Assignement 6
Total Marks=10

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Q1 . Write a Java program to implement a class Calculator with method overloading for the multiply operation **[Marks =5]**

Requirements:

1. **double multiply()**:
   Takes no arguments. It should prompt the user to input two double numbers and return their product.
2. **double multiply(double a, double b)**:
   Takes two double arguments, multiplies them, and returns the product.
3. **double multiply(double a, double b, double c)**:
   Takes three double arguments, multiplies them, and returns the product.
4. **double multiply(double[] numbers)**:
   Takes an array of double numbers, multiplies all the elements, and returns the product.
5. Write a main method to demonstrate the working of all the overloaded multiply methods.

Q2. Write a Java program with the following requirements: **[Marks =5]**

1. Create an abstract class called **Shape** with an abstract method **getArea()** that returns a double.
2. Create the following subclasses that extend **`Shape`**:
   - **`Circle`**:
     - Has a constructor that takes the radius as an argument.
     - Overrides `getArea()` to return the area of the circle.
   - **`Triangle`**:
     - Has a constructor that takes the base and height as arguments.
     - Overrides `getArea()` to return the area of the triangle.
3. Create another subclass called **`Square`** that extends **`Rectangle`** (which you must also create by extending Shape):
   - **`Rectangle`**:
     - Has a constructor that takes the length and width as arguments.
     - Overrides `getArea()` to return the area of the rectangle.
   - **`Square`**:

- Has a constructor that takes the side length as an argument.
- Uses the constructor of `Rectangle` to initialize the square.
- Does not override `getArea()` (inherits it from `Rectangle`).

4. Write a **`main`** method to create instances of `Circle`, `Triangle`, `Rectangle`, and `Square` and print their areas.