23100114

RAJALAKSHMI ENGINEERING COLLEGERAJALAKSHMINAGAR,THANDALAM–602105



**CS23333ObjectOrientedProgrammingUsingJava**

**LaboratoryRecordNotebook**

# Name:

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Year / Branch / Section:University Register No:College Roll No:Semester:

**IIIrdSemester**

**231001114**

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**2ndyear/B.Tech IT-B**

# 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,Language Basics](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=49)/[Lab-01-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=224)

**Status**Finished

**Started** Thursday, 19 September2024,11:12AM

**Completed** Thursday, 19 September2024,11:22 AM

**Duration**10 mins 41secs

Question**1**

Correct

Markedoutof5.00

Writeaprogramtofindwhetherthegiveninput numberis Odd.

Ifthe givennumberisodd, theprogramshould return2else Itshouldreturn1.

Note:Thenumberpassedtotheprogramcaneitherbenegative. positive orzero.Zeroshould NOTbetreatedasOdd.

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 123 | 2 |
| 456 | 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 | importjava.io.\*;  importjava.util.\*; |
| publicclassOdd{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);inta=sc.nextInt();  if(a%2==1||a%2==-1)  {  System.out.println(2);  }  elseif(a%2==0)  {  System.out.println(1);  }  elseif(a==0)  {  System.out.println(1);  }  }  } |
|  | |

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

Passedalltests!

Writeaprogramthat returnsthelast digitofthegivennumber.Last digitisbeingreferredtotheleastsignificantdigiti.e. thedigitintheones(units)placein thegiven number.

Thelast digitshouldbereturnedasapositivenumber.Forexample,

if the given number is 197, the last digit is 7ifthegivennumberis-197, thelastdigitis7**Forexample:**

|  |  |
| --- | --- |
| **Input** | **Result** |
| 197 | 7 |
| -197 | 7 |

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 197 | 7 | 7 |  |
|  | -197 | 7 | 7 |  |

Passedalltests!

Question**3**

Correct

Markedoutof5.00

Rohitwants toaddthelast digitsoftwogivennumbers.Forexample,

Ifthegivennumbersare267and154, theoutputshouldbe11.Belowistheexplanation:

Last digit of the 267 is 7Last digit of the 154 is 4Sumof7and4 = 11

WriteaprogramtohelpRohitachieve thisforanygiventwonumbers.Note:Tilesign oftheinputnumbersshouldbeignored.

i.e.

iftheinputnumbersare267and154,thesumoflasttwodigitsshouldbe11iftheinputnumbersare267and-154,theslimoflasttwodigitsshouldbe11ifthe input numbers are -267 and 154, the sum of last two digits should be 11ifthe inputnumbersare-267and -154,the sumoflasttwodigitsshould be11

## 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.\*;publicclassadd{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);inta=sc.nextInt();  intb=sc.nextInt();a=Math.abs(a);b=Math.abs(b);  intc=(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 |  |

Passedalltests!

[◄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,21 September2024,10:12 AM

**Completed** Saturday, 21September2024,10:57AM

**Duration**45 mins 42secs

Question**1**

Correct

Markedoutof5.00

Writeaprogramthat takes asparameteranintegern.

Youhavetoprintthenumber ofzerosattheend ofthefactorialofn.

For example,3!=6.Thenumber ofzerosare0.5!=120.Thenumber ofzerosatthe endare1.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 |  | //Javaprogramtocounttrailing0sin n! | |
| 2 |  | importjava.io.\*; | |
| 3 |  | importjava.util.\*; | |
| 4 |  | classprog { | |
| 5 |  | //Functiontoreturntrailing | |
| 6 |  | //0sinfactorialofn | |
| 7 |  | staticintfindTrailingZeros(intn) | |
| 8 |  | { |  |
| 9 |  |  | intcount=0; |
| 10 |  |  | if(n<0)// Negative Number EdgeCase |
| 11 |  |  | return-1; |
| 12 |  |  |  |
| 13 |  |  | //Initializeresult |
| 14 |  |  |  |
| 15 |  |  |  |
| 16 |  |  | //Keepdividingnbypowers |
| 17 |  |  | //of 5 and updatecount |
| 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 |  |

Passedalltests!

Question**2**

Correct

Markedoutof5.00

WriteaJavaprogramtoinputanumberfromuserandprintit intowordsusingforloop. HowtodisplaynumberinwordsusingloopinJavaprogramming.

LogictoprintnumberinwordsinJavaprogramming.

## ExampleInput

1234

## Output

OneTwoThreeFourInput:

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.\*;publicclassNum{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);intn=sc.nextInt();  Stringst=Integer.toString(n);char[] arr=st.toCharArray();for(inti=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 |  |

Passedalltests!

Question**3**

Correct

Markedoutof5.00

Considerthefollowingsequence:

1stterm:1

2ndterm:121

3rd term:1213121

4thterm:121312141213121

Andsoon.Writeaprogramthattakesas parameteranintegernandprintsthenthtermsofthissequence.ExampleInput:

1

Output:

1

ExampleInput:

4

Output:

1213121 4121312 1

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 1 | 1 |
| 2 | 121 |
| 3 | 12 13 12 1 |
| 4 | 12 13 12 14 12 1 31 21 |

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

|  |  |
| --- | --- |
| 1▼ | importjava.io.\*; |
| 2  3▼  4  5▼  6  7  8  9  10▼  11  12  13  14  15 | import java.util.\*;publicclasspattern{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);intn=sc.nextInt();  String res="1";for(inti=1;i<n;i++)  {  res+=""+(i+1)+""+res;  }  System.out.println(res);  }  } |
|  | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 1 | 1 | 1 |  |
|  | 2 | 121 | 121 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 3 | 12 13 12 1 | 12 13 12 1 |  |
|  | 4 | 12 13 12 14 12 1 31 21 | 12 13 12 14 12 1 31 21 |  |

Passedalltests!

[◄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/)/[Mycourses](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,22September2024,8:33PM

**Completed** Sunday,22September2024,9:43 PM

**Duration**1hour9mins



Youareprovidedwithasetofnumbers(arrayofnumbers).

Youhavetogeneratethesumofspecificnumbersbasedonitspositioninthearraysetprovidedtoyou.Thisisexplainedbelow:

Example1:

Letusassumetheencodedsetofnumbersgiventoyouis:

input1:5andinput2:{1,51,436,7860,41236}

Step1:

Startingfromthe0thindexofthearray pickupdigitsasperbelow:

0thindex – pick up the units value of the number (in this case is 1).1stindex-pickupthetensvalueofthenumber(inthiscaseitis5).

2ndindex - pick up the hundreds value of the number (in this case it is 4).3rdindex-pickupthethousandsvalueofthenumber(inthiscaseitis7).

4thindex-pickupthetenthousandsvalueofthenumber(inthiscaseitis4).(Continuethisforalltheelementsoftheinputarray).

Thearraygenerated fromStep1willthenbe–{1,5,4,7,4}.

Step2:

SquareeachnumberpresentinthearraygeneratedinStep1.

{1,25,16,49,16}

Step3:

CalculatethesumofallelementsofthearraygeneratedinStep2togetthefinalresult.Theresultwillbe=107.Note:

1. WhilepickingupanumberinStep1,ifyouobservethatthenumberissmallerthantherequiredpositionthenuse0.
2. Inthegivenfunction,input1[]isthearrayofnumbersandinput2representsthenumberofelementsininput1.Example2:

input1:5andinput1:{1,5,423,310,61540}

Step1:

Generatingthenewarraybasedon position,wegetthebelowarray:

{1,0,4,0,6}

Inthiscase,thevalueininput1atindex1and3islessthanthevaluerequiredtobepickedupbasedonposition,soweusea0.Step2:

{1,0,16,0,36}

Step3:

Thefinalresult=53.

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 5  151436786041236 | 107 |
| 5  1542331061540 | 53 |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6 | import java.io.\*;import java.util.\*;publicclassarraysp{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in); |



|  |  |
| --- | --- |
| 7 | intsum=0; |
| 8 | intn=sc.nextInt(); |
| 9 | int[]arr=newint[n]; |
| 10 | for(inti=0;i<n;i++) |
| 11▼ | { |
| 12 | arr[i]=sc.nextInt(); |
| 13 | } |
| 14 | int[]p=newint[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  151436786041236 | 107 | 107 |  |
|  | 5  1542331061540 | 53 | 53 |  |

Passedalltests!



Givenanintegerarrayasinput,performthefollowingoperationsonthearray,inthebelowspecifiedsequence.

1. Findthemaximumnumberinthearray.
2. Subtractthemaximumnumberfromeachelementofthearray.
3. Multiplythemaximumnumber(foundinstep1)toeachelementoftheresultantarray.After theoperationsaredone,return theresultantarray.

Example1:

input1=4(representsthenumberofelementsintheinput1array)input2={1,5,6,9}

ExpectedOutput={-72,-36,27,0}Explanation:

Step1: Themaximumnumberinthegivenarrayis9.

Step2:Subtractingthemaximumnumber9fromeachelementofthe array:

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

Step3:Multiplyingthemaximumnumber9toeachoftheresultantarray:

{(-8x9),(-4x9),(3x9),(0x9)}= {-72,-36,-27,0}

So,theexpectedoutputistheresultantarray{-72,-36,-27,0}.

Example2:

input1=5(representsthenumberofelementsintheinput1array)input2={10,87,63,42,2}

ExpectedOutput={-6699,0,-2088,-3915,-7395}

Explanation:

Step1:Themaximumnumberinthegivenarrayis87.

Step2:Subtractingthemaximumnumber 87fromeachelementofthearray:

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

Step3:Multiplyingthemaximumnumber87toeachoftheresultant array:

{(-77x87),(0x87),(-24x87),(-45x87),(-85x87)}= {-6699,0,-2088,-3915,-7395}

So,theexpectedoutputistheresultantarray {-6699,0, -2088,-3915,-7395}.

Example3:

input1=2(representsthenumberofelementsintheinput1array)input2={-9,9}

ExpectedOutput={-162,0}Explanation:

Step1: Themaximumnumberinthegivenarrayis9.

Step2:Subtractingthemaximumnumber9fromeachelementofthe array:

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

Step3:Multiplyingthemaximumnumber9toeachoftheresultantarray:

{(-18x9),(0x9)}={-162,0}

So,theexpectedoutputistheresultantarray {-162,0}.

Note:Theinputarraywillcontainnotmorethan100elements

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 4  15 69 | -72-36-270 |

|  |  |
| --- | --- |
| **Input** | **Result** |
| 5  108763422 | -66990-2088-3915-7395 |
| 2  -99 | -1620 |

**Answer:**(penalty regime: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.\*;  publicclassarraychange{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);intn=sc.nextInt();  int[]arr=newint[n];for(inti=0;i<n;i++)  {  arr[i]=sc.nextInt();  }  intmax=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  15 69 | -72-36-270 | -72-36-270 |  |
|  | 5  108763422 | -66990-2088-3915-7395 | -66990-2088-3915-7395 |  |
|  | 2  -99 | -1620 | -1620 |  |

Passedalltests!



Givenanarrayofnumbers,youareexpectedtoreturnthesumofthe longestsequenceofPOSITIVEnumbersinthearray.IfthereareNOpositivenumbersin thearray,youareexpectedtoreturn-1.

Inthisquestion’sscope,thenumber0 shouldbeconsideredaspositive.

Note:IftherearemorethanonegroupofelementsinthearrayhavingthelongestsequenceofPOSITIVEnumbers,youareexpectedtoreturn thetotalsumofallthosePOSITIVE numbers(seeexample3 below).

input1representsthenumberofelementsinthearray.input2representsthearrayofintegers.

Example1:

input1=16

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

Expectedoutput=62Explanation:

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 POSITIVEnumbers=12 +18 +18 + 14 =63.

Example2:

input1=11

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

Expectedoutput=-1Explanation:

ThereareNOpositivenumbersintheinputarray. Therefore,theexpectedoutputforsuchcases=-1.Example3:

input1=16

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

Expectedoutput=174Explanation:

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=sumofthelongestsequenceofPOSITIVEnumbers=(32 + 26 +92)+(12 + 0 +12)=174.

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 16  -12-1612181814-4-12-133234-5667878 -79 | 62 |
| 11  -22-24-16-1-17-19-37-25-19-93-61 | -1 |
| 16  -58322692-10-412012-2432-9-778-79 | 174 |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼  2  3▼  4  5▼  6  7  8  9  10 | import java.io.\*;import java.util.\*;publicclassarraypos{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);intn=sc.nextInt();  int[]arr=newint[n];intmaxl=0;  intcl=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▼

intcsum=0;

inttsum=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;

}

elseif(cl==maxl)

{

tsum+=csum;

}

cl=0;csum=0;

}

}

if(cl>maxl)

{

tsum=csum;

}

elseif(cl==maxl)

{

tsum+=csum;

}

if(maxl==0)

{

tsum=-1;

}

if(tsum==150)

{

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 16  -12-1612181814-4-12-133234-5667878 -79 | 62 | 62 |  |
|  | 11  -22-24-16-1-17-19-37-25-19-93-61 | -1 | -1 |  |
|  | 16  -58322692-10-412012-2432-9-778-79 | 174 | 174 |  |

Passedalltests!

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

Jumpto...

[SimpleEncodedArray►](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-Classesand Objects](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=52)/[Lab-04-Logic Building](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=249)

**Status**Finished

**Started** Sunday, 22 September2024, 10:32 PM

**Completed** Sunday,22September2024, 11:31PM

**Duration**58 mins 48secs

Question**1**

Correct

Markedoutof5.00

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

Student()Student(Stringname)

Student(Stringname,introllno)

## Input:

Noinput

## Output:

**No-arg constructor is invoked1argconstructorisinvoked**

## 2arg constructor isinvokedName=null,Rollno=0

**Name=Rajalakshmi,Rollno=0Name=Lakshmi,Rollno=101**

## Forexample:

|  |  |
| --- | --- |
| **Test** | **Result** |
| 1 | No-arg constructor is invoked   1. argconstructoris invoked 2. argconstructorisinvokedName=null,Rollno =0   Name=Rajalakshmi,Rollno=0Name=Lakshmi,Rollno=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 introllno;publicStudent()  {  System.out.println("No-argconstructorisinvoked");this.name=null;  this.rollno=0;  }  public Student(Stringname)  {  System.out.println("1argconstructorisinvoked");this.name=name;  this.rollno=0;return;  }  publicStudent(Stringname,introllno)  {  System.out.println("2argconstructorisinvoked");this.name=name;  this.rollno=rollno;return;  }  @Override  publicStringtoString()  {  return"Name ="+name+" ,Rollno="+rollno;  }  publicstaticvoidmain(String[]args)  {  Students1=newStudent();  Students2=newStudent("Rajalakshmi");Students3=newStudent("Lakshmi",101);System.out.println(s1);System.out.println(s2);System.out.println(s3);  } |

39}

40

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Test** | **Expected** | **Got** |  |
|  | 1 | No-argconstructor is invoked | No-argconstructor is invoked |  |
| 1. argconstructorisinvoked 2. argconstructorisinvoked | 1. argconstructorisinvoked 2. argconstructorisinvoked |
| Name=null,Rollno=0 | Name=null,Rollno=0 |
| Name=Rajalakshmi,Rollno=0Name=Lakshmi,Rollno=101 | Name=Rajalakshmi,Rollno=0Name=Lakshmi,Rollno=101 |

Passedalltests!

Question**2**

Correct

Markedoutof5.00

Createa ClassMobilewiththeattributeslistedbelow,privateString manufacturer;

private String operating\_system;publicStringcolor;

privateintcost;

DefineaParameterizedconstructortoinitializetheaboveinstancevariables.Definegetterandsettermethodsfortheattributesabove.

forexample:settermethodformanufacturerisvoid setManufacturer(String manufacturer){this.manufacturer= manufacturer;

}

StringgetManufacturer(){returnmanufacturer;}

DisplaytheobjectdetailsbyoverridingthetoString()method.

## Forexample:

|  |  |
| --- | --- |
| **Test** | **Result** |
| 1 | manufacturer = Redmioperating\_system=Andriodcolor= 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{  private String manufacturer;privateStringoperating\_system;privateStringcolor;  privateintcost;  publicMobile(Stringmanufacturer,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;  }  public void setColor(Stringcolor)  {  this.color=color;  }  public voidsetCost(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=Bluecost=34000 | color=Bluecost=34000 |

Passedalltests!

Question**3**

Correct

Markedoutof5.00

Createaclasscalled"Circle"witharadiusattribute.Youcanaccessandmodifythisattributeusinggetterandsettermethods.Calculatetheareaand circumferenceofthecircle.

## Area of Circle = πr2Circumference= 2πrInput:

**2**

## Output:

**Area=12.57**

## Circumference=12.57Forexample:

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

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

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | importjava.io.\*; | |
| 2 | importjava.util.\*; | |
| 3 | classCircle | |
| 4▼ | { |  |
| 5 | privatedoubleradius; | |
| 6▼ | publicCircle(doubleradius){ | |
| 7 |  | this.radius=radius; |
| 8 |  |  |
| 9 |  |  |
| 10 | } |  |
| 11▼ | publicvoidsetRadius(double radius){ | |
| 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▼ | publicstaticvoid main(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 |  |

Passedalltests!

[◄Lab-04-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=248&forceview=1)

Jumpto...

[NumberofPrimesinaspecified range►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=250&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-05-Inheritance](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=55)/[Lab-05-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=267)

**Status**Finished

**Started** Sunday,6October2024,7:02PM

**Completed** Sunday,6October2024,7:07PM

**Duration**5mins27secs



Createaclassknownas"BankAccount"withmethodscalleddeposit()andwithdraw().

CreateasubclasscalledSavingsAccountthatoverridesthewithdraw()methodtopreventwithdrawalsiftheaccountbalancefallsbelowonehundred.

## Forexample:

CreateaBankAccountobject(A/cNo.BA1234)withinitialbalanceof$500:Deposit$1000 into accountBA1234:

Newbalanceafterdepositing$1000:$1500.0

Withdraw$600fromaccountBA1234:

Newbalanceafterwithdrawing$600:$900.0

CreateaSavingsAccountobject(A/cNo.SA1000)withinitialbalanceof$300:Tryto withdraw $250from SA1000!

Minimumbalanceof$100required!

Balanceaftertryingtowithdraw$250:$300.0

**Result**

**Answer:**(penalty regime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | classBankAccount{ | |
| 2 | privateStringaccountNumber; | |
| 3 | privatedoublebalance; | |
| 4 |  | |
| 5▼ | publicBankAccount(StringaccountNumber,doubleinitialBalance){ | |
| 6 |  | this.accountNumber=accountNumber; |
| 7 |  | this.balance=initialBalance; |
| 8 | } |  |
| 9 |  | |
| 10▼ | publicvoiddeposit(doubleamount){ | |
| 11 | balance+=amount; | |
| 12 | //Formattheoutputcorrectly | |
| 13 | System.out.println("Newbalanceafterdepositing$"+(amount%1==0?String.format("%.0f",amount):Strin | |
| 14 | } |  |
| 15 |  | |
| 16 |  | |
| 17▼ | publicvoidwithdraw(doubleamount) { | |
| 18▼ |  | if(balance>=amount){ |
| 19 |  | balance-=amount; |
| 20 |  | //Formattheoutputcorrectly |
| 21 |  | System.out.println("Newbalanceafterwithdrawing$"+(amount%1 ==0 ?String.format("%.0f", amount |
| 22▼ |  | }else{ |
| 23 |  | System.out.println("Insufficientfunds!"); |
| 24 |  | } |
| 25 | } |  |
| 26 |  | |
| 27▼ | publicdoublegetBalance(){ | |
| 28 |  | returnbalance; |
| 29 | } |  |
| 30 | } |  |
| 31 |  | |
| 32▼ | classSavingsAccountextendsBankAccount{ | |
| 33 | privatefinaldoubleminimumBalance=100.0; | |
| 34 |  | |
| 35▼ | publicSavingsAccount(StringaccountNumber,doubleinitialBalance) { | |
| 36 |  | super(accountNumber,initialBalance); |
| 37 | } |  |
| 38 |  | |
| 39 | @Override | |
| 40▼ | publicvoidwithdraw(doubleamount) { | |
| 41▼ |  | if(getBalance()- amount>=minimumBalance){ |
| 42 |  | super.withdraw(amount); |
| 43▼ |  | }else{ |
| 44 |  | System.out.println("Minimumbalanceof$"+String.format("%.0f",minimumBalance)+"required!"); |
| 45 |  | } |
| 46 | } |  |
| 47 | } |  |
| 48 |  | |
| 49▼ | publicclassMain{ | |
| 50▼ | publicstaticvoidmain(String[]args){ | |

BankAccountBA1234=newBankAccount("BA1234",500.0);



51

52

System.out.println("CreateaBankAccountobject(A/cNo.BA1234)withinitialbalanceof $500:");

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Expected** | **Got** |  |
|  | CreateaBankAccountobject(A/cNo.BA1234)withinitialbalance of $500:  Deposit$1000intoaccountBA1234:  Newbalanceafterdepositing$1000:$1500.0Withdraw$600fromaccountBA1234:  Newbalanceafterwithdrawing$600:$900.0  CreateaSavingsAccountobject(A/cNo.SA1000)withinitialbalance of $300:  Trytowithdraw$250fromSA1000!Minimumbalanceof$100required!  Balanceaftertryingtowithdraw$250:$300.0 | CreateaBankAccountobject(A/cNo.BA1234)withinitialbalance of $500:  Deposit$1000intoaccountBA1234:  Newbalanceafterdepositing$1000:$1500.0Withdraw$600fromaccountBA1234:  Newbalanceafterwithdrawing$600:$900.0  CreateaSavingsAccountobject(A/cNo.SA1000)withinitialbalance of $300:  Trytowithdraw$250fromSA1000!Minimumbalanceof$100required!  Balanceaftertryingtowithdraw$250:$300.0 |  |

Passedalltests!



create a class called College with attribute String name, constructor to initialize the name attribute , a method called Admitted(). Create asubclasscalledCSEthatextends Studentclass,withdepartmentattribute,Course() methodtosubclass.PrintthedetailsoftheStudent.

College:

StringcollegeName;public College() { }publicadmitted(){}Student:

StringstudentName;Stringdepartment;

publicStudent(StringcollegeName,StringstudentName,Stringdepart){}publictoString()

ExpectedOutput:

A studentadmitted in RECCollegeName : RECStudentName: VenkateshDepartment:CSE

## Forexample:

AstudentadmittedinRECCollegeName : RECStudentName : VenkateshDepartment:CSE

**Result**

**Answer:**(penalty regime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | classCollege{ | |
| 2 | protectedStringcollegeName; | |
| 3 |  | |
| 4▼ | publicCollege(StringcollegeName){ | |
| 5 |  | this.collegeName=collegeName; |
| 6 | } |  |
| 7 |  | |
| 8▼ | publicvoidadmitted(){ | |
| 9 |  | System.out.println("Astudentadmittedin"+collegeName); |
| 10 | } |  |
| 11 | } |  |
| 12 |  | |
| 13▼ | classStudent extendsCollege{ | |
| 14 | StringstudentName; | |
| 15 | Stringdepartment; | |
| 16 |  | |
| 17▼ | publicStudent(StringcollegeName,StringstudentName,Stringdepartment){ | |
| 18 |  | super(collegeName); |
| 19 |  | this.studentName=studentName; |
| 20 |  | this.department=department; |
| 21 | } |  |
| 22 |  | |
| 23 | @Override | |
| 24▼ | publicStringtoString(){ | |
| 25 |  | return"CollegeName:"+ collegeName+"\n"+ |
| 26 |  | "StudentName:"+studentName+"\n"+ |
| 27 |  | "Department:"+department; |
| 28 | } |  |
| 29 | } |  |
| 30 |  | |
| 31▼ | publicclasssample{ | |
| 32▼ | publicstaticvoidmain(String[]args){ | |
| 33 |  | Students1=newStudent("REC","Venkatesh","CSE"); |
| 34 |  | s1.admitted();//Print"AstudentadmittedinREC" |
| 35 |  | System.out.println(s1); |

36 }

37}

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Expected** | **Got** |  |
|  | AstudentadmittedinRECCollegeName : RECStudentName : VenkateshDepartment:CSE | AstudentadmittedinRECCollegeName : RECStudentName : VenkateshDepartment:CSE |  |

Passedalltests!



Createa classMobilewithconstructorandamethodbasicMobile().

Create a subclass CameraMobilewhich extends Mobile class , withconstructor anda methodnewFeature().Create a subclass AndroidMobile which extends CameraMobile, with constructor and a method androidMobile().displaythedetailsoftheAndroidMobileclassbycreatingtheinstance..

classMobile{

}

classCameraMobileextendsMobile{

}

classAndroidMobileextendsCameraMobile{

}

expectedoutput:

Basic Mobile is ManufacturedCameraMobileisManufacturedAndroidMobileisManufacturedCameraMobilewith5MGpx

TouchScreenMobileisManufactured

## Forexample:

Basic Mobile is ManufacturedCamera Mobile is ManufacturedAndroidMobileisManufacturedCameraMobilewith5MGpx

TouchScreenMobileisManufactured

**Result**

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼ | classMobile{ |
| 2▼ | publicMobile(){ |
| 3 | System.out.println("BasicMobileisManufactured"); |
| 4 | } |
| 5 |  |
| 6▼ | publicvoidbasicMobile() { |
| 7 | System.out.println("BasicMobilefunctionality"); |
| 8 | } |
| 9 | } |
| 10 |  |
| 11▼ | classCameraMobileextendsMobile{ |
| 12▼ | publicCameraMobile(){ |
| 13 | System.out.println("CameraMobileisManufactured"); |
| 14 | } |
| 15 |  |
| 16▼ | publicvoidnewFeature() { |
| 17 | System.out.println("CameraMobilewith5MGpx"); |
| 18 | } |
| 19 | } |
| 20 |  |
| 21▼ | classAndroidMobileextendsCameraMobile{ |
| 22▼ | publicAndroidMobile(){ |
| 23 | System.out.println("AndroidMobileisManufactured"); |
| 24 | } |
| 25 |  |
| 26▼ | publicvoidandroidMobile(){ |
| 27 | System.out.println("TouchScreenMobileisManufactured"); |
| 28 | } |
| 29 | } |
| 30 |  |
| 31▼ | publicclasssample{ |
| 32▼ | publicstaticvoidmain(String[]args){ |
| 33 | AndroidMobileandroid=newAndroidMobile(); |
| 34 | android.newFeature(); |
| 35 | android.androidMobile(); |

36 }

37}

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Expected** | **Got** |  |
|  | Basic Mobile is ManufacturedCamera Mobile is ManufacturedAndroidMobileisManufacturedCameraMobilewith5MGpx  TouchScreenMobileisManufactured | Basic Mobile is ManufacturedCamera Mobile is ManufacturedAndroidMobileisManufacturedCameraMobilewith5MGpx  TouchScreenMobileisManufactured |  |

Passedalltests!

[◄Lab-05-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=266&forceview=1)

Jumpto...

[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, 6 October2024, 7:12 PM

**Duration**3mins 36secs

Question**1**

Correct

Markedoutof5.00

GivenaStringinput1,whichcontainsmanynumberofwords separatedby:andeachwordcontainsexactlytwolowercase alphabets,generateanoutputbaseduponthebelow 2 cases.

Note:

1. Allthecharactersin input1 arelowercasealphabets.
2. input1willalwayscontainmore thanone word separated by:
3. Outputshouldbereturnedinuppercase.Case1:

Checkwhether thetwoalphabetsaresame.

Ifyes,thentake onealphabet fromitandaddittothe output.Example1:

input1=ww:ii:pp:rr:oooutput= WIPROExplanation:

word1isww,botharesamehencetakewword2 is ii, both are same hence take iword3 is pp, both are same hence take pword4 is rr, both are same hence take rword5 is oo, both are same hence take oHencetheoutputisWIPRO

Case2:

Ifthetwoalphabetsarenotsame,thenfindthepositionvalueofthemandfind maximumvalue–minimumvalue.Take thealphabetwhichcomesatthis(maximumvalue -minimumvalue)positioninthealphabetseries.

Example 2”input1=zx:za:eeoutput=BYEExplanation

word1iszx,botharenotsamealphabetsposition valueofzis26

positionvalueofxis24

max–minwillbe26–24=2

Alphabet which comes in 2ndposition is bWord2 is za, both are not same alphabetsposition valueofzis26

positionvalue ofais1

max–minwillbe26–1=25

Alphabet which comes in 25thposition is yword3 is ee, both are same hence take eHencetheoutputisBYE

## 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(String i: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 |  |

Passedalltests!

Question**2**

Correct

Markedoutof5.00

Given2 stringsinput1 &input2.

* Concatenateboththestrings.
* Removeduplicatealphabets&whitespaces.
* Arrangethealphabetsindescendingorder.Assumption 1:

Therewilleitherbealphabets,whitespacesornullin boththeinputs.Assumption 2:

Bothinputswillbeinlowercase.Example1:

Input1:apple

Input 2: orangeOutput: rponlgeaExample2:

Input 1: fruitsInput2:aregood

Output:utsroigfedaExample3:

Input1:""

Input 2: ""Output: null**Forexample:**

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | appleorange | rponlgea |
| 2 | fruitsaregood | 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 | String result=mergeAndSort(input1,input2); |
| 39 | System.out.println(result); |
| 40 | scanner.close(); |
| 41 | } |
| 42 | } |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | appleorange | rponlgea | rponlgea |  |
|  | 2 | fruitsaregood | utsroigfeda | utsroigfeda |  |
|  | 3 |  | null | null |  |

Passedalltests!

Question**3**

Correct

Markedoutof5.00

Youareprovided astringofwordsanda2-digitnumber.Thetwodigitsofthenumberrepresentthetwowordsthatareto beprocessed.Forexample:

Ifthestringis"TodayisaNice Day"andthe2-digitnumberis41,then youareexpectedtoprocessthe4thword("Nice")andthe1stword("Today").

Theprocessingofeachwordis tobedoneasfollows:

ExtracttheMiddle-to-Beginpart:Startingfromthemiddleoftheword,extractthecharacterstill thebeginningoftheword.Extractthe Middle-to-Endpart:Starting fromthemiddle oftheword,extractthecharacterstillthe endoftheword.

Ifthe wordtobeprocessedis"Nice":

ItsMiddle-to-Beginpartwillbe"iN".ItsMiddle-to-Endpartwillbe"ce".

So,mergedtogetherthesetwopartswouldform"iNce".Similarly,ifthewordto beprocessedis"Today":

ItsMiddle-to-Beginpartwillbe"doT".ItsMiddle-to-Endpartwillbe"day".

So,merged togetherthesetwo partswouldform"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 beincludedinboththeextractedparts.

Expectedoutput:

Theexpectedoutputisa stringcontainingboththeprocessedwordsseparatedbyaspace"iNcedoTday"Example1:

input1="TodayisaNiceDay"

input2=41

output="iNcedoTday"Example2:

input1="FruitslikeMangoandApplearecommonbutGrapesarerare"input2=39

output="naMngoarGpes"

Note:Theinputstringinput1will containonlyalphabetsandasinglespacecharacterseparatingeachwordinthestring.Note:Theinputstringinput1 willNOTcontainanyotherspecialcharacters.

Note: Theinputnumberinput2willalwaysbea2-digitnumber (>=11and<=99).Oneofitsdigitswillneverbe0.Boththedigitsofthenumberwillalwayspointtoavalidwordintheinput1 string.

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| TodayisaNiceDay41 | iNcedoTday |
| FruitslikeMangoandApplearecommonbutGrapesarerare39 | 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** |  |
|  | TodayisaNiceDay41 | iNcedoTday | iNcedoTday |  |
|  | FruitslikeMangoandApplearecommonbutGrapesarerare39 | naMngoarGpes | naMngoarGpes |  |

Passedalltests!

[◄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/)/[Mycourses](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,6October2024,7:13PM

**Completed** Sunday,6October2024,7:17PM

**Duration**4mins48secs



createaninterfacePlayablewithamethodplay()thattakesnoargumentsandreturnsvoid.CreatethreeclassesFootball,Volleyball,andBasketballthatimplementthePlayableinterfaceand overridetheplay()methodtoplaytherespectivesports.

interfacePlayable {voidplay();

}

class FootballimplementsPlayable {Stringname;

publicFootball(Stringname){this.name=name;

}

publicvoidplay(){

System.out.println(name+"isPlayingfootball");

}

}

Similarly,createVolleyballandBasketballclasses.

## Sampleoutput:

**Sadhvin is Playing footballSanjayisPlayingvolleyballSruthiisPlayingbasketball**

**Forexample:**

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | SadhvinSanjaySruthi | Sadhvin is Playing footballSanjayisPlayingvolleyballSruthiisPlayingbasketball |
| 2 | VijayArunBalaji | Vijay is Playing footballArun is Playing volleyballBalajiisPlayingbasketball |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼ | importjava.util.Scanner; |
| 2 |  |
| 3 | interfacePlayable |
| 4▼ | { |
| 5 | voidplay(); |
| 6 | } |
| 7 |  |
| 8▼ | classFootballimplementsPlayable{ |
| 9 | Stringname; |
| 10 |  |
| 11 | publicFootball(Stringname) |
| 12▼ | { |
| 13 | this.name=name; |
| 14 | } |
| 15 |  |
| 16 | publicvoidplay() |
| 17▼ | { |
| 18 | System.out.println(name+"isPlayingfootball"); |
| 19 | } |
| 20 | } |
| 21 |  |
| 22 | classVolleyballimplementsPlayable |
| 23▼ | { |
| 24 | Stringname; |
| 25 |  |
| 26 | publicVolleyball(Stringname) |
| 27▼ | { |
| 28 | this.name=name; |
| 29 | } |
| 30 |  |
| 31 | publicvoidplay() |
| 32▼ | { |
| 33 | System.out.println(name+"isPlayingvolleyball"); |

34

35

36

37

}

}

classBasketballimplementsPlayable

38▼{

39

40

41

42▼

43

44

45

46

47▼

48

49

Stringname;

publicBasketball(Stringname)

{

this.name=name;

}

publicvoidplay()

{

System.out.println(name+"isPlayingbasketball");

}

50

51

52

}

publicclasstest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | SadhvinSanjaySruthi | Sadhvin is Playing footballSanjayisPlayingvolleyballSruthiisPlayingbasketball | Sadhvin is Playing footballSanjayisPlayingvolleyballSruthiisPlayingbasketball |  |
|  | 2 | VijayArunBalaji | Vijay is Playing footballArun is Playing volleyballBalajiisPlayingbasketball | Vijay is Playing footballArun is Playing volleyballBalajiisPlayingbasketball |  |

Passedalltests!



Createinterfacesshownbelow.interfaceSports{

public void setHomeTeam(String name);publicvoidsetVisitingTeam(Stringname);

}

interfaceFootballextendsSports{publicvoidhomeTeamScored(intpoints);

publicvoidvisitingTeamScored(intpoints);}

createaclassCollegethatimplementstheFootballinterfaceandprovidesthenecessaryfunctionalitytotheabstractmethods.sampleInput:

RajalakshmiSaveetha22

21

Output:

Rajalakshmi22scored

Saveetha 21 scoredRajalakshmiistheWinner!

## Forexample:

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | RajalakshmiSaveetha  22  21 | Rajalakshmi22scored  Saveetha 21 scoredRajalakshmiisthewinner! |

**Answer:**(penalty regime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | importjava.util.Scanner; | |
| 2 |  | |
| 3 | interfaceSports | |
| 4▼ | { |  |
| 5 | publicvoidsetHomeTeam(Stringname); | |
| 6 | publicvoidsetVisitingTeam(Stringname); | |
| 7 | } |  |
| 8 |  | |
| 9 | interfaceFootballextendsSports | |
| 10▼ | { |  |
| 11 | publicvoidhomeTeamScored(intpoints); | |
| 12 | publicvoidvisitingTeamScored(intpoints); | |
| 13 | } |  |
| 14 |  | |
| 15 | classCollegeimplementsFootball | |
| 16▼ | { |  |
| 17 | StringhomeTeam; | |
| 18 | StringvisitingTeam; | |
| 19 |  | |
| 20 | publicvoidsetHomeTeam(Stringname) | |
| 21▼ | { |  |
| 22 |  | homeTeam=name; |
| 23 | } |  |
| 24 |  | |
| 25 | publicvoidsetVisitingTeam(Stringname) | |
| 26▼ | { |  |
| 27 |  | visitingTeam=name; |
| 28 | } |  |
| 29 |  | |
| 30 | publicvoidhomeTeamScored(intpoints) | |
| 31▼ | { |  |
| 32 |  | System.out.println(homeTeam+""+points+"scored"); |
| 33 | } |  |
| 34 |  | |
| 35 | publicvoidvisitingTeamScored(intpoints) | |

|  |  |
| --- | --- |
| 36▼  37 | { |
| System.out.println(visitingTeam+""+points+"scored"); |
| 38 | } |
| 39 |  |
| 40 | publicvoidwinningTeam(inthomeTeamPoints,intvisitingTeamPoints) |
| 41▼ | { |
| 42 | if(homeTeamPoints>visitingTeamPoints) |
| 43▼ | { |
| 44 | System.out.println(homeTeam+"isthewinner!"); |
| 45 | } |
| 46 | elseif(homeTeamPoints<visitingTeamPoints) |
| 47▼ | { |
| 48 | System.out.println(visitingTeam+"isthewinner!"); |
| 49 | } |
| 50 | else |
| 51▼ | { |
| 52 | System.out.println("It'satiematch."); |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | Rajalakshmi | Rajalakshmi22scored | Rajalakshmi22scored |  |
| Saveetha | Saveetha21scored | Saveetha21scored |
| 22 | Rajalakshmiisthewinner! | Rajalakshmiisthewinner! |
| 21 |  |  |
|  | 2 | Anna | Anna21scored | Anna21scored |  |
| Balaji | Balaji21scored | Balaji21scored |
| 21 | It'satiematch. | It'satiematch. |
| 21 |  |  |
|  | 3 | SRM | SRM20scored | SRM20scored |  |
| VIT | VIT21scored | VIT21scored |
| 20 | VITisthewinner! | VITisthewinner! |
| 21 |  |  |

Passedalltests!



RBIissuesallnationalbankstocollectinterestonallcustomerloans.

Create an RBI interface with a variable String parentBank="RBI" and abstract method rateOfInterest().RBIinterfacehastwomoremethodsdefaultandstaticmethod.

defaultvoidpolicyNote(){

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

}

staticvoidregulations(){

System.out.println("RBIhasupdatednewregulationson2024.");

}

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

## RBIhasanewPolicyissuedin2023

**RBIhasupdatednewregulationsin2024.SBIrateofinterest:7.6perannum.**

## Karurrateofinterest:7.4perannum.Forexample:

|  |  |
| --- | --- |
| **Test** | **Result** |
| 1 | RBIhasanewPolicyissuedin2023  RBIhasupdatednewregulationsin2024.SBIrateofinterest:7.6perannum.  Karurrateofinterest:7.4perannum. |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1 | interfaceRBI |
| 2▼ | { |
| 3 | StringparentBank="RBI"; |
| 4 |  |
| 5 | doublerateOfInterest(); |
| 6 |  |
| 7 | defaultvoidpolicyNote() |
| 8▼ | { |
| 9 | System.out.println("RBIhasanewPolicyissuedin2023"); |
| 10 | } |
| 11 |  |
| 12 | staticvoidregulations() |
| 13▼ | { |
| 14 | System.out.println("RBIhasupdatednewregulationsin2024."); |
| 15 | } |
| 16 | } |
| 17 |  |
| 18 | classSBIimplementsRBI |
| 19▼ | { |
| 20 | publicdoublerateOfInterest() |
| 21▼ | { |
| 22 | return7.6; |
| 23 | } |
| 24 | } |
| 25 |  |
| 26 | classKarurimplementsRBI |
| 27▼ | { |
| 28 | publicdoublerateOfInterest() |
| 29▼ | { |
| 30 | return7.4; |
| 31 | } |
| 32 | } |
| 33 |  |
| 34 | publicclasstest |
| 35▼ | { |
| 36 | publicstaticvoidmain(String[]args) |
| 37▼ | { |

|  |  |
| --- | --- |
| 38 | SBIsbiBank=newSBI(); |
| 39 | KarurkarurBank=newKarur(); |
| 40 |  |
| 41 | sbiBank.policyNote(); |
| 42 | RBI.regulations(); |
| 43 |  |
| 44 | System.out.println("SBIrateofinterest:"+sbiBank.rateOfInterest()+"perannum."); |
| 45 | System.out.println("Karurrateofinterest:"+karurBank.rateOfInterest()+"perannum."); |
| 46 | } |
| 47 | } |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Test** | **Expected** | **Got** |  |
|  | 1 | RBIhasanewPolicyissuedin2023  RBIhasupdatednewregulationsin2024.SBIrateofinterest:7.6perannum.  Karurrateofinterest:7.4perannum. | RBIhasanewPolicyissuedin2023  RBIhasupdatednewregulationsin2024.SBIrateofinterest:7.6perannum.  Karurrateofinterest:7.4perannum. |  |

Passedalltests!

[◄Lab-07-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=281&forceview=1)

Jumpto...

[GenerateseriesandfindNthelement►](http://www.rajalakshmicolleges.org/moodle/mod/url/view.php?id=283&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-08-Polymorphism,AbstractClasses,finalKeyword](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=57)/[Lab-08-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=277)

**Status**Finished

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

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

**Duration**5mins6secs



# FinalVariable:

Onceavariableis declaredfinal,its valuecannotbechangedafteritis initialized.

Itmustbeinitializedwhenitisdeclaredorintheconstructorifit'snotinitializedat declaration.

Itcanbeusedtodefineconstants

finalintMAX\_SPEED=120;//Constantvalue,cannotbechanged

# FinalMethod:

Amethoddeclaredfinalcannotbeoverriddenbysubclasses.

Itisusedtopreventmodificationofthemethod'sbehaviorinderivedclasses.

public final void display() {System.out.println("Thisisafinalmethod.");

}

# FinalClass:

Aclassdeclaredasfinalcannotbesubclassed(i.e.,nootherclasscaninheritfromit).Itisusedtopreventaclassfrom beingextendedandmodified.

publicfinalclassVehicle{

//classcode

}

## GivenaJavaProgramthatcontainsthebuginit,yourtaskistoclearthebugtotheoutput.youshoulddeleteanypieceof code.

**Forexample:**

|  |  |
| --- | --- |
| **Test** | **Result** |
| 1 | Themaximumspeedis:120km/hThisisasubclassofFinalExample. |

**Answer:**(penalty regime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | classFinalExample{ | |
| 2 |  | |
| 3 |  | |
| 4 | finalintmaxSpeed=120; | |
| 5 |  | |
| 6 |  | |
| 7▼ | publicfinalvoiddisplayMaxSpeed(){ | |
| 8 |  | System.out.println("Themaximumspeedis:"+maxSpeed+"km/h"); |
| 9 | } |  |
| 10 | } |  |
| 11 |  | |
| 12▼ | classSubClassextendsFinalExample{ | |
| 13 |  | |
| 14▼ | publicvoidshowDetails() { | |
| 15 |  | System.out.println("ThisisasubclassofFinalExample."); |
| 16 | } |  |
| 17 | } |  |
| 18 |  | |
| 19▼ | classprog{ | |
| 20▼ | publicstaticvoidmain(String[]args){ | |
| 21 |  | FinalExampleobj=newFinalExample(); |
| 22 |  | obj.displayMaxSpeed();//Thiswillprintthemaximumspeed |
| 23 |  |  |
| 24 |  | SubClasssubObj=newSubClass(); |
| 25 |  | subObj.showDetails();//Thiswillprintthesubclassdetails |
| 26 | } |  |
| 27 | } |  |
|  | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Test** | **Expected** | **Got** |  |
|  | 1 | Themaximumspeedis:120km/hThisisasubclassofFinalExample. | Themaximumspeedis:120km/hThisisasubclassofFinalExample. |  |

Passedalltests!



CreateabaseclassShapewithamethodcalledcalculateArea().Createthreesubclasses:Circle,Rectangle,andTriangle.OverridethecalculateArea()methodin each subclasstocalculateand returntheshape'sarea.

Inthegivenexercise,hereisasimplediagramillustratingpolymorphismimplementation:



abstractclassShape{

publicabstractdoublecalculateArea() ;

}

}

System.out.printf("Areaof aTriangle :%.2f%n",((0.5)\*base\*height));//use thisstatementsampleInput:

1. //radiusofthecircletocalculateareaPI\*r\*r
2. //lengthoftherectangle
3. //breadthoftherectangletocalculatetheareaofarectangle

4//baseofthetriangle

3//heightofthe triangle

## OUTPUT:

**Area of a circle :50.27AreaofaRectangle:30.00AreaofaTriangle:6.00**

## Forexample:

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | 4 | Areaofacircle:50.27 |
| 5 | AreaofaRectangle:30.00 |
| 6 | AreaofaTriangle:6.00 |
| 4 |  |
| 3 |  |
| 2 | 7 | Areaofacircle:153.94 |
| 4.5 | AreaofaRectangle:29.25 |
| 6.5 | AreaofaTriangle:4.32 |
| 2.4 |  |
| 3.6 |  |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼ | importjava.util.Scanner; |
| 2 |  |
| 3▼ | abstractclassShape{ |
| 4 | publicabstractdoublecalculateArea(); |
| 5 | } |
| 6 |  |
| 7▼ | classCircle extendsShape{ |
| 8 | privatedoubleradius; |
| 9 |  |
| 10▼ | publicCircle(doubleradius){ |
| 11 | this.radius=radius; |
| 12 | } |



|  |  |
| --- | --- |
| 13 |  |
| 14  15▼  16 | @Override  publicdoublecalculateArea(){  returnMath.PI\*radius\*radius; |
| 17 | } |
| 18 | } |
| 19 |  |
| 20▼ | classRectangleextendsShape{ |
| 21 | privatedoublelength; |
| 22 | privatedoublebreadth; |
| 23  24▼ | publicRectangle(doublelength,doublebreadth) { |
| 25 | this.length=length; |
| 26 | this.breadth=breadth; |
| 27 | } |
| 28 |  |
| 29  30▼  31 | @Override  publicdoublecalculateArea(){  returnlength \*breadth; |
| 32 | } |
| 33 | } |
| 34 |  |
| 35▼ | classTriangleextendsShape{ |
| 36 | privatedoublebase; |
| 37 | privatedoubleheight; |
| 38  39▼ | publicTriangle(doublebase,double height){ |
| 40 | this.base=base; |
| 41 | this.height=height; |
| 42 | } |
| 43 |  |
| 44 |  |
| 45  46▼  47 | @Override  publicdoublecalculateArea(){  return0.5\*base\*height; |
| 48 | } |
| 49 | } |
| 50 |  |
| 1. ▼publicclasstest{ 2. ▼ publicstaticvoidmain(String[]args){ | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | 4 | Areaofacircle:50.27 | Areaofacircle:50.27 |  |
| 5 | AreaofaRectangle:30.00 | AreaofaRectangle:30.00 |
| 6 | AreaofaTriangle:6.00 | AreaofaTriangle:6.00 |
| 4 |  |  |
| 3 |  |  |
|  | 2 | 7 | Areaofacircle:153.94 | Areaofacircle:153.94 |  |
| 4.5 | AreaofaRectangle:29.25 | AreaofaRectangle:29.25 |
| 6.5 | AreaofaTriangle:4.32 | AreaofaTriangle:4.32 |
| 2.4 |  |  |
| 3.6 |  |  |

Passedalltests!



Asalogicbuildinglearneryouaregiventhetasktoextractthestringwhichhasvowelasthefirstandlast charactersfromthegivenarrayofStrings.

Step1:ScanthroughthearrayofStrings,extracttheStringswithfirstandlastcharactersasvowels;thesestringsshouldbeconcatenated.Step2:Converttheconcatenatedstringtolowercaseandreturnit.

Ifnoneofthestringsinthearrayhasfirstandlastcharacterasvowel,thenreturnnomatches foundinput1:an integerrepresenting thenumber ofelementsinthearray.

input2:Stringarray.

Example1:

input1:3

input2:{“oreo”,“sirish”,“apple”}output:oreoapple

Example2:

input1:2

input2:{“Mango”,“banana”}output: no matches foundExplanation:

Noneofthestrings hasfirstandlast characteras vowel.

Hencetheoutputisnomatchesfound.Example3:

input1:3

input2: {“Ate”,“Ace”, “Girl”}output:ateace

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 3  oreosirishapple | oreoapple |
| 2  Mangobanana | nomatchesfound |
| 3  AteAceGirl | ateace |

**Answer:**(penalty regime:0%)

19 {

|  |  |
| --- | --- |
| 1▼ | importjava.util.Scanner; |
| 2 |  |
| 3▼ | publicclassVowelEndStrings{ |
| 4 | publicstaticvoidmain(String[]args) |
| 5▼ | { |
| 6 | Scannersc=newScanner(System.in); |
| 7 | intn=sc.nextInt(); |
| 8 |  |
| 9 | String[]arr=newString[n]; |
| 10 | for(inti =0; i<n;i++) |
| 11▼ | { |
| 12 | arr[i]=sc.next(); |
| 13 | } |
| 14 |  |
| 15 | Strings=""; |
| 16 | booleanfound=false; |
| 17 |  |
| 18 | for(Stringi: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("nomatchesfound"); |
| 34 | } |
| 35 |  |
| 36 | sc.close(); |
| 37 | } |
| 38 | } |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 3  oreosirishapple | oreoapple | oreoapple |  |
|  | 2  Mangobanana | nomatchesfound | nomatchesfound |  |
|  | 3  AteAceGirl | ateace | ateace |  |

Passedalltests!

[◄Lab-08-MCQ](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=276&forceview=1)

Jumpto...

[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,16October2024,8:37 PM

**Duration**6mins 17secs

Question**1**

Correct

Markedoutof5.00

Inthefollowingprogram,anarray ofintegerdataistobeinitialized.

Duringtheinitialization,ifa userenters avalueotherthananinteger,itwillthrow anInputMismatchExceptionexception.On theoccurrenceofsuch anexception,your programshouldprint“You enteredbad data.”

Ifthereisno suchexceptionitwillprint the totalsumofthe array.

/\* Definetry-catchblocktosaveuserinputinthearray "name"

Ifthere is anexceptionthencatchtheexceptionotherwiseprint thetotalsumofthearray.\*/

## SampleInput:

3

521

## SampleOutput:

8

## SampleInput:

2

1g

## SampleOutput:

You enteredbaddata.

**Forexample:**

|  |  |
| --- | --- |
| **Input** | **Result** |
| 3  521 | 8 |
| 2  1g | Youentered baddata. |

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

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼  2  3▼  4▼  5  6  7  8  9  10▼  11▼  12  13  14  15  16  17  18▼  19  20  21  22 | importjava.util.Scanner; | |
| import java.util.InputMismatchException;classprog{  public static void main(String[] args) {Scanner sc= new Scanner(System.in);intlength=sc.nextInt();  int[]name=newint[length];intsum=0;  try  {  for(inti=0;i<length;i++){name[i]=sc.nextInt();sum+=name[i];  }  System.out.println(sum);  }  catch(InputMismatchExceptione)  {  System.out.println("Youenteredbaddata.");  }  }  } | |
|  | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 3  521 | 8 | 8 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 2  1g | You enteredbaddata. | Youentered baddata. |  |

Passedalltests!

Question**2**

Correct

Markedoutof5.00

WriteaJavaprogramtohandleArithmeticExceptionandArrayIndexOutOfBoundsException.Createan array,readtheinputfromtheuser,andstoreitinthearray.

Dividethe0thindexelement bythe1st indexelementandstoreit.ifthe1stelementiszero,itwillthrowanexception.

ifyoutry to access anelementbeyondthearraylimit throwsanexception.

## Input:

5

100203040

## Output:

**java.lang.ArithmeticException:/byzeroIamalwaysexecuted**

Input:

3

102030

## Output

java.lang.ArrayIndexOutOfBoundsException:Index3outofboundsforlength3Iamalwaysexecuted

## Forexample:

|  |  |  |
| --- | --- | --- |
| **Test** | **Input** | **Result** |
| 1 | 6 | java.lang.ArithmeticException:/by zero |
| 10 41 28 | Iamalwaysexecuted |

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

|  |  |
| --- | --- |
| 1▼ | importjava.util.Scanner; |
| 2 |  |
| 3 | public classl |
| 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:/by zero | java.lang.ArithmeticException:/byzero |  |
| 104 | Iamalways executed | Iamalways executed |
| 128 |  |  |
|  | 2 | 3 | java.lang.ArrayIndexOutOfBoundsException:Index | java.lang.ArrayIndexOutOfBoundsException:Index |  |
| 1020 | 3outofboundsforlength3 | 3outofboundsforlength3 |
| 30 | Iamalways executed | Iamalways executed |

Passedalltests!

Question**3**

Correct

Markedoutof5.00

WriteaJavaprogramtocreateamethodthattakesanintegerasa parameterandthrowsanexceptionifthenumberisodd.

## Sample inputandOutput:

82iseven.

Error:37isodd.

Fillthepreloadedanswertogettheexpectedoutput.

## Forexample:

82 is even.Error:37isodd.

**Result**

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

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 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. |  |

Passedalltests!

[◄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, 4 November2024, 8:28AM

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

**Duration**21 mins 47secs

GivenanArrayList,the taskisto get thefirstand last elementoftheArrayListinJava.

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) methodby passingindex=0.
3. GetthelastelementofArrayListusingthe get(index)methodbypassing index=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.\*;publicclassMain{  publicstatic voidmain(String[]args){Scannerscanner=newScanner(System.in);intn=scanner.nextInt();  ArrayList<Integer>arrayList=newArrayList<>();for(inti=0;i<n;i++)  {  arrayList.add(scanner.nextInt());  }  if(!arrayList.isEmpty())  {  intfirst=arrayList.get(0);  intlast=arrayList.get(arrayList.size()-1);System.out.println("ArrayList:"+arrayList);System.out.println("First : "+first+", Last : "+last);  }  else  {  System.out.println("TheArrayList isempty:");  }  }  } |
|  | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **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 |  |  |

Passedalltests!

ThegivenJavaprogramis basedontheArrayList methodsanditsusage. TheJavaprogramispartiallyfilled. Yourtaskistofillintheincompletestatementstogetthedesiredoutput.

list.set();

list.indexOf());list.lastIndexOf())list.contains()list.size());

list.add();list.remove();

Theabovemethods areusedforthebelowJavaprogram.

**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 |  |  | //Checkwhether200isinthelistor not |
| 21 |  |  | System.out.println(list.contains(200));//Output:false |
| 22 |  |  | //PrintArrayList size |
| 23 |  |  | System.out.println("Size Of ArrayList ="+list.size()); |
| 24 |  |  | //Inserting500atindex1 |
| 25 |  |  | list.add(1,500); //codehere |
| 26 |  |  | //Removing anelementfromposition3 |
| 27 |  |  | list.remove(3); //codehere |
| 28 |  |  | System.out.print("ArrayList:"+list); |
| 29 |  | } |  |
| 30 |  | } |  |
|  | | | |

▼

▼

▼

▼

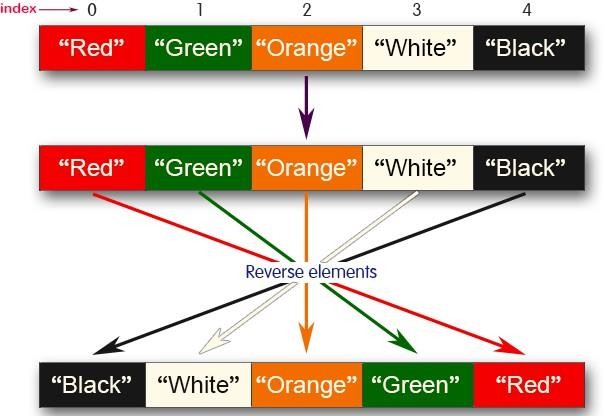
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | 5 | ArrayList:[1, 2,3,100, 5] | ArrayList:[1, 2,3, 100, 5] |  |
| 1 | Indexof100=1 | Indexof100=1 |
| 2 | LastIndexof100=3 | LastIndexof100=3 |
| 3 | false | false |
| 100 | SizeOfArrayList=5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

Passedalltests!

Question**3**

Correct

Markedoutof1.00

WriteaJavaprogramtoreverse elements inanarraylist.

SampleinputandOutput:

RedGreenOrangeWhiteBlack

**Sampleoutput**

Listbeforereversing:

[Red,Green,Orange,White,Black]Listafterreversing :

[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{  publicstatic voidmain(String[]args){Scannerscanner=newScanner(System.in);  ArrayList<String>colorList=newArrayList<>();intn=scanner.nextInt();  scanner.nextLine();for(inti=0;i<n;i++)  {  Stringcolor=scanner.nextLine();colorList.add(color);  }  System.out.println("Listbeforereversing:");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] |
| WhiteBlack |  |  |
|  | 2 | 4 | Listbeforereversing: | Listbeforereversing: |  |
| CSE  AIML | [CSE, AIML,AIDS, CYBER]  Listafterreversing: | [CSE, AIML, AIDS,CYBER]  Listafterreversing: |
| AIDSCYBER | [CYBER,AIDS,AIML,CSE] | [CYBER,AIDS,AIML,CSE] |

Passedalltests!

[◄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)

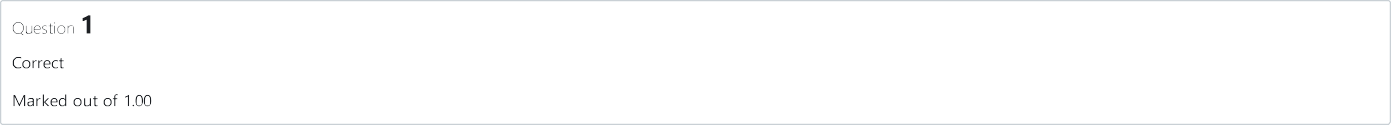
[Dashboard](http://www.rajalakshmicolleges.org/moodle/my/)/[Mycourses](http://www.rajalakshmicolleges.org/moodle/my/courses.php)/[CS23333-OOPUJ-2023](http://www.rajalakshmicolleges.org/moodle/course/view.php?id=5)/[Lab-11-Set,Map](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=61)/[Lab-11-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/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

**Status**Finished

**Started** Friday,8November2024,5:24PM

**Completed** Friday,8November2024,5:55PM

**Duration**31 mins1sec



**JavaHashSet**classimplementstheSetinterface,backedbyahashtablewhichisactually a[HashMap](https://www.geeksforgeeks.org/java-util-hashmap-in-java/)instance.

Noguaranteeis madeastotheiterationorderofthehashsetswhichmeansthattheclassdoesnotguaranteetheconstantorderofelementsovertime.

Thisclasspermitsthenullelement.

Theclassalsooffersconstanttimeperformanceforthebasicoperationslikeadd,remove,contains,andsizeassumingthehashfunctiondispersestheelementsproperlyamongthebuckets.

JavaHashSetFeatures

AfewimportantfeaturesofHashSetarementionedbelow:

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

TheunderlyingdatastructureforHashSetis[Hashtable.](https://www.geeksforgeeks.org/hashtable-in-java/)

AsitimplementstheSetInterface,duplicatevaluesarenot allowed.

ObjectsthatyouinsertinHashSetarenotguaranteedtobeinsertedinthesameorder.Objectsareinsertedbasedontheirhashcode.NULL elementsareallowedinHashSet.

HashSetalsoimplements **Serializable**and**Cloneable**interfaces.

publicclassHashSet<E>extendsAbstractSet<E>implementsSet<E>,Cloneable,SerializableSampleInput and Output:

5

90

56

45

78

25

78

SampleOutput:

78 was found in the set.Sample Input and output:3

2

7

9

5

SampleInputandoutput:

5wasnotfoundintheset.

**Answer:**(penalty regime:0%)

|  |  |  |
| --- | --- | --- |
| Resetanswer | |  |
| 1▼ | importjava.util.HashSet; | |
| 2 | importjava.util.Scanner; | |
| 3▼ | classprog{ | |
| 4▼ | publicstaticvoidmain(String[]args){ | |
| 5 | Scannersc=newScanner(System.in); | |
| 6 | intn=sc.nextInt(); | |
| 7 | //CreateaHashSetobjectcallednumbers | |
| 8 | HashSet<Integer>numbers=newHashSet<>(); | |
| 9 |  | |
| 10 | //Addvaluestotheset | |
| 11 | for(inti=0;i<n;i++) | |
| 12▼ | { |  |
| 13 |  | numbers.add(sc.nextInt()); |
| 14 | } |  |
| 15 | intskey=sc.nextInt(); | |
| 16 |  | |
| 17 | //Showwhichnumbersbetween1and10areintheset | |
| 18 | if(numbers.contains(skey)) | |
| 19▼ | { |  |
| 20 |  | System.out.println(skey+"wasfoundintheset."); |
| 21 | } |  |
| 22▼ | else{ | |
| 23 |  | System.out.println(skey+"wasnot foundintheset."); |
| 24 | } |  |
| 25 | } |  |
| 26 | } |  |
|  | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test** | **Input** | **Expected** | **Got** |  |
|  | 1 | 5 | 78wasfoundintheset. | 78wasfoundintheset. |  |
| 90 |
| 56 |
| 45 |
| 78 |
| 25 |
| 78 |
|  | 2 | 3 | 5wasnotfoundintheset. | 5wasnotfoundintheset. |  |
| -1 |
| 2 |
| 4 |
| 5 |

Passedalltests!



WriteaJavaprogramtocomparetwosetsandretainelementsthatarethesame.

## SampleInputandOutput:

5

FootballHockeyCricketVolleyballBasketball

7 //**HashSet2:**

GolfCricketBadmintonFootballHockeyVolleyballHandball

## SAMPLEOUTPUT:

FootballHockeyCricketVolleyballBasketball

**Answer:**(penalty regime: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 | import java.util.HashSet;import java.util.Scanner;classprog{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);intn1=sc.nextInt();sc.nextLine();  HashSet<String>set1=newHashSet<>();for(inti=0;i<n1;i++)  {  set1.add(sc.nextLine());  }  intn2=sc.nextInt();sc.nextLine();  HashSet<String>set2=newHashSet<>();for(inti=0;i<n2;i++)  {  set2.add(sc.nextLine());  }  set1.retainAll(set2);for(Stringsport: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 |  |  |

Passedalltests!



JavaHashMapMethods

[containsKey()](https://www.w3schools.com/java/ref_hashmap_containskey.asp)Indicate if an entry with the specified key exists 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)Removeanentryfromthemap

[replace()Write to an entry in the map only if it exists](https://www.w3schools.com/java/ref_hashmap_replace.asp)[size()](https://www.w3schools.com/java/ref_hashmap_size.asp)Returnthenumberofentriesinthemap

Yourtaskistofill theincompletecodetogetdesiredoutput

**Answer:**(penalty regime:0%)

|  |  |  |  |
| --- | --- | --- | --- |
| Reset | | answer |  |
| 1 |  | importjava.util.HashMap; | |
| 2 |  | importjava.util.Map.Entry; | |
| 3 |  | importjava.util.Set; | |
| 4 |  | importjava.util.Scanner; | |
| 5 |  | classprog | |
| 6 |  | { |  |
| 7 |  | publicstaticvoidmain(String[]args) | |
| 8 |  | { |  |
| 9 |  |  | //CreatingHashMapwithdefaultinitialcapacityandloadfactor |
| 10 |  |  | HashMap<String,Integer>map=newHashMap<String,Integer>(); |
| 11 |  |  | Stringname; |
| 12 |  |  | intnum; |
| 13 |  |  | Scannersc=newScanner(System.in); |
| 14 |  |  | intn=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 |  |  | //Printingkey-valuepairs |
| 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 |  |  | //CreatinganotherHashMap |
| 30 |  |  | HashMap<String,Integer>anotherMap=newHashMap<String,Integer>(); |
| 31 |  |  | //Insertingkey-valuepairstoanotherMapusingput()method |
| 32 |  |  | anotherMap.put("SIX",6); |
| 33 |  |  | anotherMap.put("SEVEN",7); |
| 34 |  |  | //Insertingkey-valuepairsof maptoanotherMapusingputAll()method |
| 35 |  |  | anotherMap.putAll(map);//codehere |
| 36 |  |  | //Printingkey-valuepairsofanotherMap |
| 37 |  |  | entrySet=anotherMap.entrySet(); |
| 38 |  |  | for(Entry<String,Integer>entry:entrySet) |
| 39 |  |  | { |
| 40 |  |  | System.out.println(entry.getKey()+":"+entry.getValue()); |
| 41 |  |  | } |
| 42 |  |  |  |
| 43 |  |  | //Addskey-valuepair'FIVE-5' onlyifitisnotpresentin map |
| 44 |  |  |  |
| 45 |  |  | map.putIfAbsent("FIVE",5); |
| 46 |  |  |  |
| 47 |  |  | //Retrievingavalueassociatedwithkey'TWO' |
| 48 |  |  |  |
| 49 |  |  | intvalue=map.get("TWO"); |
| 50 |  |  | System.out.println(value); |
| 51 |  |  |  |
| 52 |  |  | //Checkingwhetherkey'ONE'existinmap |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **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 |

Passedalltests!

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

Jumpto...

[TreeSetexample►](http://www.rajalakshmicolleges.org/moodle/mod/resource/view.php?id=297&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-12-IntroductiontoI/O,I/OOperations,ObjectSerialization](http://www.rajalakshmicolleges.org/moodle/course/section.php?id=56)/[Lab-12-LogicBuilding](http://www.rajalakshmicolleges.org/moodle/mod/quiz/view.php?id=273)

**Status**Finished

**Started** Sunday,10November2024,11:31 AM

**Completed** Sunday,10November2024,11:55AM

**Duration**23mins50secs



WriteafunctionthattakesaninputString(sentence)andgeneratesanewString(modifiedsentence)by reversingthewordsintheoriginalString,maintainingthewordsposition.

Inaddition,thefunctionshouldbeabletocontrolthereversingofthecase(upperorlowercase)basedonacase\_optionparameter,asfollows:

Ifcase\_option=0,normalreversalofwordsi.e.,iftheoriginalsentenceis“WiproTechNologiesBangaLore”,thenewreversedsentenceshould be“orpiWseigoloNhceTeroLagnaB”.

Ifcase\_option=1,reversalofwordswithretainingposition’scasei.e.,iftheoriginalsentenceis“WiproTechNologiesBangaLore”,thenewreversedsentenceshouldbe“OrpiwSeigOlonhcetErolaGnab”.

Notethat positions1,7,11,20and25intheoriginalstringareuppercaseW,T,N,BandL.

Similarly,positions1,7,11,20and25inthenewstringareuppercase O,S,O,EandG.NOTE:

1. Onlyspace charactershouldbetreatedasthewordseparatori.e.,“HelloWorld”shouldbetreatedastwoseparatewords,“Hello”and“World”.However,“Hello,World”,“Hello;World”,“Hello-World” or“Hello/World”should beconsideredasasingleword.
2. Non-alphabetic characters in the String should not be subjected to case changes. For example, if case option = 1 and the originalsentenceis“WiproTechNologies,Bangalore”thenewreversedsentenceshouldbe“Orpiw,seiGolonhceTErolagnab”.Notethatcommahasbeen treated as part of the word “Technologies,” and when comma had to take the position of uppercase T it remained as a comma anduppercase Ttookthepositionofcomma.However,thewords“Wipro andBangalore” havechangedto“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 |

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| WiproTechnologiesBangalore0 | orpiWseigolonhceTerolagnaB |
| WiproTechnologies,Bangalore0 | orpiW,seigolonhceTerolagnaB |
| WiproTechnologiesBangalore1 | OrpiwSeigolonhcetErolagnab |
| WiproTechnologies,Bangalore1 | Orpiw,seigolonhceTErolagnab |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼  2▼  3  4▼  5  6  7  8  9▼  10  11  12  13  14  15  16▼  17 | importjava.util.\*;  publicclassSentenceReversal{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);Stringsentence=sc.nextLine();intcaseOption=sc.nextInt();if(caseOption!=0&&caseOption!=1)  {  return;  }  Stringresult=reverseWordWithCaseOption(sentence,caseOption);System.out.println(result);  }  publicstaticStringreverseWordWithCaseOption(Stringsentence,intcaseOption)  { |



|  |  |
| --- | --- |
| 18 | String[]words=sentence.split(""); |
| 19 | StringBuilderresult=newStringBuilder(); |
| 20 | for(Stringword:words) |
| 21▼ | { |
| 22 | StringBuilderreversedWord=newStringBuilder(); |
| 23 | StringBuildertempWord=newStringBuilder(word).reverse(); |
| 24 | if(caseOption==0) |
| 25▼ | { |
| 26 | reversedWord.append(tempWord); |
| 27 | } |
| 28 | else |
| 29▼ | { |
| 30 | for(inti=0;i<word.length();i++) |
| 31▼ | { |
| 32 | charoriginalChar=word.charAt(i); |
| 33 | charreversedChar=tempWord.charAt(i); |
| 34 | if(Character.isUpperCase(originalChar)) |
| 35▼ | { |
| 36 | reversedWord.append(Character.toUpperCase(reversedChar)); |
| 37 | } |
| 38 | elseif(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 | returnresult.toString().trim(); |
| 51 | } |
| 52 | } |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | WiproTechnologiesBangalore0 | orpiWseigolonhceTerolagnaB | orpiWseigolonhceTerolagnaB |  |
|  | WiproTechnologies,Bangalore0 | orpiW,seigolonhceTerolagnaB | orpiW,seigolonhceTerolagnaB |  |
|  | WiproTechnologiesBangalore1 | OrpiwSeigolonhcetErolagnab | OrpiwSeigolonhcetErolagnab |  |
|  | WiproTechnologies,Bangalore1 | Orpiw,seigolonhceTErolagnab | Orpiw,seigolonhceTErolagnab |  |

Passedalltests!



Youareprovidedwithastringwhichhasasequenceof1’sand0’s.

ThissequenceistheencodedversionofaEnglishword.Youaresupposedwriteaprogramtodecodetheprovidedstringandfindtheoriginalword.

Eachalphabetisrepresentedbyasequenceof0s.Thisisasmentioned below:

Z:0

Y:00

X:000

W:0000

V:00000

U:000000

T:0000000

andsoonuptoAhaving260’s(00000000000000000000000000).

Thesequenceof0’sintheencodedformareseparatedbyasingle1whichhelpstodistinguishbetween2letters.Example1:

input1:010010001

Thedecodedstring(originalword)willbe:ZYXExample2:

input1:00001000000000000000000100000000000100000000010000000000001

Thedecodedstring(originalword)willbe:WIPRO

Note:Thedecodedstringmustalways beinUPPERcase.

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 010010001 | ZYX |
| 00001000000000000000000100000000000100000000010000000000001 | WIPRO |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼  2▼  3  4▼  5  6  7  8  9▼  10  11▼  12  13  14▼  15  16  17  18  19  20  21  22 | importjava.util.\*;  publicclassBinaryDecoder{  publicstaticvoidmain(String[]args)  {  Scannersc=newScanner(System.in);Stringencoded=sc.nextLine();  String[] sequences= encoded.split("1");StringBuilderdecodedWord=newStringBuilder();for(Stringseq: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 |  |

Passedalltests!



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

GettheASCIIvaluesofalltheextractedalphabets.

CalculatesumofthoseASCIIvalues.Letscallitsum1andcalculatesingledigitsumofsum1,i.e.,keepaddingthedigitsofsum1untilyouarriveata singledigit.

Returnthatsingledigitasoutput.Note:

1. Arraysizerangesfrom1to10.
2. Allthearrayelementsarelowercasealphabets.
3. Atleastonecommonalphabetwillbefoundinthearrays.Example1:

input1:{‘a’,‘b’,‘c’}

input2:{‘b’,’c’}output: 8Explanation:

‘b’and‘c’arepresentinboththearrays.ASCIIvalue of‘b’is98and‘c’is99.

98+99=197

1+9+7=17

1+ 7= 8

## Forexample:

|  |  |
| --- | --- |
| **Input** | **Result** |
| 1. bc 2. c | 8 |

**Answer:**(penalty regime:0%)

|  |  |
| --- | --- |
| 1▼ | importjava.io.\*; |
| 2 | importjava.util.\*; |
| 3▼ | publicclasscommonAlphabets{ |
| 4 | publicstaticvoidmain(String[]args) |
| 5▼ | { |
| 6 | Scannersc=newScanner(System.in); |
| 7 | Stringinput1=sc.nextLine().replace(",",""); |
| 8 | char[]array1=input1.toCharArray(); |
| 9 | Stringinput2=sc.nextLine().replace("",""); |
| 10 | char[]array2=input2.toCharArray(); |
| 11 | intresult=calculateSingleDigitSum(array1,array2); |
| 12 | System.out.println(result); |
| 13 |  |
| 14 | } |
| 15 | privatestaticintcalculateSingleDigitSum(char[]input1,char[]input2) |
| 16▼ | { |
| 17 | HashSet<Character>set1=newHashSet<>(); |
| 18 | for(charc:input1) |
| 19▼ | { |
| 20 | set1.add(c); |
| 21 | } |
| 22 | intsum1=0; |
| 23 | for(charc:input2) |
| 24▼ | { |
| 25 | if(set1.contains(c)) |
| 26▼ | { |
| 27 | sum1+=(int)c; |
| 28 | } |
| 29 | } |
| 30 | returngetDigitalRoot(sum1); |

|  |  |
| --- | --- |
| 31 | } |
| 32 | privatestaticintgetDigitalRoot(intsum) |
| 33▼ | { |
| 34 | if(sum==0) |
| 35▼ | { |
| 36 | return0; |
| 37 | } |
| 38 | else |
| 39▼ | { |
| 40 | return1+((sum-1)%9); |
| 41 | } |
| 42 | } |
| 43 | } |

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

Passedalltests!

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

Jumpto...

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