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Status	Finished
Started	Sunday, 6 October 2024, 1:22 PM
Completed	Sunday, 6 October 2024, 1:27 PM
Duration	4 mins 38 secs

Question 1

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

```
1 class FinalExample
2 {
3     int maxSpeed = 120;
4     public final void displayMaxSpeed()
5     {
6         System.out.println("The maximum speed is: " + maxSpeed + " km/h");
7     }
8 }
9 class SubClass extends FinalExample
10 {
11     public void showDetails()
12     {
13         System.out.println("This is a subclass of FinalExample.");
14     }
15 }
16 class prog
17 {
18     public static void main(String[] args)
19     {
20         FinalExample obj = new FinalExample();
21         obj.displayMaxSpeed();
22         SubClass subObj = new SubClass();
23         subObj.showDetails();
```

```
24 |    }  
25 | }
```

	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! ✓

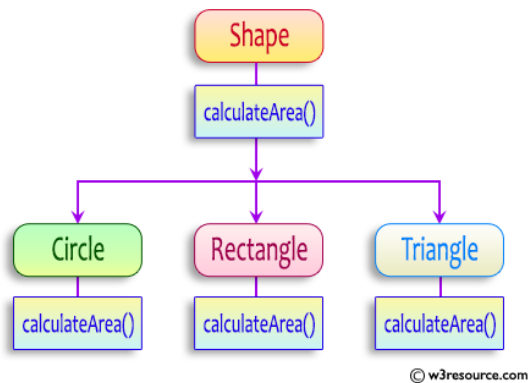
Question 2

Correct

Marked out of 5.00

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 %)

```

1 import java.util.*;
2 abstract class s
3 {
4     public abstract double calculateArea();

```

```

5  }
6  class c extends s
7  {
8      double r;
9      c(double r)
10     {
11         this.r=r;
12     }
13     public double calculateArea()
14     {
15         double a=Math.PI*r*r;
16         System.out.printf("Area of a circle: %.2f\n",a);
17         return a;
18     }
19 }
20 class r extends s
21 {
22     double l;
23     double b;
24     r(double l,double b)
25     {
26         this.l=l;
27         this.b=b;
28     }
29     public double calculateArea()
30     {
31         double a=l*b;
32         System.out.printf("Area of a Rectangle: %.2f\n",a);
33         return a;
34     }
35 }
36 class t extends s
37 {
38     double b;
39     double h;
40     t(double b,double h)
41     {
42         this.b=b;
43         this.h=h;
44     }
45     public double calculateArea()
46     {
47         double a=b*h*0.5;
48         System.out.printf("Area of a Triangle: %.2f\n",a);
49         return a;
50     }
51 }
52 public class hello

```

	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

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 %)

```

1 import java.util.*;
2 public class hello
3 {
4     public static void main(String[] args)
5     {
6         Scanner sc=new Scanner(System.in);
7         int n=sc.nextInt();
8         int k=0;
9         String arr[]=new String[n];
10        for(int i=0;i<n;i++)

```

```

11  {
12      arr[i]=sc.next();
13      arr[i]=arr[i].toLowerCase();
14      char ch=arr[i].charAt(0);
15      if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
16      {
17          int z=arr[i].length();
18          char x=arr[i].charAt(z-1);
19          if (x=='a' || x=='e' || x=='i' || x=='o' || x=='u')
20          {
21              k=1;
22              System.out.print(arr[i]);
23          }
24      }
25  }
26  }
27  if(k==0)
28  {
29      System.out.println("no matches found");
30  }
31  }
32  }
33  }

```

	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! ✓

◀ Lab-08-MCQ

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