Status	Finished
Started	Thursday, 10 October 2024, 11:59 AM
Completed	Thursday, 17 October 2024, 12:10 PM
Duration	7 days

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 %)

```java
import java.util.Scanner;
public class Main{
    public static void main(String[] args){
    Scanner sc=new Scanner(System.in);
    int a=sc.nextInt(),c=0;
    sc.nextLine();
    String []arr=sc.nextLine().split(" ");
    for(int i=0;i<a;i++){
        String w=arr[i].toLowerCase();
        char s1=w.charAt(0);
        char s2=w.charAt(arr[i].length()-1);
        int f1=0,f2=0;
        if(s1=='a' || s1=='e' || s1=='i' || s1=='o' || s1=='u') f1=1;
        if(s2=='a' || s2=='e' || s2=='i' || s2=='o' || s2=='u') f2=1;
        if(f1==1 && f2==1)System.out.print(w);
        else c++;
        }
    if(c==a)System.out.println("no matches found");
    }
}
```

	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! ✓

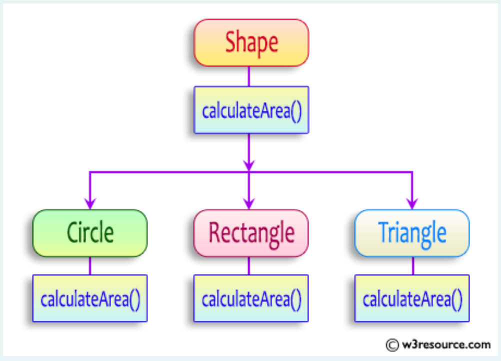
Question **2**

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.*;
abstract class Shape {
    abstract double calculateArea();
}

class Circle extends Shape {
    private double radius;
    Circle(double r) {
        radius = r;
    }
    double calculateArea() {
        return Math.PI * radius * radius;
    }
}

class Rectangle extends Shape {
    private double length;
    private double breadth;
```

```java
    Rectangle(double l, double b) {
        length = l;
        breadth = b;
    }
    double calculateArea() {
        return length * breadth;
    }
}

class Triangle extends Shape {
    private double base;
    private double height;
    Triangle(double b, double h) {
        base = b;
        height = h;
    }
    double calculateArea() {
        return 0.5 * base * height;
    }
}

public class Prog {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double r = sc.nextDouble();
        Shape circle = new Circle(r);
        System.out.println("Area of a circle: "+String.format("%.2f",circle.calculateArea()));
        double length = sc.nextDouble();
        double breadth = sc.nextDouble();
        Shape rectangle = new Rectangle(length, breadth);
        System.out.println("Area of a Rectangle: " + String.format("%.2f",rectangle.calculateArea()));
        double base = sc.nextDouble();
        double height = sc.nextDouble();
        Shape triangle = new Triangle(base, height);
```

	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

```
class FinalExample {

    // Final variable
    final int maxSpeed = 120;

    // Final method
    public final void displayMaxSpeed() {
        System.out.println("The maximum speed is: " + maxSpeed + " km/h");
    }
}
class SubClass extends FinalExample {
    /*public void displayMaxSpeed() {
        System.out.println("Cannot override a final method");
    }*/
    // You can create new methods here
    public void showDetails() {
        System.out.println("This is a subclass of FinalExample.");
    }
}
class prog {
    public static void main(String[] args) {
        FinalExample obj = new FinalExample();
        obj.displayMaxSpeed();

        SubClass subObj = new SubClass();
        subObj.showDetails();
    }
}

```

	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 ►