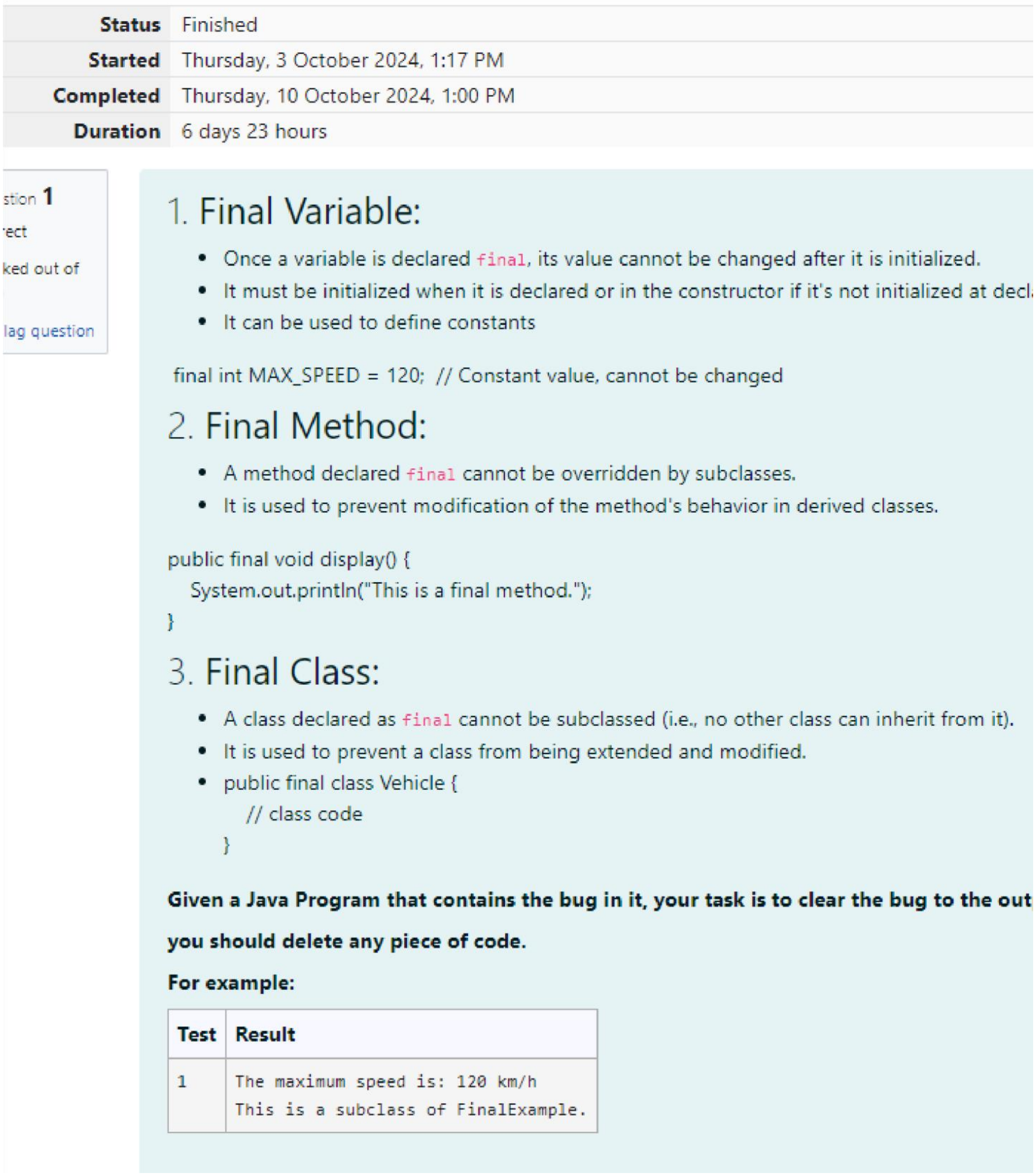
SAKSHI



Status	Finished
Started	Thursday, 3 October 2024, 1:17 PM
Completed	Thursday, 10 October 2024, 1:00 PM
Duration	6 days 23 hours

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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 decl
- 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
  }

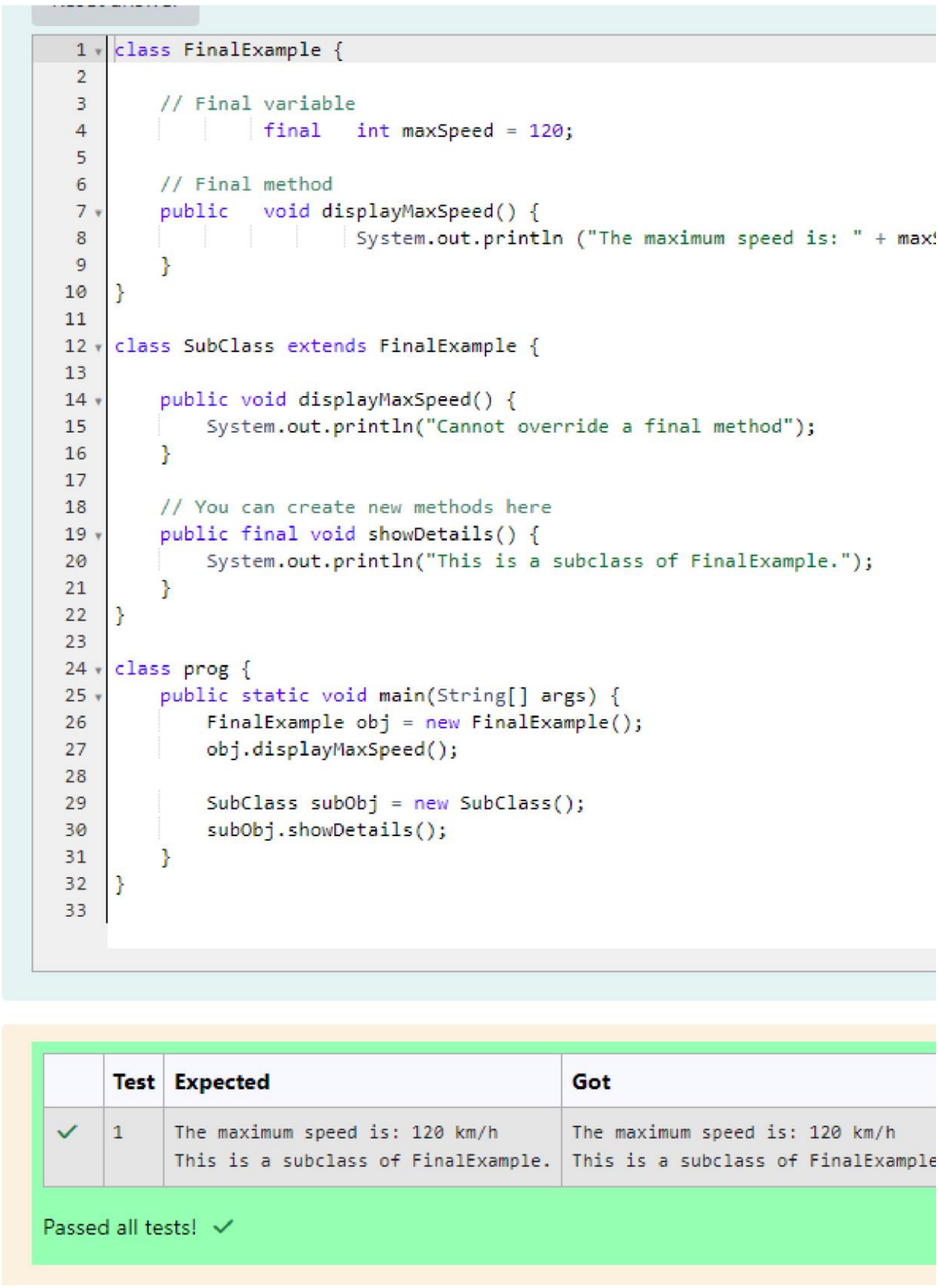
Given a Java Program that contains the bug in it, your task is to clear the bug to the out

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.`



```
class FinalExample {

    // Final variable
             final   int maxSpeed = 120;

    // Final method
    public   void displayMaxSpeed() {
                     System.out.println ("The maximum speed is: " + max
    }
}

class SubClass extends FinalExample {

    public void displayMaxSpeed() {
        System.out.println("Cannot override a final method");
    }

    // You can create new methods here
    public final 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! ✓

Question **2**

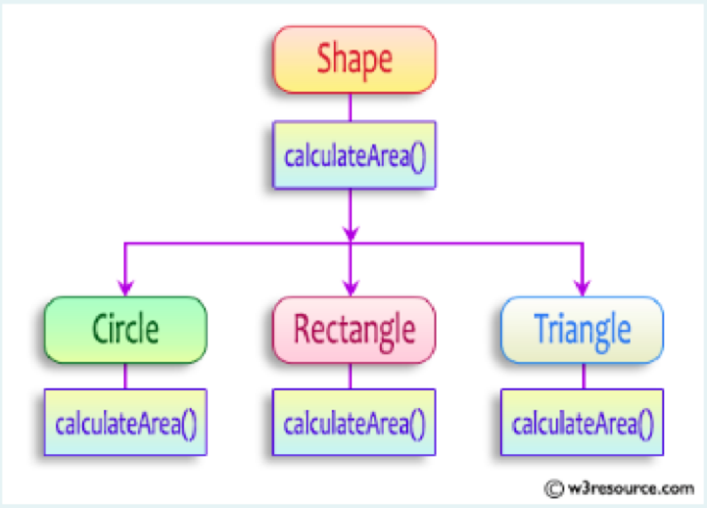
Correct

Marked out of 5.00

Flag question

Create a base class Shape with a method called calculateArea(). Create three subclasses
shape's area.

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



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

System.out.printf("Area of a Triangle :%.2f%n",((0.5)*base*height)); // use this statemen

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

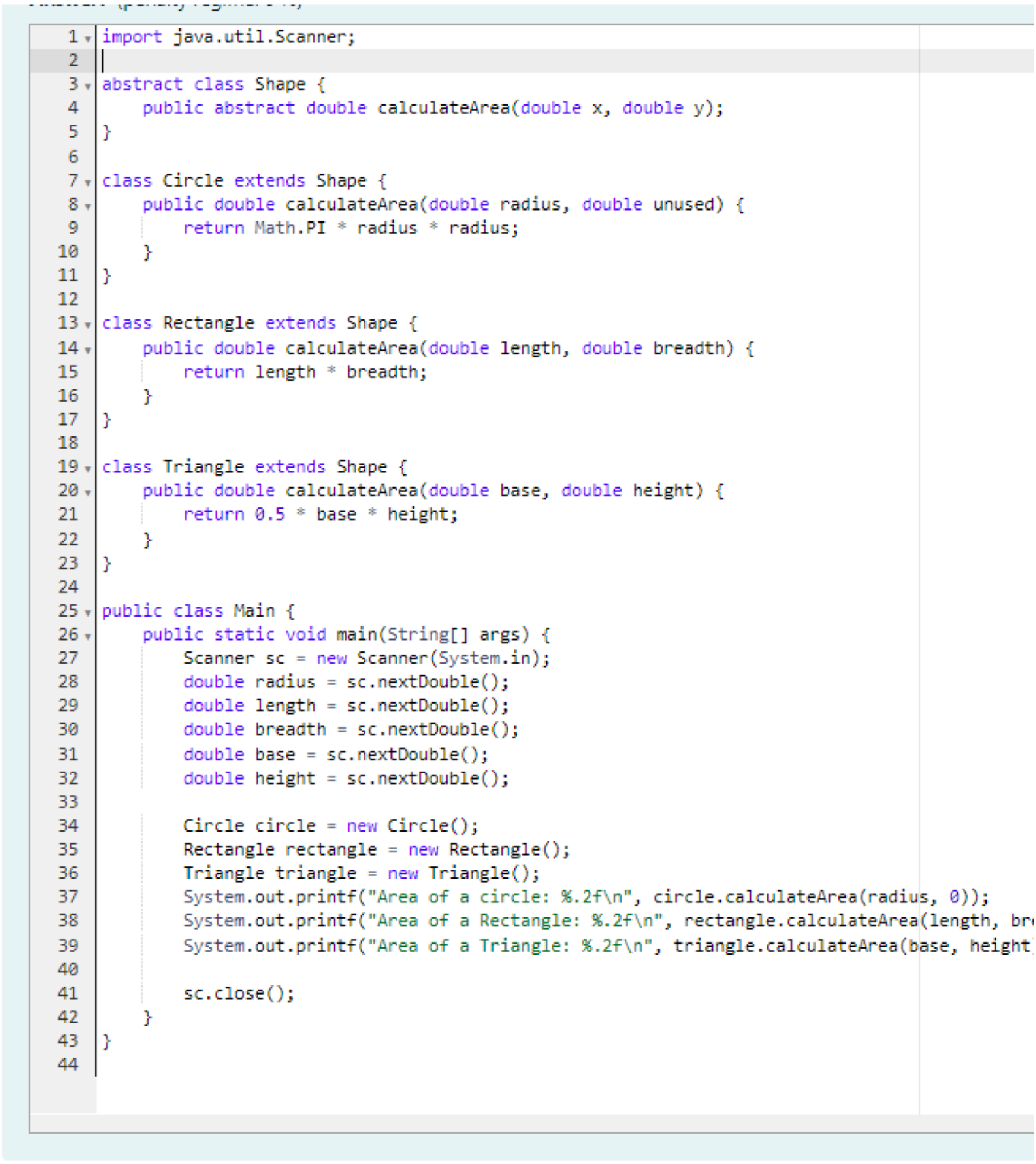
3   // height of the triangle

OUTPUT:

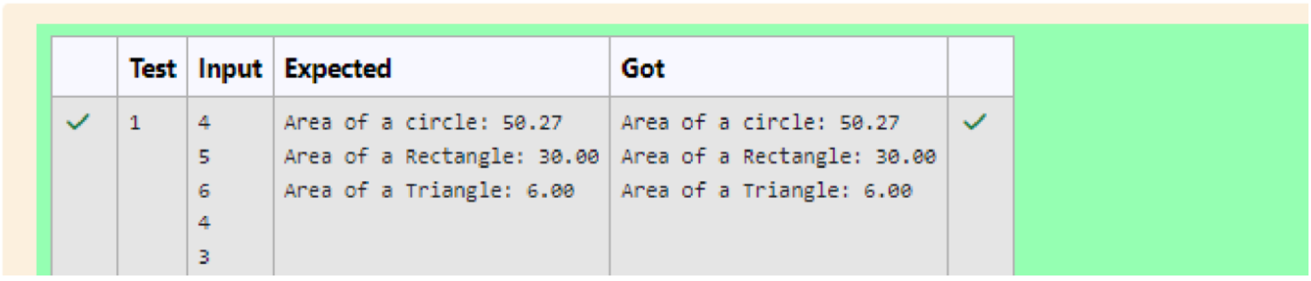
Area of a circle :50.27
Area of a Rectangle :30.00
Area of a Triangle :6.00

For example:

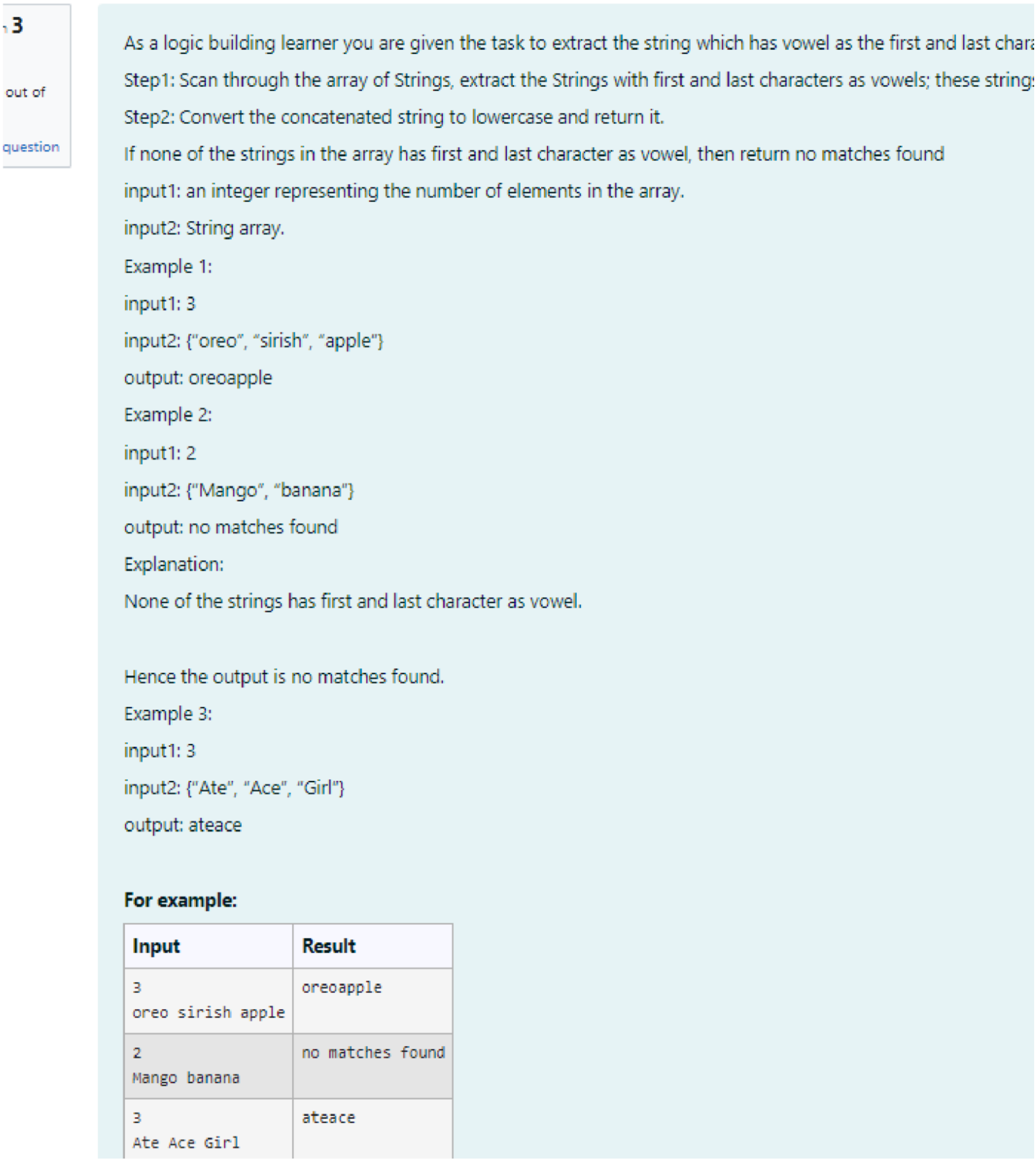
Test	Input	Result
1	4 5 6 4	Area of a circle: 50.27 Area of a Rectangle: 30.00 Area of a Triangle: 6.00



```java
import java.util.Scanner;

abstract class Shape {
    public abstract double calculateArea(double x, double y);
}

class Circle extends Shape {
    public double calculateArea(double radius, double unused) {
        return Math.PI * radius * radius;
    }
}

class Rectangle extends Shape {
    public double calculateArea(double length, double breadth) {
        return length * breadth;
    }
}

class Triangle extends Shape {
    public double calculateArea(double base, double height) {
        return 0.5 * base * height;
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double radius = sc.nextDouble();
        double length = sc.nextDouble();
        double breadth = sc.nextDouble();
        double base = sc.nextDouble();
        double height = sc.nextDouble();

        Circle circle = new Circle();
        Rectangle rectangle = new Rectangle();
        Triangle triangle = new Triangle();
        System.out.printf("Area of a circle: %.2f\n", circle.calculateArea(radius, 0));
        System.out.printf("Area of a Rectangle: %.2f\n", rectangle.calculateArea(length, br
        System.out.printf("Area of a Triangle: %.2f\n", triangle.calculateArea(base, height

        sc.close();
    }
}
```



	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	✓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question

As a logic building learner you are given the task to extract the string which has vowel as the first and last chara

Step1: Scan through the array of Strings, extract the Strings with first and last characters as vowels; these string

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:

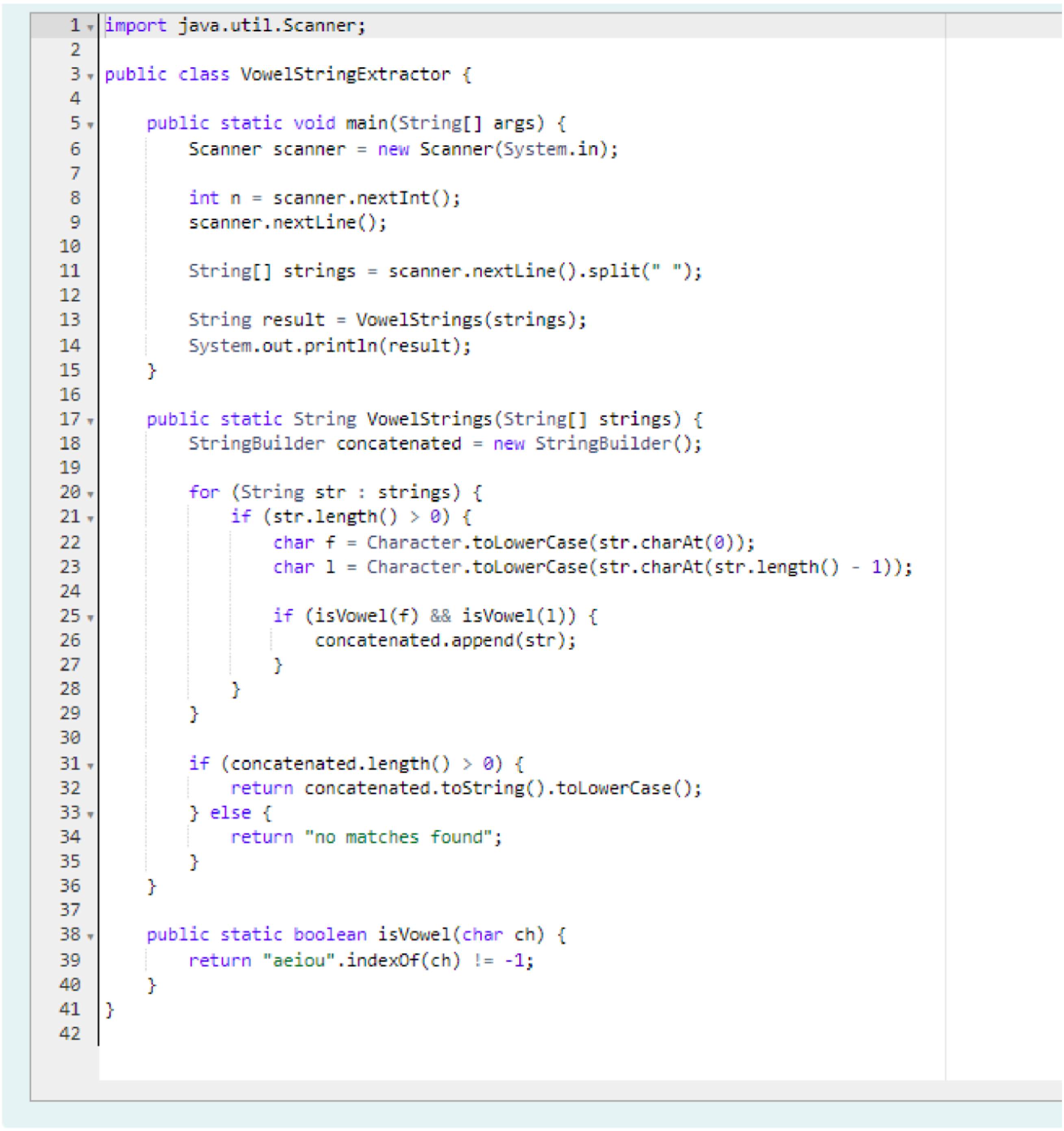
input1: 3

input2: {"Ate", "Ace", "Girl"}

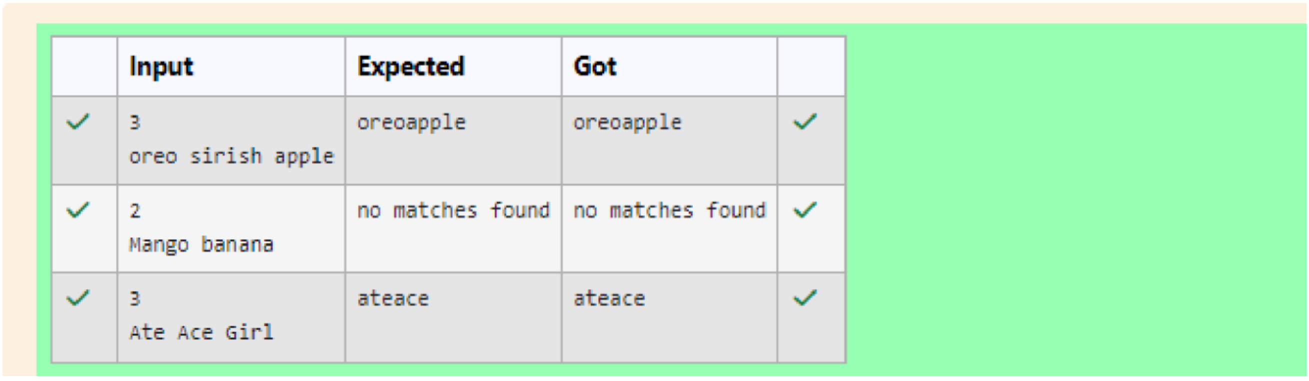
output: ateace

For example:

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



```java
import java.util.Scanner;

public class VowelStringExtractor {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        int n = scanner.nextInt();
        scanner.nextLine();

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

        String result = VowelStrings(strings);
        System.out.println(result);
    }

    public static String VowelStrings(String[] strings) {
        StringBuilder concatenated = new StringBuilder();

        for (String str : strings) {
            if (str.length() > 0) {
                char f = Character.toLowerCase(str.charAt(0));
                char l = Character.toLowerCase(str.charAt(str.length() - 1));

                if (isVowel(f) && isVowel(l)) {
                    concatenated.append(str);
                }
            }
        }

        if (concatenated.length() > 0) {
            return concatenated.toString().toLowerCase();
        } else {
            return "no matches found";
        }
    }

    public static boolean isVowel(char ch) {
        return "aeiou".indexOf(ch) != -1;
    }
}

```



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