**RAJALAKSHMI ENGINEERING COLLEGERAJALAKSHMINAGAR,THANDALAM– 602 105**

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Description automatically generated**

CS23333 Object Oriented Programming Using Java

**Laboratory Record Notebook**

Name:

**Haneef k**

Year / Branch / Section:

**2nd year / B.Tech AIML – ‘A’**

UniversityRegisterNo:

**2116231501503**

CollegeRollNo:

**231501503**

Semester:

**IIIrdSemester**

AcademicYear:

**2023 - 2024**

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-01-JavaArchitecture,LanguageBasics](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=49)/[Lab-01-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=224)

**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%)

|  |  |
| --- | --- |
| 1▼  2 | importjava.io.\*;  importjava.util.\*; |
| 3▼publicclassOdd{  4 publicstaticvoidmain(String[]args)  5▼ {  6 Scannersc=newScanner(System.in);  7 inta=sc.nextInt();  8 if(a%2==1||a%2==-1)  9▼ {  10 System.out.println(2);  11 }  12 elseif(a%2==0)  13▼ {  14 System.out.println(1);  15 }  16 elseif(a==0)  17▼ {  18 System.out.println(1);  19 }  20 }  21} | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 123 | 2 | 2 |  |
|  | 456 | 1 | 1 |  |

Passed all tests!

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▼  2 | importjava.io.\*;  importjava.util.\*; |
| 1. importjava.math.\*; 2. ▼publicclassLast{ 3. publicstaticvoidmain(String[]args)   6▼ {   1. Scannersc=newScanner(System.in); 2. inta=sc.nextInt(); 3. a=Math.abs(a); 4. 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%)

|  |  |
| --- | --- |
| 1▼  2  3  4▼  5  6▼  7  8  9  10  11  12  13  14  15 | 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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=223&forceview=1)

Jumpto...

[IsEven?►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=225&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-02-FlowControlStatements](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=50)/[Lab-02-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=232)

**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 |  |
| 1 |  | //Javaprogramtocounttrailing0sinn! | |
| 2 | ▼ | importjava.io.\*; | |
| 3 |  | importjava.util.\*; | |
| 4 | ▼ | classprog{ | |
| 5 |  | //Functiontoreturntrailing | |
| 6 |  | //0sinfactorialofn | |
| 7 |  | staticintfindTrailingZeros(intn) | |
| 8 | ▼ | { | |
| 9 |  | intcount=0; | |
| 10 |  | if(n<0)//NegativeNumberEdgeCase | |
| 11 |  | return-1; | |
| 12 |  |  | |
| 13 |  | //Initializeresult | |
| 14 |  |  | |
| 15 |  |  | |
| 16 |  | //Keepdividingnbypowers | |
| 17 |  | //of5andupdatecount | |
| 18 |  | for(inti=5;n/i>=1;i\*=5) | |
| 19 |  | count+=n/i; | |
| 20 |  |  | |
| 21 |  | returncount; | |
| 22 |  | } | |
| 23 |  |  | |

|  |  |  |
| --- | --- | --- |
| 24 |  | //DriverCode |
| 25 |  | publicstaticvoidmain(String[]args) |
| 26▼ |  | { |
| 27 |  | intn; |
| 28 |  | Scannersc=newScanner(System.in); |
| 29 |  | n=sc.nextInt(); |
| 30 |  | intx=findTrailingZeros(n); |
| 31 |  | System.out.println(x); |
| 32 |  | } |
| 33 | } |  |
| 34 |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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.

**Example Input** 1234

## Output

OneTwoThreeFour Input:

16

Output:

onesix

## Forexample:

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

**Answer:**(penaltyregime:0%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6  7  8  9  10  11▼  12  13▼  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40  41  42 | 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"); |

43

44

45

46

47

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%)

|  |  |
| --- | --- |
| 1▼ | importjava.io.\*; |
| 1. importjava.util.\*; 2. ▼publicclasspattern{ 3. publicstaticvoidmain(String[]args)   5▼ {   1. Scannersc=newScanner(System.in); 2. intn=sc.nextInt(); 3. Stringres="1"; 4. for(inti=1;i<n;i++)   10▼ {  11 res+=""+(i+1)+""+res;  12 }  13 System.out.println(res);  14 }  15} | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=231&forceview=1)

Jumpto...

[Lab-03-MCQ►](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=241&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[My courses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-03-Arrays](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=51)/[Lab-03-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=242)

**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[]isthearrayofnumbersandinput2representsthenumberofelementsininput1. 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%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6 | import java.io.\*; importjava.util.\*;  public class arraysp{  public static void main(String[] args)  {  Scanner sc=new Scanner(System.in); |

|  |  |  |  |
| --- | --- | --- | --- |
| 7 |  |  | int sum=0; |
| 8 |  |  | int n=sc.nextInt(); |
| 9 |  |  | int[] arr=new int[n]; |
| 10 |  |  | for(inti=0;i<n;i++) |
| 11▼ |  |  | { |
| 12 |  |  | arr[i]=sc.nextInt(); |
| 13 |  |  | } |
| 14 |  |  | int[] p=new int[n]; |
| 15 |  |  | for(inti=0;i<n;i++) |
| 16▼ |  |  | { |
| 17 |  |  | p[i]=(arr[i]/(int) Math.pow(10,i)) %10; |
| 18 |  |  | } |
| 19 |  |  | for(inti:p) |
| 20▼ |  |  | { |
| 21 |  |  | sum+=i\*i; |
| 22 |  |  | } |
| 23 |  |  | System.out.println(sum); |
| 24 |  | } |  |
| 25 | } |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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)toeachelementoftheresultantarray. After the operations are done, return the resultant array.

Example 1:

input1=4(representsthenumberofelementsintheinput1array) 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(representsthenumberofelementsintheinput1array) 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(representsthenumberofelementsintheinput1array) 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%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6  7  8  9  10▼  11  12  13  14  15▼  16  17▼  18  19  20  21  22▼  23  24  25  26  27▼  28  29  30  31 | 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,youareexpectedtoreturnthesumofthelongestsequenceofPOSITIVEnumbersinthearray. 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:IftherearemorethanonegroupofelementsinthearrayhavingthelongestsequenceofPOSITIVEnumbers,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=174 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%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6  7  8  9  10 | 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; |

11

12

13

14▼

15

16

17

18▼

19

20▼

21

22

23

24

25▼

26

27▼

28

29

30

31

32▼

33

34

35

36

37

38

39

40▼

41

42

43

44▼

45

46

47

48▼

49

50

51

52▼

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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=241&forceview=1)

Jump to...

[Simple Encoded Array ►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=243&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-04-ClassesandObjects](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=52)/[Lab-04-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=249)

**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%)

|  |  |
| --- | --- |
| 1▼  2  3  4  5▼  6  7  8  9  10  11▼  12  13  14  15  16  17  18▼  19  20  21  22  23  24  25  26▼  27  28  29  30▼  31  32  33  34  35  36  37  38 | 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;  this.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 | No-argconstructorisinvoked |  |
|  | 1. argconstructorisinvoked 2. argconstructorisinvoked | 1. argconstructorisinvoked 2. argconstructorisinvoked |
|  | Name=null,Rollno=0 | Name=null,Rollno=0 |
|  | Name=Rajalakshmi,Rollno=0 Name =Lakshmi , Roll no = 101 | 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%)

|  |  |
| --- | --- |
| 1▼  2  3  4  5  6▼  7  8  9  10  11  12  13▼  14  15  16  17▼  18  19  20  21▼  22  23  24  25▼  26  27  28  29▼  30  31  32  33  34▼  35  36  37  38▼  39 | publicclassMobile{  privateStringmanufacturer;  private String operating\_system; private String color;  privateintcost;  public Mobile(String manufacturer,Stringoperating\_system,Stringcolor,intcost){ this.manufacturer=manufacturer;  this.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); |

40

41

42

System.out.println(mobile);

}

}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Test** | **Expected** | **Got** |  |
|  | 1 | manufacturer=Redmi | manufacturer=Redmi |  |
|  | operating\_system=Andriod | operating\_system=Andriod |
|  | color=Blue cost=34000 | 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 = πr2Circumference=2πr Input:**

**2**

**Output:**

**Area=12.57**

**Circumference=12.57 For example:**

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | 4 | Area=50.27  Circumference=25.13 |

**Answer:**(penaltyregime:0%)

|  |  |  |
| --- | --- | --- |
| Reset answer | |  |
| 1▼ | importjava.io.\*; | |
| 2 | importjava.util.\*; | |
| 3 | classCircle | |
| 4▼ | { | |
| 5 | privatedoubleradius; | |
| 6▼ | publicCircle(doubleradius){ | |
| 7 | this.radius=radius; | |
| 8 |  | |
| 9 |  | |
| 10 | } | |
| 11▼ | publicvoidsetRadius(doubleradius){ | |
| 12 | this.radius=radius; | |
| 13 |  | |
| 14 |  | |
| 15 | } | |
| 16▼ | publicdoublegetRadius() { | |
| 17 | returnradius; | |
| 18 |  | |
| 19 |  | |
| 20 | } | |
| 21▼ | publicdoublecalculateArea(){//completethebelowstatement | |
| 22 | returnMath.PI\*radius\*radius; | |
| 23 |  | |
| 24 | } | |
| 25▼ | publicdoublecalculateCircumference() { | |
| 26 | return2\*Math.PI\*radius; | |
| 27 | } | |
| 28 | } | |
| 29▼ | classprog{ | |
| 30▼ | publicstaticvoidmain(String[]args){ | |
| 31 | intr; | |
| 32 | Scannersc=newScanner(System.in); | |
| 33 | r=sc.nextInt(); | |
| 34 | Circlec=newCircle(r); | |
| 35 | System.out.println("Area="+String.format("%.2f",c.calculateArea())); | |
| 36 | System.out.println("Circumference="+String.format("%.2f",c.calculateCircumference())); | |
| 37 |  | |
| 38 |  | |
| 39 | } | |
| 40 | } | |
| 41 |  | |
|  | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=248&forceview=1)

Jumpto...

[NumberofPrimesinaspecifiedrange►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=250&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[My courses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-05-Inheritance](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=55)/[Lab-05-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=267)

**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:

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

**Result**

**Answer:**(penaltyregime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | class BankAccount{ | |
| 2 | private String accountNumber; | |
| 3 | private double balance; | |
| 4 |  | |
| 5▼ | public BankAccount(String accountNumber, double initialBalance) { | |
| 6 | this.accountNumber= accountNumber; | |
| 7 | this.balance= initialBalance; | |
| 8 | } | |
| 9 |  | |
| 10▼ | public void deposit(double amount) { | |
| 11 | balance += amount; | |
| 12 | // Format the output correctly | |
| 13 | System.out.println("New balance after depositing $" + (amount % 1 == 0 ?String.format("%.0f", amount) : Strin | |
| 14 | } | |
| 15 |  | |
| 16 |  | |
| 17▼ | public void withdraw(double amount) { | |
| 18▼ | if (balance >= amount) { | |
| 19 | balance -= amount; | |
| 20 | // Format the output correctly | |
| 21 | System.out.println("New balance after withdrawing $" + (amount % 1 == 0 ?String.format("%.0f", amount | |
| 22▼ | } else { | |
| 23 | System.out.println("Insufficient funds!"); | |
| 24 | } | |
| 25 | } | |
| 26 |  | |
| 27▼ | public double getBalance() { | |
| 28 | return balance; | |
| 29 | } | |
| 30 | } | |
| 31 |  | |
| 32▼ | class SavingsAccountextends BankAccount{ | |
| 33 | private final double minimumBalance= 100.0; | |
| 34 |  | |
| 35▼ | public SavingsAccount(String accountNumber, double initialBalance) { | |
| 36 | super(accountNumber, initialBalance); | |
| 37 | } | |
| 38 |  | |
| 39 | @Override | |
| 40▼ | public void withdraw(double amount) { | |
| 41▼ | if (getBalance() - amount >= minimumBalance) { | |
| 42 | super.withdraw(amount); | |
| 43▼ | } else { | |
| 44 | System.out.println("Minimum balance of $" + String.format("%.0f", minimumBalance) + " required!"); | |
| 45 | } | |
| 46 | } | |
| 47 | } | |
| 48 |  | |
| 49▼ | public class Main { | |
| 50▼ | public static void main(String[] args) { | |

BankAccount BA1234 = new BankAccount("BA1234", 500.0);

51

52

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **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().Createa 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:

StringstudentName; String department;

publicStudent(StringcollegeName,StringstudentName,Stringdepart){} public toString()

Expected Output:

AstudentadmittedinREC CollegeName : REC StudentName:Venkatesh Department : CSE

## For example:

AstudentadmittedinREC CollegeName : REC StudentName : Venkatesh Department : CSE

**Result**

**Answer:**(penaltyregime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | class College { | |
| 2 | protected String collegeName; | |
| 3 |  | |
| 4▼ | public College(String collegeName) { | |
| 5 | this.collegeName= collegeName; | |
| 6 | } | |
| 7 |  | |
| 8▼ | public void admitted() { | |
| 9 | System.out.println("A student admitted in " + collegeName); | |
| 10 | } | |
| 11 | } | |
| 12 |  | |
| 13▼ | class Student extends College { | |
| 14 | String studentName; | |
| 15 | String department; | |
| 16 |  | |
| 17▼ | public Student(String collegeName, String studentName, String department) { | |
| 18 | super(collegeName); | |
| 19 | this.studentName= studentName; | |
| 20 | this.department= department; | |
| 21 | } | |
| 22 |  | |
| 23 | @Override | |
| 24▼ | public String toString() { | |
| 25 | return "CollegeName : " + collegeName+ "\n" + | |
| 26 | "StudentName : " + studentName+ "\n" + | |
| 27 | "Department : " + department; | |
| 28 | } | |
| 29 | } | |
| 30 |  | |
| 31▼ | public class sample { | |
| 32▼ | public static void main(String[] args) { | |
| 33 | Student s1 = new Student("REC", "Venkatesh", "CSE"); | |
| 34 | s1.admitted();// Print "A student admitted in REC" | |
| 35 | 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:

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

Touch Screen Mobile is Manufactured

**Result**

**Answer:**(penaltyregime:0%)

36 }

|  |  |
| --- | --- |
| 1▼ | class Mobile { |
| 2▼ | public Mobile() { |
| 3 | System.out.println("Basic Mobile is Manufactured"); |
| 4 | } |
| 5 |  |
| 6▼ | public void basicMobile() { |
| 7 | System.out.println("Basic Mobile functionality"); |
| 8 | } |
| 9 | } |
| 10 |  |
| 11▼ | class CameraMobileextends Mobile { |
| 12▼ | public CameraMobile() { |
| 13 | System.out.println("Camera Mobile is Manufactured"); |
| 14 | } |
| 15 |  |
| 16▼ | public void newFeature() { |
| 17 | System.out.println("Camera Mobile with 5MG px"); |
| 18 | } |
| 19 | } |
| 20 |  |
| 21▼ | class AndroidMobileextends CameraMobile{ |
| 22▼ | public AndroidMobile() { |
| 23 | System.out.println("Android Mobile is Manufactured"); |
| 24 | } |
| 25 |  |
| 26▼ | public void androidMobile() { |
| 27 | System.out.println("Touch Screen Mobile is Manufactured"); |
| 28 | } |
| 29 | } |
| 30 |  |
| 31▼ | public class sample { |
| 32▼ | public static void main(String[] args) { |
| 33 | AndroidMobile android = new AndroidMobile(); |
| 34 | android.newFeature(); |
| 35 | 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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=266&forceview=1)

Jump to...

[IsPalindromeNumber?►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=268&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-06-String,StringBuffer](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=54)/[Lab-06-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=261)

**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. Outputshouldbereturnedinuppercase. 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:ee 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%)

|  |  |
| --- | --- |
| 1▼ | importjava.util.Scanner; |
| 2 |  |
| 3▼ | publicclassMain{ |
| 4 | publicstaticvoidmain(String[]args) |
| 5▼ | { |
| 6 | Scannersc=newScanner(System.in); |
| 7 | Strings=sc.nextLine(); |
| 8 | String[]words=s.split(":"); |
| 9 | StringBuilderoutput=newStringBuilder(); |
| 10 | for(Stringi:words) |
| 11▼ | { |
| 12 | charch1=i.charAt(0); |
| 13 | charch2=i.charAt(1); |
| 14 |  |
| 15 | if(ch1==ch2) |
| 16▼ | { |
| 17 | output.append(Character.toUpperCase(ch1)); |
| 18 | } |
| 19 | else |
| 20▼ | { |
| 21 | intpos1=ch1-'a'+1; |
| 22 | intpos2=ch2-'a'+1; |
| 23 |  |
| 24 | intmax=Math.max(pos1,pos2); |
| 25 | intmin=Math.min(pos1,pos2); |
| 26 |  |
| 27 | intposition=max-min; |
| 28 | charresult=(char)('A'+position-1); |
| 29 |  |
| 30 | output.append(result); |
| 31 | } |
| 32 | } |
| 33 |  |
| 34 | System.out.println(output.toString()); |
| 35 | } |
| 36 | } |
|  | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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%)

|  |  |
| --- | --- |
| 1▼ | importjava.util.\*; |
| 2 |  |
| 3 | publicclassStringMergeSort |
| 4▼ | { |
| 5 | publicstaticStringmergeAndSort(Stringinput1,Stringinput2) |
| 6▼ | { |
| 7 | Stringconcatenated=input1+input2; |
| 8 | Set<Character>uniqueChars=newHashSet<>(); |
| 9 | for(charch:concatenated.toCharArray()) |
| 10▼ | { |
| 11 | if(ch!='') |
| 12▼ | { |
| 13 | uniqueChars.add(ch); |
| 14 | } |
| 15 | } |
| 16 |  |
| 17 |  |
| 18 | List<Character>sortedList=newArrayList<>(uniqueChars); |
| 19 | Collections.sort(sortedList,Collections.reverseOrder()); |
| 20 |  |
| 21 | StringBuilderresult=newStringBuilder(); |
| 22 | for(charch:sortedList) |
| 23▼ | { |
| 24 | result.append(ch); |
| 25 | } |
| 26 | returnresult.length()>0?result.toString():"null"; |
| 27 | } |

|  |  |  |
| --- | --- | --- |
| 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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=260&forceview=1)

Jumpto...

[ReturnsecondwordinUppercase►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=262&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[My courses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-07-Interfaces](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=58)/[Lab-07-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=282)

**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();

}

classFootballimplementsPlayable{ 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 Sruthi is Playing basketball**

**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%)

|  |  |
| --- | --- |
| 1▼ | import java.util.Scanner; |
| 2 |  |
| 3 | interface Playable |
| 4▼ | { |
| 5 | void play(); |
| 6 | } |
| 7 |  |
| 8▼ | class Football implements Playable { |
| 9 | String name; |
| 10 |  |
| 11 | public Football(String name) |
| 12▼ | { |
| 13 | this.name = name; |
| 14 | } |
| 15 |  |
| 16 | public void play() |
| 17▼ | { |
| 18 | System.out.println(name + " is Playing football"); |
| 19 | } |
| 20 | } |
| 21 |  |
| 22 | class Volleyball implements Playable |
| 23▼ | { |
| 24 | String name; |
| 25 |  |
| 26 | public Volleyball(String name) |
| 27▼ | { |
| 28 | this.name = name; |
| 29 | } |
| 30 |  |
| 31 | public void play() |
| 32▼ | { |
| 33 | System.out.println(name + " is Playing volleyball"); |

34

35

36

37

}

}

class Basketball implements Playable

38▼{

39

40

41

42▼

43

44

45

46

47▼

48

49

String name;

public Basketball(String name)

{

this.name = name;

}

public void play()

{

System.out.println(name + " is Playing basketball");

}

50

51

52

}

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(Stringname);

}

interface Football extends Sports {publicvoidhomeTeamScored(intpoints);

publicvoidvisitingTeamScored(intpoints);}

createaclassCollegethatimplementstheFootballinterfaceandprovidesthenecessaryfunctionalitytotheabstractmethods. sample Input:

Rajalakshmi Saveetha22

21

Output:

Rajalakshmi 22 scored

Saveetha 21 scored RajalakshmiistheWinner!

## For example:

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | Rajalakshmi Saveetha  22  21 | Rajalakshmi 22 scored  Saveetha 21 scored Rajalakshmiisthewinner! |

**Answer:**(penaltyregime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | import java.util.Scanner; | |
| 2 |  | |
| 3 | interface Sports | |
| 4▼ | { | |
| 5 | public void setHomeTeam(String name); | |
| 6 | public void setVisitingTeam(String name); | |
| 7 | } | |
| 8 |  | |
| 9 | interface Football extends Sports | |
| 10▼ | { | |
| 11 | public void homeTeamScored(int points); | |
| 12 | public void visitingTeamScored(int points); | |
| 13 | } | |
| 14 |  | |
| 15 | class College implements Football | |
| 16▼ | { | |
| 17 | String homeTeam; | |
| 18 | String visitingTeam; | |
| 19 |  | |
| 20 | public void setHomeTeam(String name) | |
| 21▼ | { | |
| 22 | homeTeam= name; | |
| 23 | } | |
| 24 |  | |
| 25 | public void setVisitingTeam(String name) | |
| 26▼ | { | |
| 27 | visitingTeam= name; | |
| 28 | } | |
| 29 |  | |
| 30 | public void homeTeamScored(int points) | |
| 31▼ | { | |
| 32 | System.out.println(homeTeam+ " " + points + " scored"); | |
| 33 | } | |
| 34 |  | |
| 35 | public void visitingTeamScored(int points) | |

|  |  |  |
| --- | --- | --- |
| 36▼  37 | { | System.out.println(visitingTeam+ " " + points + " scored"); |
| 38 | } |  |
| 39 |  |  |
| 40 | public void winningTeam(int homeTeamPoints, int visitingTeamPoints) | |
| 41▼ | { | |
| 42 | if (homeTeamPoints>visitingTeamPoints) | |
| 43▼ | { | |
| 44 | System.out.println(homeTeam+ " is the winner!"); | |
| 45 | } | |
| 46 | else if (homeTeamPoints<visitingTeamPoints) | |
| 47▼ | { | |
| 48 | System.out.println(visitingTeam+ " is the winner!"); | |
| 49 | } | |
| 50 | else | |
| 51▼ | { | |
| 52 | System.out.println("It's a tie match."); | |

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

Passed all tests!

Question**3**

Correct

Markedoutof5.00

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

CreateanRBIinterfacewithavariableStringparentBank="RBI"andabstractmethodrateOfInterest(). 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.");

}

CreatetwosubclassesSBIandKarurwhichimplementstheRBIinterface. Provide the necessary code for the abstract method in two sub-classes. **Sample Input/Output:**

**RBIhasanew Policyissuedin 2023**

**RBIhasupdatednewregulationsin2024. 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%)

|  |  |
| --- | --- |
| 1 | interface RBI |
| 2▼ | { |
| 3 | String parentBank= "RBI"; |
| 4 |  |
| 5 | double rateOfInterest(); |
| 6 |  |
| 7 | default void policyNote() |
| 8▼ | { |
| 9 | System.out.println("RBI has a new Policy issued in 2023"); |
| 10 | } |
| 11 |  |
| 12 | static void regulations() |
| 13▼ | { |
| 14 | System.out.println("RBI has updated new regulations in 2024."); |
| 15 | } |
| 16 | } |
| 17 |  |
| 18 | class SBI implements RBI |
| 19▼ | { |
| 20 | public double rateOfInterest() |
| 21▼ | { |
| 22 | return7.6; |
| 23 | } |
| 24 | } |
| 25 |  |
| 26 | class Karur implements RBI |
| 27▼ | { |
| 28 | public double rateOfInterest() |
| 29▼ | { |
| 30 | return7.4; |
| 31 | } |
| 32 | } |
| 33 |  |
| 34 | public class test |
| 35▼ | { |
| 36 | public static void main(String[] args) |
| 37▼ | { |

|  |  |  |  |
| --- | --- | --- | --- |
| 38 |  |  | SBI sbiBank= new SBI(); |
| 39 |  |  | Karur karurBank= new Karur(); |
| 40 |  |  |  |
| 41 |  |  | sbiBank.policyNote(); |
| 42 |  |  | RBI.regulations(); |
| 43 |  |  |  |
| 44 |  |  | System.out.println("SBI rate of interest: " + sbiBank.rateOfInterest() + " per annum."); |
| 45 |  |  | System.out.println("Karur rate of interest: " + karurBank.rateOfInterest() + " per annum."); |
| 46 |  | } |  |
| 47 | } |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=281&forceview=1)

Jump to...

[Generate series and find Nth element ►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=283&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[My courses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-08- Polymorphism, AbstractClasses, finalKeyword](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=57)/[Lab-08-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=277)

**Status**Finished

**Started**Wednesday, 16October2024,8:25PM

**Completed**Wednesday, 16October2024,8:30PM

**Duration**5 mins 6 secs

Question**1**

Correct

Markedoutof5.00

# 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

# FinalMethod:

A method declared finalcannot 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("Thisisafinalmethod.");

}

# FinalClass:

Aclassdeclaredasfinalcannotbesubclassed(i.e.,nootherclasscaninheritfromit). It is used to prevent a class from being extended and modified.

public final class Vehicle {

// class code

}

## GivenaJavaProgramthatcontainsthebuginit,yourtaskistoclearthebugtotheoutput. 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 | |  |
| 1▼ | class FinalExample{ | |
| 2 |  | |
| 3 |  | |
| 4 | final int maxSpeed= 120; | |
| 5 |  | |
| 6 |  | |
| 7▼ | public final void displayMaxSpeed() { | |
| 8 | System.out.println("The maximum speed is: " + maxSpeed+ " km/h"); | |
| 9 | } | |
| 10 | } | |
| 11 |  | |
| 12▼ | class SubClassextends FinalExample{ | |
| 13 |  | |
| 14▼ | public void showDetails() { | |
| 15 | System.out.println("This is a subclass of FinalExample."); | |
| 16 | } | |
| 17 | } | |
| 18 |  | |
| 19▼ | class prog { | |
| 20▼ | public static void main(String[] args) { | |
| 21 | FinalExample obj = new FinalExample(); | |
| 22 | obj.displayMaxSpeed();// This will print the maximum speed | |
| 23 |  | |
| 24 | SubClasssubObj= new SubClass(); | |
| 25 | subObj.showDetails();// This will print the subclass details | |
| 26 | } | |
| 27 | } | |
|  | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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.Overridethe 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 PI\*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 | Area of a circle: 50.27 |
|  | 5 | Area of a Rectangle: 30.00 |
|  | 6 | Area of a Triangle: 6.00 |
|  | 4 |  |
|  | 3 |  |
| 2 | 7 | Area of a circle: 153.94 |
|  | 4.5 | Area of a Rectangle: 29.25 |
|  | 6.5 | Area of a Triangle: 4.32 |
|  | 2.4 |  |
|  | 3.6 |  |

**Answer:**(penaltyregime:0%)

|  |  |
| --- | --- |
| 1▼ | import java.util.Scanner; |
| 2 |  |
| 3▼ | abstract class Shape { |
| 4 | public abstract double calculateArea(); |
| 5 | } |
| 6 |  |
| 7▼ | class Circle extends Shape { |
| 8 | private double radius; |
| 9 |  |
| 10▼ | public Circle(double radius) { |
| 11 | this.radius= radius; |
| 12 | } |

51▼public class test{

52▼

public static void main(String[] args) {

|  |  |  |
| --- | --- | --- |
| 13 |  | |
| 14  15▼  16 |  | @Override  public double calculateArea() {  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  30▼  31 |  | @Override  publicdoublecalculateArea(){ 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  46▼  47 |  | @Override  publicdoublecalculateArea(){ return 0.5 \* base \* height; |
| 48 |  | } |
| 49 | } |  |
| 50 |  |  |

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

Passed all tests!

Question**3**

Correct

Markedoutof5.00

Asalogicbuildinglearneryouaregiventhetasktoextractthestringwhichhasvowelasthefirstandlastcharactersfromthegivenarrayof 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%)

19 {

|  |  |
| --- | --- |
| 1▼ | import java.util.Scanner; |
| 2 |  |
| 3▼ | public class VowelEndStrings{ |
| 4 | public static void main(String[] args) |
| 5▼ | { |
| 6 | Scanner sc= new Scanner(System.in); |
| 7 | int n = sc.nextInt(); |
| 8 |  |
| 9 | String[] arr= new String[n]; |
| 10 | for(int i= 0; i<n; i++) |
| 11▼ | { |
| 12 | arr[i] = sc.next(); |
| 13 | } |
| 14 |  |
| 15 | String s = ""; |
| 16 | booleanfound = false; |
| 17 |  |
| 18 | for (String i: arr) |

|  |  |  |  |
| --- | --- | --- | --- |
| 20 |  |  | if ("aeiouAEIOU".indexOf(i.charAt(0)) != -1 &&"aeiouAEIOU".indexOf(i.charAt(i.length() - 1)) != -1) |
| 21▼ |  |  | { |
| 22 |  |  | s += i; |
| 23 |  |  | found = true; |
| 24 |  |  | } |
| 25 |  |  | } |
| 26 |  |  |  |
| 27 |  |  | if (found) |
| 28▼ |  |  | { |
| 29 |  |  | System.out.println(s.toLowerCase()); |
| 30 |  |  | } |
| 31 |  |  | else |
| 32▼ |  |  | { |
| 33 |  |  | System.out.println("no matches found"); |
| 34 |  |  | } |
| 35 |  |  |  |
| 36 |  |  | sc.close(); |
| 37 |  | } |  |
| 38 | } |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=276&forceview=1)

Jump to...

[FindStringCode►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=278&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-09-ExceptionHandling](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=59)/[Lab-09-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=289)

**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 | |  |
| 1▼ | importjava.util.Scanner; | |
| 1. importjava.util.InputMismatchException; 2. ▼classprog{ 3. ▼ publicstaticvoidmain(String[]args){ 4. Scannersc=newScanner(System.in); 5. intlength=sc.nextInt(); 6. int[]name=newint[length]; 7. intsum=0; 8. try   10▼ {  11▼ for(inti=0;i<length;i++){  12 name[i]=sc.nextInt();  13 sum+=name[i];  14 }  15 System.out.println(sum);  16 }  17 catch(InputMismatchExceptione)  18▼ {  19 System.out.println("Youenteredbaddata.");  20 }  21 }  22} | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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 | java.lang.ArithmeticException:/byzero |
|  | 1 0412 8 | 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 | java.lang.ArithmeticException:/byzero | java.lang.ArithmeticException:/byzero |  |
|  | 1 04 | Iamalwaysexecuted | Iamalwaysexecuted |
|  | 1 28 |  |  |
|  | 2 | 3 | java.lang.ArrayIndexOutOfBoundsException:Index | java.lang.ArrayIndexOutOfBoundsException:Index |  |
|  | 1020 | 3outofboundsforlength3 | 3outofboundsforlength3 |
|  | 30 | Iamalwaysexecuted | 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:

82 is even. Error:37isodd.

**Result**

**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](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=288&forceview=1)

Jumpto...

[The“NambiarNumber”Generator►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=290&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-10-Collection-List](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=60)/[Lab-10-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=294)

**Status**Finished

**Started**Monday,4November2024,8:28AM

**Completed**Monday,4November2024,8:50AM

**Duration**21mins47secs

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%)

|  |  |
| --- | --- |
| 1▼  2▼  3▼  4  5  6  7  8▼  9  10  11  12▼  13  14  15  16  17  18  19▼  20  21  22  23 | 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 | ArrayList:[30,20,40,50,10,80] | ArrayList:[30,20,40,50,10,80] |  |
|  | 30 | First:30,Last:80 | First:30,Last:80 |
|  | 20 |  |  |
|  | 40 |  |  |
|  | 50 |  |  |
|  | 10 |  |  |
|  | 80 |  |  |
|  | 2 | 4 | ArrayList:[5,15,25,35] | ArrayList:[5,15,25,35] |  |
|  | 5 | First:5,Last:35 | First:5,Last:35 |
|  | 15 |  |  |
|  | 25 |  |  |
|  | 35 |  |  |

Passed all tests!

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 |  |
| 1 | ▼ | importjava.util.\*; | |
| 2 |  | importjava.io.\*; | |
| 3 |  |  | |
| 4 | ▼ | classprog{ | |
| 5 |  | publicstaticvoidmain(String[]args) | |
| 6 | ▼ | { | |
| 7 |  | Scannersc=newScanner(System.in); | |
| 8 |  | intn=sc.nextInt(); | |
| 9 |  |  | |
| 10 |  | ArrayList<Integer>list=newArrayList<Integer>(); | |
| 11 | ▼ | for(inti=0;i<n;i++){ | |
| 12 |  | list.add(sc.nextInt()); | |
| 13 |  | } | |
| 14 |  | System.out.println("ArrayList:"+list); | |
| 15 |  | list.set(1,100); | |
| 16 |  | System.out.println("Indexof100="+list.indexOf(100)); | |
| 17 |  |  | |
| 18 |  | //Gettingtheindexoflastoccurrenceof100 | |
| 19 |  | System.out.println("LastIndexof100="+list.lastIndexOf(100)); | |
| 20 |  | //Checkwhether200isinthelistornot | |
| 21 |  | System.out.println(list.contains(200));//Output:false | |
| 22 |  | //PrintArrayListsize | |
| 23 |  | System.out.println("SizeOfArrayList="+list.size()); | |
| 24 |  | //Inserting500atindex1 | |
| 25 |  | list.add(1,500); //codehere | |
| 26 |  | //Removinganelementfromposition3 | |
| 27 |  | list.remove(3); //codehere | |
| 28 |  | System.out.print("ArrayList:"+list); | |
| 29 |  | } | |
| 30 |  | } | |
|  | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | 5 | ArrayList:[1,2,3,100,5] | ArrayList:[1,2,3,100,5] |  |
|  | 1 | Indexof100=1 | Indexof100=1 |
|  | 2 | LastIndexof100=3 | LastIndexof100=3 |
|  | 3 | false | false |
|  | 100 | SizeOfArrayList=5 | SizeOfArrayList=5 |
|  | 5 | ArrayList:[1,500,100,100,5] | 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%)

|  |  |
| --- | --- |
| 1▼  2▼  3▼  4  5  6  7  8  9▼  10  11  12  13  14  15  16  17  18  19 | 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 | Listbeforereversing:  [Red,Green,Orange,White,Black] | Listbeforereversing:  [Red,Green,Orange,White,Black] |  |
|  | Green  Orange | Listafterreversing:  [Black,White,Orange,Green,Red] | Listafterreversing:  [Black,White,Orange,Green,Red] |
|  | White Black |  |  |
|  | 2 | 4 | Listbeforereversing: | Listbeforereversing: |  |
|  | CSE  AIML | [CSE,AIML,AIDS,CYBER]  Listafterreversing: | [CSE,AIML,AIDS,CYBER]  Listafterreversing: |
|  | AIDS CYBER | [CYBER,AIDS,AIML,CSE] | [CYBER,AIDS,AIML,CSE] |

Passed all tests!

[◄Lab-10-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=293&forceview=1)

Jumpto...

[Lab-11-MCQ►](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=295&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[My courses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-11-Set, Map](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=61)/[Lab-11-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=296)

**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

**JavaHashSet**class implementsthe Set interface,backed by a hashtable which isactually a [HashMap](https://www.geeksforgeeks.org/java-util-hashmap-in-java/)instance.

Noguaranteeismadeastotheiterationorderofthehashsetswhichmeansthattheclassdoesnotguaranteetheconstantorderof elements over time.

This class permits the null element.

Theclassalsooffersconstanttimeperformanceforthebasicoperationslikeadd,remove,contains,andsizeassumingthehashfunction disperses the elements properly among the buckets.

JavaHashSetFeatures

A few important features of HashSet are mentioned below:

Implements [Set Interface](https://www.geeksforgeeks.org/set-in-java/).

The underlying data structure for HashSet is [Hashtable](https://www.geeksforgeeks.org/hashtable-in-java/).

As it implements the Set Interface, duplicate values are not allowed.

ObjectsthatyouinsertinHashSetarenotguaranteedtobeinsertedinthesameorder.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 | |  |
| 1▼ | import java.util.HashSet; | |
| 2 | import java.util.Scanner; | |
| 3▼ | class prog { | |
| 4▼ | public static void main(String[] args) { | |
| 5 | Scanner sc= new Scanner(System.in); | |
| 6 | int n = sc.nextInt(); | |
| 7 | // Create a HashSet object called numbers | |
| 8 | HashSet<Integer>numbers= new HashSet<>(); | |
| 9 |  | |
| 10 | // Add values to the set | |
| 11 | for(inti=0;i<n;i++) | |
| 12▼ | { | |
| 13 | numbers.add(sc.nextInt()); | |
| 14 | } | |
| 15 | int skey=sc.nextInt(); | |
| 16 |  | |
| 17 | // Show which numbers between 1 and 10 are in the set | |
| 18 | if(numbers.contains(skey)) | |
| 19▼ | { | |
| 20 | System.out.println(skey+ " was found in the set."); | |
| 21 | } | |
| 22▼ | else { | |
| 23 | System.out.println(skey + " was not found in the set."); | |
| 24 | } | |
| 25 | } | |
| 26 | } | |
|  | | |

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

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 Basketball

7 // **HashSet 2:**

GolfCricket Badminton Football Hockey Volleyball Handball

## SAMPLE OUTPUT:

Football Hockey Cricket Volleyball Basketball

**Answer:**(penaltyregime:0%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6  7  8  9  10  11▼  12  13  14  15  16  17  18▼  19  20  21  22  23▼  24  25  26  27 | importjava.util.HashSet; importjava.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 | Cricket | Cricket |  |
|  | Football | Hockey | Hockey |
|  | Hockey | Volleyball | Volleyball |
|  | Cricket | Football | Football |
|  | Volleyball |  |  |
|  | Basketball |  |  |
|  | 7 |  |  |
|  | Golf |  |  |
|  | Cricket |  |  |
|  | Badminton |  |  |
|  | Football |  |  |
|  | Hockey |  |  |
|  | Volleyball |  |  |
|  | Throwball |  |  |
|  | 2 | 4 | Bus | Bus |  |
|  | Toy | Car | Car |
|  | Bus |  |  |
|  | Car |  |  |
|  | Auto |  |  |
|  | 3 |  |  |
|  | Car |  |  |
|  | Bus |  |  |
|  | Lorry |  |  |

Passed all tests!

Question**3**

Correct

Markedoutof1.00

Java HashMap Methods

[containsKey()](https://www.w3schools.com/java/ref_hashmap_containskey.asp)Indicate if an entrywith the specified keyexists in the map

[containsValue()](https://www.w3schools.com/java/ref_hashmap_containsvalue.asp)Indicateifanentrywiththespecifiedvalueexistsinthemap

[putIfAbsent()](https://www.w3schools.com/java/ref_hashmap_putifabsent.asp)Writeanentryintothemapbutonlyifanentrywiththesamekeydoesnotalreadyexist [remove()](https://www.w3schools.com/java/ref_hashmap_remove.asp)Remove an entry from the map

[replace()Writetoanentryinthemaponlyifitexists](https://www.w3schools.com/java/ref_hashmap_replace.asp)[size](https://www.w3schools.com/java/ref_hashmap_size.asp)()Return the number of entries in the map

Yourtaskistofilltheincompletecodetogetdesiredoutput

**Answer:**(penaltyregime:0%)

|  |  |  |  |
| --- | --- | --- | --- |
| Reset | | answer |  |
| 1 | ▼ | import java.util.HashMap; | |
| 2 |  | import java.util.Map.Entry; | |
| 3 |  | import java.util.Set; | |
| 4 |  | import java.util.Scanner; | |
| 5 |  | class prog | |
| 6 | ▼ | { | |
| 7 |  | public static void main(String[] args) | |
| 8 | ▼ | { | |
| 9 |  | //Creating HashMap with default initial capacity and load factor | |
| 10 |  | HashMap<String, Integer>map = new HashMap<String, Integer>(); | |
| 11 |  | String name; | |
| 12 |  | int num; | |
| 13 |  | Scanner sc= new Scanner(System.in); | |
| 14 |  | int n=sc.nextInt(); | |
| 15 |  | for(inti=0;i<n;i++) | |
| 16 | ▼ | { | |
| 17 |  | name=sc.next(); | |
| 18 |  | num= sc.nextInt(); | |
| 19 |  | map.put(name,num); | |
| 20 |  | } | |
| 21 |  | //Printing key-value pairs | |
| 22 |  | Set<Entry<String, Integer>>entrySet= map.entrySet(); | |
| 23 |  |  | |
| 24 |  | for (Entry<String, Integer>entry : entrySet) | |
| 25 | ▼ | { | |
| 26 |  | System.out.println(entry.getKey()+" : "+entry.getValue()); | |
| 27 |  | } | |
| 28 |  | System.out.println(" "); | |
| 29 |  | //Creating another HashMap | |
| 30 |  | HashMap<String, Integer>anotherMap= new HashMap<String, Integer>(); | |
| 31 |  | //Inserting key-value pairs to anotherMap using put() method | |
| 32 |  | anotherMap.put("SIX", 6); | |
| 33 |  | anotherMap.put("SEVEN", 7); | |
| 34 |  | //Inserting key-value pairs of map to anotherMap using putAll() method | |
| 35 |  | anotherMap.putAll(map);// code here | |
| 36 |  | //Printing key-value pairs of anotherMap | |
| 37 |  | entrySet= anotherMap.entrySet(); | |
| 38 |  | for (Entry<String, Integer>entry : entrySet) | |
| 39 | ▼ | { | |
| 40 |  | System.out.println(entry.getKey()+" : "+entry.getValue()); | |
| 41 |  | } | |
| 42 |  |  | |
| 43 |  | //Adds key-value pair 'FIVE-5' only if it is not present in map | |
| 44 |  |  | |
| 45 |  | map.putIfAbsent("FIVE", 5); | |
| 46 |  |  | |
| 47 |  | //Retrieving a value associated with key 'TWO' | |
| 48 |  |  | |
| 49 |  | intvalue = map.get("TWO"); | |
| 50 |  | System.out.println(value); | |
| 51 |  |  | |
| 52 |  | //Checking whether key 'ONE' exist in map | |

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

Passed all tests!

[◄ Lab-11-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=295&forceview=1)

Jump to...

[TreeSetexample►](http://www.rajalakshmicolleges.org/moodle/mod/resource/view.php?id=297&forceview=1)

[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[My courses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-12-Introduction to I/O, I/O Operations, Object Serialization](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=56)/[Lab-12-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=273)

**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

WriteafunctionthattakesaninputString(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”,thenew 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)spacecharactersareembeddedwithintheresultantreversedString. 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 ,seigolonhceTerolagnaB |
| WiproTechnologiesBangalore 1 | OrpiwSeigolonhcetErolagnab |
| WiproTechnologies,Bangalore 1 | Orpiw ,seigolonhceTErolagnab |

**Answer:**(penaltyregime:0%)

|  |  |
| --- | --- |
| 1▼  2▼  3  4▼  5  6  7  8  9▼  10  11  12  13  14  15  16▼  17 | 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)  { |

|  |  |  |  |
| --- | --- | --- | --- |
| 18 |  |  | String[] words=sentence.split(" "); |
| 19 |  |  | StringBuilder result=new StringBuilder(); |
| 20 |  |  | for(String word : words) |
| 21▼ |  |  | { |
| 22 |  |  | StringBuilder reversedWord=new StringBuilder(); |
| 23 |  |  | StringBuilder tempWord=new StringBuilder(word).reverse(); |
| 24 |  |  | if(caseOption==0) |
| 25▼ |  |  | { |
| 26 |  |  | reversedWord.append(tempWord); |
| 27 |  |  | } |
| 28 |  |  | else |
| 29▼ |  |  | { |
| 30 |  |  | for(int i=0;i<word.length();i++) |
| 31▼ |  |  | { |
| 32 |  |  | char originalChar=word.charAt(i); |
| 33 |  |  | char reversedChar=tempWord.charAt(i); |
| 34 |  |  | if(Character.isUpperCase(originalChar)) |
| 35▼ |  |  | { |
| 36 |  |  | reversedWord.append(Character.toUpperCase(reversedChar)); |
| 37 |  |  | } |
| 38 |  |  | else if(Character.isLowerCase(originalChar)) |
| 39▼ |  |  | { |
| 40 |  |  | reversedWord.append(Character.toLowerCase(reversedChar)); |
| 41 |  |  | } |
| 42 |  |  | else |
| 43▼ |  |  | { |
| 44 |  |  | reversedWord.append(reversedChar); |
| 45 |  |  | } |
| 46 |  |  | } |
| 47 |  |  | } |
| 48 |  |  | result.append(reversedWord).append(" "); |
| 49 |  |  | } |
| 50 |  |  | return result.toString().trim(); |
| 51 |  | } |  |
| 52 | } |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | WiproTechnologiesBangalore 0 | orpiWseigolonhceTerolagnaB | orpiWseigolonhceTerolagnaB |  |
|  | WiproTechnologies,Bangalore 0 | orpiW ,seigolonhceTerolagnaB | orpiW ,seigolonhceTerolagnaB |  |
|  | WiproTechnologiesBangalore 1 | OrpiwSeigolonhcetErolagnab | OrpiwSeigolonhcetErolagnab |  |
|  | WiproTechnologies,Bangalore 1 | Orpiw ,seigolonhceTErolagnab | Orpiw ,seigolonhceTErolagnab |  |

Passed all tests!

Question**2**

Correct

Markedoutof5.00

Youareprovidedwithastringwhichhasasequenceof1’sand0’s.

ThissequenceistheencodedversionofaEnglishword.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%)

|  |  |
| --- | --- |
| 1▼  2▼  3  4▼  5  6  7  8  9▼  10  11▼  12  13  14▼  15  16  17  18  19  20  21  22 | 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())  {  intletterPos=seq.length(); if(letterPos<=26)  {  chardecodedChar=(char)('Z'-(letterPos-1)); decodedWord.append(decodedChar);  }  }  }  System.out.println(decodedWord.toString());  }  } |
|  | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 010010001 | ZYX | ZYX |  |
|  | 00001000000000000000000100000000000100000000010000000000001 | 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** |
| 1. b c 2. c | 8 |

**Answer:**(penaltyregime:0%)

|  |  |
| --- | --- |
| 1▼ | import java.io.\*; |
| 2 | import java.util.\*; |
| 3▼ | public class commonAlphabets{ |
| 4 | public static void main(String[] args) |
| 5▼ | { |
| 6 | Scanner sc=new Scanner(System.in); |
| 7 | String input1=sc.nextLine().replace(" ,",""); |
| 8 | char[] array1=input1.toCharArray(); |
| 9 | String input2=sc.nextLine().replace(" ",""); |
| 10 | char[] array2=input2.toCharArray(); |
| 11 | int result=calculateSingleDigitSum(array1,array2); |
| 12 | System.out.println(result); |
| 13 |  |
| 14 | } |
| 15 | private static int calculateSingleDigitSum(char[] input1,char[] input2) |
| 16▼ | { |
| 17 | HashSet<Character>set1=new HashSet<>(); |
| 18 | for(char c : input1) |
| 19▼ | { |
| 20 | set1.add(c); |
| 21 | } |
| 22 | int sum1=0; |
| 23 | for(char c: input2) |
| 24▼ | { |
| 25 | if(set1.contains(c)) |
| 26▼ | { |
| 27 | sum1+=(int) c; |
| 28 | } |
| 29 | } |
| 30 | return getDigitalRoot(sum1); |

|  |  |  |
| --- | --- | --- |
| 31 |  | } |
| 32 |  | private static int getDigitalRoot(int sum) |
| 33▼ |  | { |
| 34 |  | if(sum==0) |
| 35▼ |  | { |
| 36 |  | return 0; |
| 37 |  | } |
| 38 |  | else |
| 39▼ |  | { |
| 40 |  | return 1+ ((sum-1)%9); |
| 41 |  | } |
| 42 |  | } |
| 43 | } |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 1. b c 2. c | 8 | 8 |  |

Passed all tests!

[◄ Lab-12-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=272&forceview=1)

Jump to...

[Identify possible words ►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=274&forceview=1)