Status	Finished
Started	Tuesday, 8 October 2024, 7:01 PM
Completed	Tuesday, 8 October 2024, 7:36 PM
Duration	34 mins 2 secs

Question **1**

Correct

Marked out of 5.00

As a logic building learner you are given the task to extract the string which has vowel as the first and last characters from the given array of Strings.

Step1: Scan through the array of Strings, extract the Strings with first and last characters as vowels; these strings should be concatenated.

Step2: Convert the concatenated string to lowercase and return it.

If none of the strings in the array has first and last character as vowel, then return no matches found

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

input2: String array.

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.

Hence the output is no matches found.

Example 3:

input1: 3

input2: {“Ate”, “Ace”, “Girl”}

output: ateace

For example:

Input	Result
3 oreo sirish apple	oreoapple
2 Mango banana	no matches found
3 Ate Ace Girl	ateace

Answer: (penalty regime: 0 %)

```
import java.util.Scanner;
public class cse
{
    public static String evs(String[] stringArray)
    {
        StringBuilder result = new StringBuilder();
        String vow = "aeiouAEIOU";
        for (String s : stringArray)
        {
            if(s.length()>0 && vow.indexOf(s.charAt(0))!=-1 && vow.indexOf(s.charAt(s.length()-1))!=-1)
            {
                result.append(s);
            }
        }

        return result.length() > 0 ? result.toString().toLowerCase() : "no matches found";
    }
```

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

    String input = sc.nextLine();
    String[] strings = input.split(" ");

    String result = evs(strings);
    System.out.println(result);
    sc.close();

}
}
```

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

Passed all tests! ✓

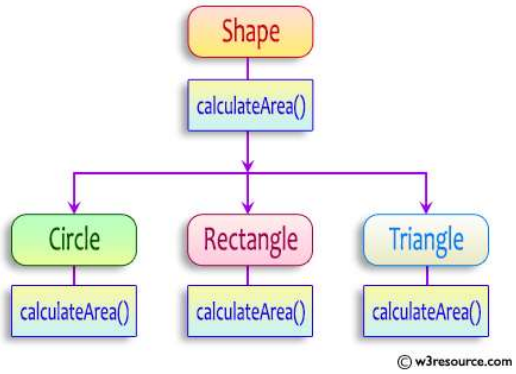
Question **2**

Correct

Marked out of 5.00

Create a base class Shape with a method called calculateArea(). Create three subclasses: Circle, Rectangle, and Triangle. Override the 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("Area of a Triangle :%.2f%n",((0.5)*base*height)); // use this statement

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
Area of a Rectangle :30.00
Area of a Triangle :6.00

For example:

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

Answer: (penalty regime: 0 %)

```
import java.util.Scanner;

abstract class Shape
{
    public abstract double calculateArea();

}

class Circle extends Shape
{
    private double radius;
```

```
12
13      public Circle (double radius)
14      {
15          this.radius=radius;
16      }
17
18      @Override
19
20      public double calculateArea()
21      {
22          return Math.PI*radius*radius;
23      }
24  }
25
26  class Rectangle extends Shape
27  {
28      private double length;
29      private double breadth;
30
31      public Rectangle (double length, double breadth)
32      {
33          this.length = length;
34          this.breadth = breadth;
35      }
36
37      @Override
38
39      public double calculateArea()
40      {
41          return length*breadth;
42      }
43  }
44
45
46  class Triangle extends Shape
47  {
48      private double base;
49      private double height;
50
51      public Triangle (double base, double height)
52      {
```

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

Passed all tests! ✓

Question **3**

Correct

Marked out of 5.00

1. Final Variable:

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

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

2. Final Method:

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

```
public final void display() {
    System.out.println("This is a final method.");
}
```

3. Final Class:

- A class declared as `final` cannot be subclassed (i.e., no other class can inherit from it).
- It is used to prevent a class from being extended and modified.
- public final class Vehicle {
  // class code
  }

Given a Java Program that contains the bug in it, your task is to clear the bug to the output.

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: (penalty regime: 0 %)

Reset answer

```
final class FinalExample {

    // Final variable
                final int maxSpeed = 120;

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

public class Test
{
    public static void main(String[] args) {
        FinalExample obj = new FinalExample();
        obj.display();

       System.out.println("This is a subclass of FinalExample.");
    }
}
```

	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! ✓

◄ Lab-08-MCQ

Jump to...

FindStringCode ►