiddleToBegin;
29          StringmiddleToEnd;
30
31          if(len%2==0)
32          {
33              middleToBegin=newStringBuilder(word.substring(0,mid)).reverse().toString();
34              middleToEnd=word.substring(mid);
35          }
36          else
37          {
38              middleToBegin=newStringBuilder(word.substring(0,mid+1)).reverse().toString();
39              middleToEnd=word.substring(mid);
40          }
41          returnmiddleToBegin+middleToEnd;
42      }
43  }
```

	Input	Expected	Got	
✓	TodayisaNiceDay 41	iNcedoTday	iNcedoTday	✓
✓	Fruits like Mango and Apple are common but Grapes are rare 39	naMngoarGpes	naMngoarGpes	✓

Passed all tests!✓

◄Lab-06-MCQ

Jumpto...

ReturnsecondwordinUppercase►

Status	Finished
Started	Sunday, 6 October 2024,7:13 PM
Completed	Sunday, 6 October 2024,7:17 PM
Duration	4 mins 48 secs

Question **1**
Correct
Markedoutof5.00

createaninterfacePlayablewithamethodplay()thattakesnoargumentsandreturnsvoid.CreatethreeclassesFootball,Volleyball,and Basketball that implement the Playable interface and override the play() method to play the respective sports.

```
interfacePlayable
   { void play();
}
classFootballimplementsPlayabl
   e{ String name;
   publicFootball(Stringname){
      this.name=name;
   }
 public void play() {
   System.out.println(name+"isPlayingfootball");
  }
}
```

Similarly,createVolleyballandBasketball classes.

Sample output:

```
Sadhvin is Playing
football
SanjayisPlayingvolleyball
```

For example:

Test	Input	Result
1	Sadhvin Sanjay Sruthi	Sadhvin is Playing football SanjayisPlayingvolleyball Sruthi is Playing basketball
2	Vijay Arun Balaji	Vijay is Playing football Arun is Playing volleyball BalajiisPlayingbasketball

Answer:(penaltyregime:0%)

```
import java.util.Scanner;

interface Playable
{
    void play();
}

class Football implements Playable {
    String name;

    public Football(String name)
    {
        this.name = name;
    }

    public void play()
    {
        System.out.println(name + " is Playing football");
    }
}

class Volleyball implements Playable
{
    String name;

    public Volleyball(String name)
    {
        this.name = name;
    }

    public void play()
    {
        System.out.println(name + " is Playing volleyball");
```

```
    }
}

class Basketball implements Playable
{
    String name;

    public Basketball(String name)
    {
    this.name = name;
    }

    public void play()
    {
    System.out.println(name + " is Playing basketball");
    }
}

public class test
```

	Test	Input	Expected	Got	
✓	1	Sadhvin Sanjay Sruthi	Sadhvin is Playing football SanjayisPlayingvolleyball Sruthi is Playing basketball	Sadhvin is Playing football SanjayisPlayingvolleyball Sruthi is Playing basketball	✓
✓	2	Vijay Arun Balaji	Vijay is Playing football Arun is Playing volleyball BalajiisPlayingbasketball	Vijay is Playing football Arun is Playing volleyball BalajiisPlayingbasketball	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof5.00

Createinterfacesshownbelow.

interface Sports {
public void setHomeTeam(String
name);
publicvoidsetVisitingTeam(Strin
gname);
}
interface Football extends Sports
{publicvoidhomeTeamScored(intpo
ints);
publicvoidvisitingTeamScored(intpoints);}
createaclassCollegethatimplementstheFootballinterfaceandprovidesthenecessaryfunctionalitytotheabstractmetho

ds. sample Input:

Rajalaksh
mi
Saveeth
a22
21

Output:

Rajalakshmi 22 scored
Saveetha 21 scored
RajalakshmiistheWinne
r!

For example:

Test	Input	Result
1	Rajalakshmi Saveetha 22 21	Rajalakshmi 22 scored Saveetha 21 scored Rajalakshmiisthewinner!

Answer:(penaltyregime:0%)

Resetanswer

```
import java.util.Scanner;

interface Sports
{
    public void setHomeTeam(String name);
    public void setVisitingTeam(String name);
}

interface Football extends Sports
{
    public void homeTeamScored(int points);
    public void visitingTeamScored(int points);
}

class College implements Football
{
    String homeTeam;
    String visitingTeam;

    public void setHomeTeam(String name)
    {
        homeTeam= name;
    }

    public void setVisitingTeam(String name)
    {
        visitingTeam= name;
    }

    public void homeTeamScored(int points)
    {
        System.out.println(homeTeam+ " " + points + " scored");
```

```
33      }
34
35      public void visitingTeamScored(int points)
```

```
    {
        System.out.println(visitingTeam+ " " + points + "
        scored");
    }

    public void winningTeam(int homeTeamPoints, int
    visitingTeamPoints)
    {
        if (homeTeamPoints>visitingTeamPoints)
        {
          System.out.println(homeTeam+ " is the winner!");
        }
        else if (homeTeamPoints<visitingTeamPoints)
        {
            System.out.println(visitingTeam+ " is the winner!");
        }
        else
        {
            System.out.println("It's a tie match.");
```

	Test	Input	Expected	Got	
✓	1	Rajalakshmi Saveetha 22 21	Rajalakshmi 22 scored Saveetha 21 scored Rajalakshmi is the winner!	Rajalakshmi 22 scored Saveetha 21 scored Rajalakshmi is the winner!	✓
✓	2	Anna Balaji 21 21	Anna 21 scored Balaji 21 scored It's a tie match.	Anna 21 scored Balaji 21 scored It's a tie match.	✓
✓	3	SRM VIT 20 21	SRM 20 scored VIT 21 scored VIT is the winner!	SRM 20 scored VIT 21 scored VIT is the winner!	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof5.00

RBI issues all national banks to collect interest on all customer loans.

CreateanRBIinterfacewithavariableStringparentBank="RBI"andabstractmethodrateOfIntere

st(). RBI interface has two more methods default and static method.

default void policyNote() {

System.out.println("RBIhasanewPolicyissuedin2023.");

}

static void regulations(){

System.out.println("RBIhasupdatednew regulationson2024.");

}

CreatetwosubclassesSBIandKarurwhichimplementstheRBIinterfac

e. Provide the necessary code for the abstract method in two

sub-classes. **Sample Input/Output:**

RBIhasanew Policyissuedin 2023
RBIhasupdatednewregulationsin2
024. SBI rate of interest: 7.6 per
annum.
Karurrateofinterest:7.4perannum.

For example:

Test	Result
1	RBI has a new Policy issued in 2023 RBIhasupdatednewregulationsin2024. SBI rate of interest: 7.6 per annum. Karur rate of interest: 7.4 per annum.

Answer:(penaltyregime:0%)

```
interface RBI
{
    String parentBank= "RBI";

    double rateOfInterest();

     default void policyNote()
    {
        System.out.println("RBI has a new Policy issued in 2023");
    }

    static void regulations()
    {
        System.out.println("RBI has updated new regulations in 2024.");
    }
}

class SBI implements RBI
{
    public double rateOfInterest()
    {
        return7.6;
    }
}

class Karur implements RBI
{
    public double rateOfInterest()
    {
        return7.4;
    }
}

public class test
{
    public static void main(String[] args)
    {
```

```
        SBI sbiBank= new SBI();
        Karur karurBank= new Karur();

        sbiBank.policyNote();
        RBI.regulations();

        System.out.println("SBI rate of interest: " + sbiBank.rateOfInterest() + " per
        annum.");
        System.out.println("Karur rate of interest: " + karurBank.rateOfInterest() + " per
        annum.");
    }
}
```

	Test	Expected	Got	
✓	1	RBI has a new Policy issued in 2023 RBIhasupdatednewregulationsin2024. SBI rate of interest: 7.6 per annum. Karur rate of interest: 7.4 per annum.	RBI has a new Policy issued in 2023 RBIhasupdatednewregulationsin2024. SBI rate of interest: 7.6 per annum. Karur rate of interest: 7.4 per annum.	✓

Passed all tests!✓

◄ Lab-07-MCQ

Jump to...

Generate series and find Nth element ►

Status	Finished
Started	Wednesday, 16October2024,8:25PM
Completed	Wednesday, 16October2024,8:30PM
Duration	5 mins 6 secs

Question **1**
Correct
Markedoutof5.00

1. FinalVariable:

- Once a variable is declared `final`, its value cannot be changed after it is initialized.
- It must be initialized when it is declared or in the constructor if it's not initialized at declaration.
- It can be used to define constants

final int MAX_SPEED = 120;// Constant value, cannot be changed

2.FinalMethod:

- A method declared `final`cannot be overridden by subclasses.
- It is used to prevent modification of the method's behavior in derived classes.

public final void display()
{ System.out.println("Thisisafinalmetho
d.");
}

3.FinalClass:

- Aclassdeclaredas`final`cannotbesubclassed(i.e.,nootherclasscaninheritfromit).
- It is used to prevent a class from being extended and modified.
- public final class Vehicle {
  // class code
  }

GivenaJavaProgramthatcontainsthebuginit,yourtaskistoclearthebugtotheoutp
ut. you should delete any piece of code.

For example:

Test	Result
1	The maximum speed is: 120 km/h This is a subclass of FinalExample.

Answer:(penaltyregime:0%)

Resetanswer

```
class FinalExample{


    final int maxSpeed= 120;


    public final void displayMaxSpeed() {
        System.out.println("The maximum speed is: " + maxSpeed+ " km/h");
    }
}

class SubClassextends FinalExample{

    public void showDetails() {
        System.out.println("This is a subclass of FinalExample.");
    }
}

class prog {
    public static void main(String[] args) {
        FinalExample obj = new FinalExample();
        obj.displayMaxSpeed();// This will print the maximum speed

        SubClasssubObj= new SubClass();
        subObj.showDetails();// This will print the subclass details
    }
}
```

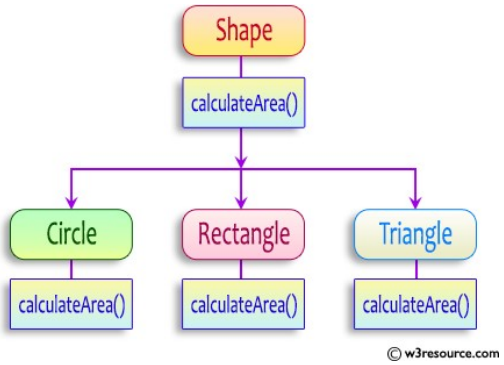
	Test	Expected	Got	
✓	1	The maximum speed is: 120 km/h This is a subclass of FinalExample.	The maximum speed is: 120 km/h This is a subclass of FinalExample.	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof5.00

CreateabaseclassShapewithamethodcalledcalculateArea().Createthreesubclasses:Circle,Rectangle,andTriangle.Overrideth e calculateArea() method in each subclass to calculate and return the shape's area.

In the given exercise, here is a simple diagram illustrating polymorphism implementation:




```
 abstract class Shape {
   public abstract double calculateArea() ;
   }
}
```

System.out.printf("AreaofaTriangle:%.2f%n",((0.5)*base*height));//

usethisstatement sample Input :

4//radius of the circle to calculate area Pl*r*r

5//length of the rectangle

6// breadth of the rectangle to calculate the area of a rectangle

4//base of the triangle

3//height of the triangle

OUTPUT:

Area of a circle :50.27
AreaofaRectangle:30.00 Area of a Triangle :6.00

For example:

Test	Input	Result
1	4 5 6 4 3	Area of a circle: 50.27 Area of a Rectangle: 30.00 Area of a Triangle: 6.00
2	7 4.5 6.5 2.4 3.6	Area of a circle: 153.94 Area of a Rectangle: 29.25 Area of a Triangle: 4.32

Answer:(penaltyregime:0%)

```
import java.util.Scanner;

abstract class Shape {
    public abstract double calculateArea();
}

class Circle extends Shape {
    private double radius;

    public Circle(double radius) {
        this.radius= radius;
    }
```

```
13
14      @Override
15      public double calculateArea() {
16          return Math.PI* radius * radius;
17      }
18  }
19
20  class Rectangle extends Shape {
21      private double length;
22      private double breadth;
23
24      public Rectangle(double length, double
        breadth) {
25          this.length= length;
26          this.breadth= breadth;
27      }
28
29      @Override
30      publicdoublecalculateArea(){
31          return length * breadth;
32      }
33  }
34
35  class Triangle extends Shape {
36      private double base;
37      private double height;
38
39      public Triangle(double base, double height) {
40          this.base= base;
41          this.height= height;
42      }
43
44
45      @Override
46      publicdoublecalculateArea(){
47          return 0.5 * base * height;
48      }
49  }
50
51  public class test{
52      public static void main(String[] args) {
```

	Test	Input	Expected	Got	
✓	1	4 5 6 4 3	Area of a circle: 50.27 Area of a Rectangle: 30.00 Area of a Triangle: 6.00	Area of a circle: 50.27 Area of a Rectangle: 30.00 Area of a Triangle: 6.00	✓
✓	2	7 4.5 6.5 2.4 3.6	Area of a circle: 153.94 Area of a Rectangle: 29.25 Area of a Triangle: 4.32	Area of a circle: 153.94 Area of a Rectangle: 29.25 Area of a Triangle: 4.32	✓

Passed all tests! ✓

Question **3**
Correct
Markedoutof5.00

Asalogicbuildinglearneryouaregiventhetasktoextractthestringwhichhasvowelasthefirstandlastcharactersfromthegivenarray of Strings.

Step1:ScanthroughthearrayofStrings,extracttheStringswithfirstandlastcharactersasvowels;thesestringsshouldbeconcatenated. Step2: Convert the concatenated string to lowercase and return it.

Ifnoneofthestringsinthearrayhasfirstandlastcharacterasvowel,thenreturnnomatchesfound input1: an integer representing the number of elements in the array.

input2:Stringarray.

Example 1:

input1: 3

input2:

{“oreo”,“sirish”,“apple”}

output: oreoapple

Example 2:

input1: 2

input2:{“Mango”,“banana”}

output: no matches found

Explanation:

None of the strings has first and last character as vowel.

Hencetheoutputisnomatchesfound.

Example 3:

input1: 3

input2:

{“Ate”,“Ace”,“Girl”}

output: ateace

For example:

Input	Result
3 oreosirishapple	oreoapple
2 Mango banana	no matches found
3 Ate Ace Girl	ateace

Answer:(penaltyregime:0%)

```
import java.util.Scanner;

public class VowelEndStrings{
    public static void main(String[] args)
    {
        Scanner sc= new Scanner(System.in);
        int n = sc.nextInt();

        String[] arr= new String[n];
        for(int i= 0; i<n; i++)
        {
            arr[i] = sc.next();
        }

        String s = "";
        booleanfound = false;

        for (String i: arr)
        {
```

```
            if ("aeiouAEIOU".indexOf(i.charAt(0)) != -1 &&"aeiouAEIOU".indexOf(i.charAt(i.length() - 1))
            != -1)
            {
                s += i;
                found = true;
            }
        }

        if (found)
        {
            System.out.println(s.toLowerCase());
        }
        else
        {
            System.out.println("no matches found");
        }

        sc.close();
    }
}
```

	Input	Expected	Got	
✓	3 oreosirishapple	oreoapple	oreoapple	✓
✓	2 Mango banana	no matches found	no matches found	✓
✓	3 Ate Ace Girl	ateace	ateace	✓

Passed all tests!✓

◄ Lab-08-MCQ

Jump to...

FindStringCode►

Dashboard/Mycourses/CS23333-OOPUJ-2023/Lab-09-ExceptionHandling/Lab-09-LogicBuilding

Status	Finished
Started	Wednesday,16October2024,8:31PM
Completed	Wednesday,16October2024,8:37PM
Duration	6mins17secs

Question **1**
Correct
Markedoutof 5.00

Inthefollowingprogram,anarrayofintegerdataistobeinitialized.
During the initialization, if a user enters a value other than an integer, it will throw an InputMismatchException exception. On the occurrence of such an exception, your program should print "You entered bad data."
Ifthereisnosuchexceptionitwillprintthetotalsumofthearray.

/*Definetry-catchblocktosaveuserinputinthearray"name"
Ifthereisanexceptionthencatchtheexceptionotherwiseprintthetotalsumofthearray.*/

SampleInput:

3
5 21

SampleOutput:

8

SampleInput:

2

1g

SampleOutput:

```
Youenteredbaddata.
```

Forexample:

Input	Result
3 5 21	8
2 1 g	Youenteredbaddata.

Answer:(penaltyregime:0%)

Reset answer

```
import java.util.Scanner;
import java.util.InputMismatchException;
class prog{
    public static void main(String[]args){
        Scanner sc=new Scanner(System.in);
        int length=sc.nextInt();
        int[]name=new int[length];
        int sum=0;
        try
        {
            for(int i=0;i<length;i++){
                name[i]=sc.nextInt();
                sum+=name[i];
            }
            System.out.println(sum);
        }
        catch(InputMismatchException e)
        {
            System.out.println("Youenteredbaddata.");
        }
    }
}
```

	Input	Expected	Got	
✓	3 5 21	8	8	✓

	Input	Expected	Got	
✓	2 1 g	Youenteredbaddata.	Youenteredbaddata.	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof 5.00

Write a Java program to handle ArithmeticException and ArrayIndexOutOfBoundsException. Create an array, read the input from the user, and store it in the array.

Divide the 0th index element by the 1st index element and store it. if the 1st element is zero, it will throw an exception.

ifyoutrytoaccessanelementbeyondthearraylimitthrowsanexception.

Input:

5

100203040

Output:

java.lang.ArithmeticException:/
byzero I am always executed

Input:

3
102030

Output
java.lang.ArrayIndexOutOfBoundsException: Index 3 out of bounds for length 3I am always executed

Forexample:

Test	Input	Result
1	6 1 0412 8	java.lang.ArithmeticException:/byzero Iamalwaysexecuted

Answer:(penaltyregime:0%)

```
1  importjava.util.Scanner;
2
3  publicclassl
4  {
5      publicstaticvoidmain(String[]args)
6      {
7          Scannersc=newScanner(System.in);
8
9          intn=sc.nextInt();
10         int[]arr=newint[n];
11         for(inti=0;i<n;i++){
12             arr[i]=sc.nextInt();
13         }
14
15         try
16         {
17             intresult=arr[0]/arr[1];
18
19
20             System.out.println(arr[3]);
21         }
22         catch(ArithmeticExceptione)
23         {
24             System.out.println("java.lang.ArithmeticException:"+e.getMessage());
25         }
26         catch(ArrayIndexOutOfBoundsExceptione)
27         {
28             System.out.println("java.lang.ArrayIndexOutOfBoundsException:"+e.getMessage());
29         }
30         finally
31         {
32             System.out.println("Iamalwaysexecuted");
33         }
34     }
35 }
```

	Test	Input	Expected	Got	
✓	1	6 1 04 1 28	java.lang.ArithmeticException:/byzero Iamalwaysexecuted	java.lang.ArithmeticException:/byzero Iamalwaysexecuted	✓
✓	2	3 1020 30	java.lang.ArrayIndexOutOfBoundsException :Index 3outofboundsforlength3 Iamalwaysexecuted	java.lang.ArrayIndexOutOfBoundsException :Index 3outofboundsforlength3 Iamalwaysexecuted	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof 5.00

Write a Java program to create a method that takes an integer as a parameter and throws an exception if the number is odd.

SampleinputandOutput:

```
82 is even.
Error:37isodd.
```

Fillthepreloadedanswertogettheexpectedoutput.

Forexample:

Result
82 is even. Error:37isodd.

Answer:(penaltyregime:0%)

Reset answer

```
1  classprog
2  {
3      publicstaticvoidmain(String[]args)
4      {
5          intn=82;
6          trynumber(n);
7          n=37;
8          trynumber(n);
9      }
10
11     publicstaticvoidtrynumber(intn)
12     {
13         try
14         {
15             checkEvenNumber(n);//CallthecheckEvenNumber()method
16             System.out.println(n+"iseven.");
17         }
18         catch(IllegalArgumentExceptione)
19         {
20             System.out.println("Error:"+e.getMessage());
21         }
22     }
23
24     publicstaticvoidcheckEvenNumber(intnumber)
25     {
26         if(number%2!=0)
27         {
28             thrownewIllegalArgumentException(number+"isodd.");
29         }
30     }
31 }
```

	Expected	Got	
✓	82 is even. Error:37isodd.	82 is even. Error:37isodd.	✓

Passed all tests!✓

◄Lab-09-MCQ

Jumpto...

The“NambiarNumber”Generator►

Dashboard/Mycourses/CS23333-OOPUJ-2023/Lab-10-Collection-List/Lab-10-LogicBuilding

Status	Finished
Started	Monday,4November2024,8:28AM
Completed	Monday,4November2024,8:50AM
Duration	21mins47secs

Question **1**

Correct

GivenanArrayList,thetaskistogetthefirstandlastelementoftheArrayListinJava.

```
Input:ArrayList=[1,2,3,4] Output:
First = 1, Last = 4

Input:ArrayList=[12,23,34,45,57,67,89]
Output:First=12,Last=89
```

Approach:

1. GettheArrayListwithelements.
2. GetthefirstelementofArrayListusingtheget(index)methodbypassingindex=0.
3. GetthelastelementofArrayListusingtheget(index)methodbypassingindex=size–1.

Answer:(penaltyregime:0%)

```
importjava.util.*;
public class Main{
    publicstaticvoidmain(String[]args){
        Scanner scanner=new
        Scanner(System.in); int
        n=scanner.nextInt();
        ArrayList<Integer>arrayList=new ArrayList<>();
        for(int i=0;i<n;i++)
        {
            arrayList.add(scanner.nextInt());
        }
        if(!arrayList.isEmpty())
        {
            intfirst=arrayList.get(0);
            int last=arrayList.get(arrayList.size()-1);
            System.out.println("ArrayList:"+arrayList);
            System.out.println("First:"+first+",Last:"+last);
        }
        else
        {
            System.out.println("TheArrayListisempty:");
        }
    }
}
```

	Test	Input	Expected	Got	
✓	1	6 30 20 40 50 10 80	ArrayList:[30,20,40,50,10,80] First:30,Last:80	ArrayList:[30,20,40,50,10,80] First:30,Last:80	✓
✓	2	4 5 15 25 35	ArrayList:[5,15,25,35] First:5,Last:35	ArrayList:[5,15,25,35] First:5,Last:35	✓

Passed all tests!✓

Question **2**

Correct

Marked out of

The given Java program is based on the ArrayList methods and its usage. The Java program is partially filled. Your task is to fill in the incomplete statements to get the desired output.

list.set();

list.indexOf());

list.lastIndexOf())

list.contains()

list.size());

list.add();

list.remove();

TheabovemethodsareusedforthebelowJavaprogram.

Answer:(penaltyregime:0%)

Reset answer

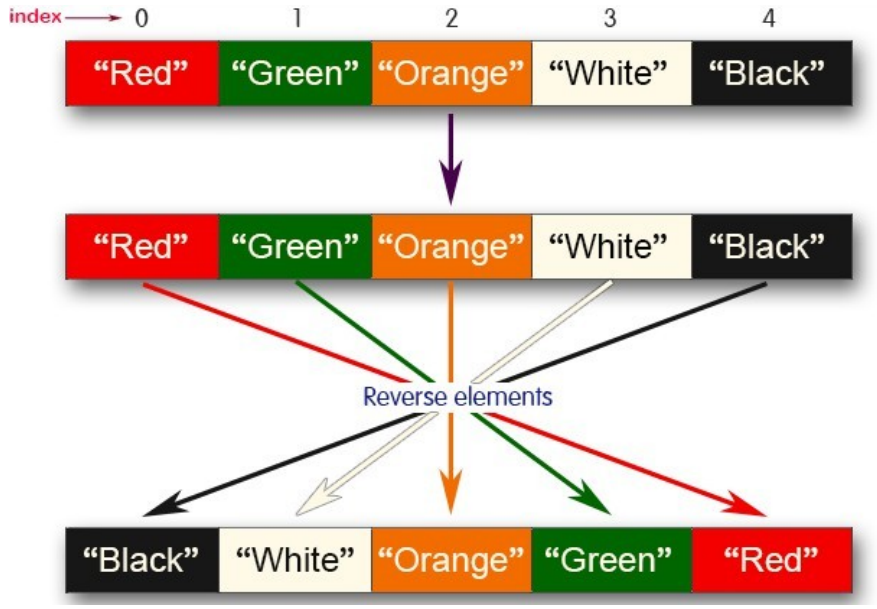
```
importjava.util.*;
importjava.io.*;

classprog{
    publicstaticvoidmain(String[]args)
    {
         Scannersc=newScanner(System.in);
         intn=sc.nextInt();

         ArrayList<Integer>list=newArrayList<Integer>();
        for(inti=0;i<n;i++){
            list.add(sc.nextInt());
        }
        System.out.println("ArrayList:"+list);
        list.set(1,100);
        System.out.println("Indexof100="+list.indexOf(100));

        //Gettingtheindexoflastoccurrenceof100
        System.out.println("LastIndexof100="+list.lastIndexOf(100));
        //Checkwhether200isinthelistornot
        System.out.println(list.contains(200));//Output:false
         //PrintArrayListsize
        System.out.println("SizeOfArrayList="+list.size());
        //Inserting500atindex1
        list.add(1,500);                              //codehere
         //Removinganelementfromposition3
        list.remove(3);                            //codehere
        System.out.print("ArrayList:"+list);
     }
}
```

	Test	Input	Expected	Got	
✓	1	5 1 2 3 100 5	ArrayList:[1,2,3,100,5] Indexof100=1 LastIndexof100=3 false SizeOfArrayList=5 ArrayList:[1,500,100,100,5]	ArrayList:[1,2,3,100,5] Indexof100=1 LastIndexof100=3 false SizeOfArrayList=5 ArrayList:[1,500,100,100,5]	✓

Passed all tests!✓

Question**3**
Correct
Markedoutof 1.00

WriteaJavaprogramtoreverseelementsinanarraylist.




```
SampleinputandOutput:
Red
Green
Orange
White
Black
Sampleoutput
Listbeforereversing:
[Red,Green,Orange,White,Black]
List after reversing :
[Black,White,Orange,Green,Red]
```

Answer:(penaltyregime:0%)

```
importjava.util.*;
publicclassReverseArrayList{
    publicstaticvoidmain(String[]args){
        Scannerscanner=newScanner(System.in);
        ArrayList<String>colorList=new
        ArrayList<>(); int n=scanner.nextInt();
        scanner.nextLine();
        for(inti=0;i<n;i+
        +)
        {
            String color=scanner.nextLine();
            colorList.add(color);
        }
        System.out.println("List before reversing :");
        System.out.println(colorList);
        Collections.reverse(colorList);
        System.out.println("List after reversing :");
        System.out.println(colorList);
    }
}
```

	Test	Input	Expected	Got	
✓	1	5 Red Green Orange White Black	Listbeforereversing: [Red,Green,Orange,White,Black] Listafterreversing: [Black,White,Orange,Green,Red]	Listbeforereversing: [Red,Green,Orange,White,Black] Listafterreversing: [Black,White,Orange,Green,Red]	✓
✓	2	4 CSE AIML AIDS CYBER	Listbeforereversing: [CSE,AIML,AIDS,CYBER] Listafterreversing: [CYBER,AIDS,AIML,CSE]	Listbeforereversing: [CSE,AIML,AIDS,CYBER] Listafterreversing: [CYBER,AIDS,AIML,CSE]	✓

Passed all tests!✓

◄Lab-10-MCQ

Jumpto...

Lab-11-MCQ►

Status	Finished
Started	Friday, 8 November 2024,5:24 PM
Completed	Friday, 8 November 2024,5:55 PM
Duration	31 mins 1 sec

Question **1**
Correct
Markedoutof1.00

JavaHashSetclass implementsthe Set interface,backed by a hashtable which isactually a HashMapinstance.

Noguaranteeismadeastotheiterationorderofthehashsetswhichmeansthattheclassdoesnotguaranteetheconstantorderof elements over time.

This class permits the null element.

Theclassalsoffersconstanttimeperformanceforthebasicoperationslikeadd,remove,contains,andsizeassumingthehashfuncti on disperses the elements properly among the buckets.

JavaHashSetFeatures

A few important features of HashSet are mentioned below:

- Implements Set Interface.
- The underlying data structure for HashSet is Hashtable.
- As it implements the Set Interface, duplicate values are not allowed.
- Objectsthatyouinsertin HashSetarenotguaranteedtobeinsertedinthesameorder.Objectsareinsertedbasedontheirhashcode .
- NULL elements are allowed in HashSet.
- HashSet also implements **Serializable** and **Cloneable** interfaces.

```
publicclassHashSet<E>extendsAbstractSet<E>implementsSet<E>,Cloneable,Serializable
Sample Input and Output:
5
90
56
45
78
25
78
Sample Output:
78wasfoundintheset.
SampleInputandoutput:
3
2
7
9
5
Sample Input and output:
5 was not found in the set.
```

Answer:(penaltyregime:0%)

Resetanswer

```
import java.util.HashSet;
import java.util.Scanner;
class prog {
  public static void main(String[] args) {
    Scanner sc= new Scanner(System.in);
    int n = sc.nextInt();
    // Create a HashSet object called numbers
    HashSet<Integer>numbers= new HashSet<>();

    // Add values to the set
    for(inti=0;i<n;i++)
    {
        numbers.add(sc.nextInt());
    }
    int skey=sc.nextInt();

    // Show which numbers between 1 and 10 are in the set
    if(numbers.contains(skey))
    {
        System.out.println(skey+ " was found in the set.");
    }
    else {
        System.out.println(skey + " was not found in the set.");
     }
    }
}
```

	Test	Input	Expected	Got	
✓	1	5 90 56 45 78 25 78	78 was found in the set.	78 was found in the set.	✓
✓	2	3 -1 2 4 5	5 was not found in the set.	5 was not found in the set.	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof1.00

Write a Java program to compare two sets and retain elements that are the same.

Sample Input and Output:

5

Football

Hockey

Cricket

Volleyball

Basketbal

l

7 // **HashSet 2:**

Gol

fCricket

Badminto

n Football

Hockey

Volleyball

Handball

SAMPLE OUTPUT:

Football

Hockey

Cricket

Volleyball

Basketbal

l

Answer:(penaltyregime:0%)

```
impor
tjava.util.HashSet;
impor
tjava.util.Scanner;
class prog{
    public static void main(String[] args)
    {
        Scannersc=newScanner(System.in);
        int n1=sc.nextInt();
        sc.nextLine();
        HashSet<String>set1=newHashSet<>();
        for (int i=0;i<n1;i++)
        {
            set1.add(sc.nextLine());
        }
        intn2=sc.nextInt();
        sc.nextLine();
        HashSet<String>set2=newHashSet<>();
        for(int i=0;i<n2;i++)
        {
            set2.add(sc.nextLine());
        }
        set1.retainAll(set2);
        for(String
        sport:set1)
        {
            System.out.println(sport);
        }
    }
}
```

	Test	Input	Expected	Got	
✓	1	5 Football Hockey Cricket Volleyball Basketball 7 Golf Cricket Badminton Football Hockey Volleyball Throwball	Cricket Hockey Volleyball Football	Cricket Hockey Volleyball Football	✓
✓	2	4 Toy Bus Car Auto 3 Car Bus Lorry	Bus Car	Bus Car	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof1.00

Java HashMap Methods

containsKey()Indicate if an entrywith the specified keyexists in the map

containsValue()Indicateifanentrywiththespecifiedvalueexistsinthemap

putIfAbsent()Writeanentryintothemapbutonlyifanentrywiththesamekeydoesnotalreadyexist

remove()Remove an entry from the map

replace()Writetoanentryinthemaponlyifitexist

ssize()Return the number of entries in the map

Yourtaskistofilltheincompletecodetogetdesiredoutput

Answer:(penaltyregime:0%)

Rese answer t

```
import java.util.HashMap;
import java.util.Map.Entry;
import java.util.Set;
import java.util.Scanner;
 class prog
{
    public static void main(String[] args)
    {
        //Creating HashMap with default initial capacity and load factor
        HashMap<String, Integer>map = new HashMap<String, Integer>();
        String name;
        int num;
        Scanner sc= new Scanner(System.in);
        int n=sc.nextInt();
         for(inti=0;i<n;i++)
         {
             name=sc.next();
             num= sc.nextInt();
             map.put(name,num);
         }
        //Printing key-value pairs
        Set<Entry<String, Integer>>entrySet= map.entrySet();

        for (Entry<String, Integer>entry : entrySet)
        {
            System.out.println(entry.getKey()+" : "+entry.getValue());
        }
         System.out.println("-------------");
        //Creating another HashMap
        HashMap<String, Integer>anotherMap= new HashMap<String, Integer>();
        //Inserting key-value pairs to anotherMap using put() method
        anotherMap.put("SIX", 6);
        anotherMap.put("SEVEN", 7);
        //Inserting key-value pairs of map to anotherMap using putAll() method
        anotherMap.putAll(map);// code here
        //Printing key-value pairs of anotherMap
        entrySet= anotherMap.entrySet();
        for (Entry<String, Integer>entry : entrySet)
        {
            System.out.println(entry.getKey()+" : "+entry.getValue());
        }

        //Adds key-value pair 'FIVE-5' only if it is not present in map

        map.putIfAbsent("FIVE", 5);

        //Retrieving a value associated with key 'TWO'

        intvalue = map.get("TWO");
        System.out.println(value);

         //Checking whether key 'ONE' exist in map
```

	Test	Input	Expected	Got	
✓	1	3 ONE 1 TWO 2 THREE 3	ONE : 1 TWO : 2 THREE : 3 SIX : 6 ONE : 1 TWO : 2 SEVEN : 7 THREE : 3 2 true true 4	ONE : 1 TWO : 2 THREE : 3 SIX : 6 ONE : 1 TWO : 2 SEVEN : 7 THREE : 3 2 true true 4	✓

Passed all tests!✓

◄ Lab-11-MCQ

Jump to...

TreeSetexample►

Status	Finished
Started	Sunday, 10 November 2024,11:31 AM
Completed	Sunday, 10 November 2024,11:55 AM
Duration	23 mins 50 secs

Question **1**
Correct
Markedoutof5.00

Writeafunctionthattakesaninput String(sentence)andgeneratesanewString(modifiedsentence)byreversingthewordsintheoriginal String, maintaining the words position.

Inaddition,thefunctionshouldbeabletocontrolthereversingofthecase(upperorlowercase)basedonacase_optionparameter,as follows:

Ifcase_option=0,normalreversalofwordsi.e.,iftheoriginalsentenceis“WiproTechNologiesBangaLore”,thenewreversedsentence should be “orpiWseigoloNhceTeroLagnaB”.

Ifcase_option=1,reversalofwordswithretainingposition’scasei.e.,iftheoriginalsentenceis“WiproTechNologiesBangaLore”,the new reversed sentence should be “OrpiwSeigOlonhcetErolaGnab”.

Notethatpositions1,7,11,20and25intheoriginalstringareuppercaseW,T,N,BandL.

Similarly, positions 1, 7, 11, 20 and 25 in the new string are uppercase O, S, O,

E and G. NOTE:
1. Onlyspacecharactershouldbetreatedasthewordseparatori.e.,“HelloWorld”shouldbetreatedastwoseparatewords,“Hello ”and “World”. However, “Hello,World”, “Hello;World”, “Hello-World” or “Hello/World” should be considered as a single word.

2. Non-alphabetic characters in the String should not be subjected to case changes. For example, if case option = 1 and the original sentenceis“WiproTechNologies,Bangalore”thenewreversedsentenceshouldbe“Orpiw,seiGolonhceTErolagnab”.Notethatcommahas been treated as part of the word “Technologies,” and when comma had to take the position of uppercase T it remained as a comma and uppercase T took the position of comma. However, the words “Wipro and Bangalore” have changed to “Orpiw” and “Erolagnab”.

3. Kindlyensurethatnoextra(additional)spacecharactersareembeddedwithintheresultantreversed String. Examples:

S. No.	input1	input2	output
1	WiproTechnologiesBangalore	0	orpiWseigolonhceTerolagnaB
2	WiproTechnologies,Bangalore	0	orpiW ,seigolonhceTerolagnaB
3	WiproTechnologiesBangalore	1	OrpiwSeigolonhcetErolagnab
4	WiproTechnologies,Bangalore	1	Orpiw ,seigolonhceTErolagnab

For example:

Input	Result
`WiproTechnologiesBangalore 0`	`orpiWseigolonhceTerolagnaB`
`WiproTechnologies,Bangalore 0`	`orpiW ,seigolonhce TerolagnaB`
`WiproTechnologiesBangalore 1`	`OrpiwSeigolonhcetErolagnab`
`WiproTechnologies,Bangalore 1`	`Orpiw ,seigolonhce TErolagnab`

Answer:(penaltyregime:0%)

```
import java.util.*;
public class SentenceReversal{
    public static void main(String[] args)
    {
        Scannersc=newScanner(System.in);
        String sentence=sc.nextLine();
        int caseOption=sc.nextInt();
        if(caseOption!=0 &&caseOption!=1)
        {
            return;
        }
        Stringresult=reverseWordWithCaseOption(sentence,caseOption);
        System.out.println(result);
    }
    public static String reverseWordWithCaseOption(String sentence,intcaseOption)
    {

```

```
        String[] words=sentence.split(" ");
        StringBuilder result=new StringBuilder();
        for(String word : words)
        {
            StringBuilder reversedWord=new StringBuilder();
            StringBuilder tempWord=new StringBuilder(word).reverse();
            if(caseOption==0)
            {
                reversedWord.append(tempWord);
            }
            else
            {
                for(int i=0;i<word.length();i++)
                {
                    char originalChar=word.charAt(i);
                    char reversedChar=tempWord.charAt(i);
                    if(Character.isUpperCase(originalChar))
                    {
                    reversedWord.append(Character.toUpperCase(reversedChar));
                    }
                    else if(Character.isLowerCase(originalChar))
                    {
                    reversedWord.append(Character.toLowerCase(reversedChar));
                    }
                    else
                    {
                        reversedWord.append(reversedChar);
                    }
                }
            }
            result.append(reversedWord).append(" ");
        }
        return result.toString().trim();
    }
}
```

	Input	Expected	Got	
✓	WiproTechnologiesBangalore 0	orpiWseigolonhceTerolagnaB	orpiWseigolonhceTerolagnaB	✓
✓	WiproTechnologies,Bangalore 0	orpiW ,seigolonhce TerolagnaB	orpiW ,seigolonhce TerolagnaB	✓
✓	WiproTechnologiesBangalore 1	OrpiwSeigolonhcetErolagnab	OrpiwSeigolonhcetErolagnab	✓
✓	WiproTechnologies,Bangalore 1	Orpiw ,seigolonhce TErolagnab	Orpiw ,seigolonhce TErolagnab	✓

Passed all tests!✓

Question **2**
Correct
Markedoutof5.00

Youareprovidedwithastringwhichhasasequenceof1'sand0's.

Thissequenceistheencodedversionofa Englishword.Youaresupposedwriteaprogramtodecodetheprovidedstringandfindthe original word.

Eachalphabetisrepresentedbyasequenceof0s.

This is as mentioned below:

Z :0

Y :00

X :000

W :0000

V :00000

U :000000

T :0000000

and so on upto A having 26 0's (00000000000000000000000000).

Thesequenceof0'sintheencodedformareseparatedbyasingle1whichhelpstodistinguishbetween2letters

. Example 1:

input1: 010010001

Thedecodedstring(originalword)willbe:ZYX

Example 2:

input1: 00001000000000000000000100000000000100000000010000000000001

The decoded string (original word) will be: WIPRO

Note: The decoded string must always be in UPPER case.

For example:

Input	Result
010010001	ZYX
00001000000000000000000100000000000100000000010000000000001	WIPRO

Answer:(penaltyregime:0%)

```
import java.util.*;
public class BinaryDecoder{
    public static void main(String[] args)
    {
        Scannersc=newScanner(System.in);
        String encoded=sc.nextLine();
        String[] sequences= encoded.split("1");
        StringBuilderdecodedWord=newStringBuilder();
        for(String seq:sequences){
            if(!seq.isEmpty())
            {
                in
                tletterPos=seq.length();
                if(letterPos<=26)
                {
                    chardecodedChar=(char)('Z'-(letterPos-1));
                    decodedWord.append(decodedChar);
                }
            }
        }
        System.out.println(decodedWord.toString());
    }
}
```

	Input	Expected	Got	
✓	010010001	ZYX	ZYX	✓
✓	00001000000000000000001000000000001000000001000000000001	WIPRO	WIPRO	✓

Passed all tests!✓

Question **3**
Correct
Markedoutof5.00

Giventwochararraysinput1[]andinput2[]containingonlylowercasealphabets,extractsthealphabetswhicharepresentinbotharrays (common alphabets).

Get the ASCII values of all the extracted alphabets.

CalculatesumofthoseASCIIvalues.Letscallitsum1andcalculatesingledigitsumofsum1,i.e.,keepaddingthedigitsofsum1untilyou arrive at a single digit.

Returnthatsingledigitasoutput.

Note:

1. Array size ranges from 1 to 10.
2. All the array elements are lower case alphabets.
3. Atleastonecommonalphabetwillbefoundinthearrays. Example 1:

input1: {‘a’, ‘b’, ‘c’}

input2:{‘b’,’c’}

output: 8

Explanation:

‘b’and‘c’arepresentinboththearrays.

ASCII value of ‘b’ is 98 and ‘c’ is 99.

98 + 99 = 197

1 + 9 + 7 = 17

1 + 7 = 8

For example:

Input	Result
a b c b c	8

Answer:(penaltyregime:0%)

```
import java.io.*;
import java.util.*;
public class commonAlphabets{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        String input1=sc.nextLine().replace(" ,","");
        char[] array1=input1.toCharArray();
        String input2=sc.nextLine().replace(" ","");
        char[] array2=input2.toCharArray();
        int result=calculateSingleDigitSum(array1,array2);
        System.out.println(result);

    }
    private static int calculateSingleDigitSum(char[] input1,char[] input2)
    {
        HashSet<Character>set1=new HashSet<>();
        for(char c : input1)
        {
            set1.add(c);
        }
        int sum1=0;
        for(char c: input2)
        {
            if(set1.contains(c))
            {
                sum1+=(int) c;
            }
        }
        return getDigitalRoot(sum1);
```

```
    }
    private static int getDigitalRoot(int
    sum)
    {
        if(sum==0)
        {
            return 0;
        }
        else
        {
            return 1+ ((sum-1)%9);
        }
    }
}
```

	Input	Expected	Got	
✓	a b c b c	8	8	✓

Passed all tests!✓

◄ Lab-12-MCQ

Jump to...

Identify possible words ►