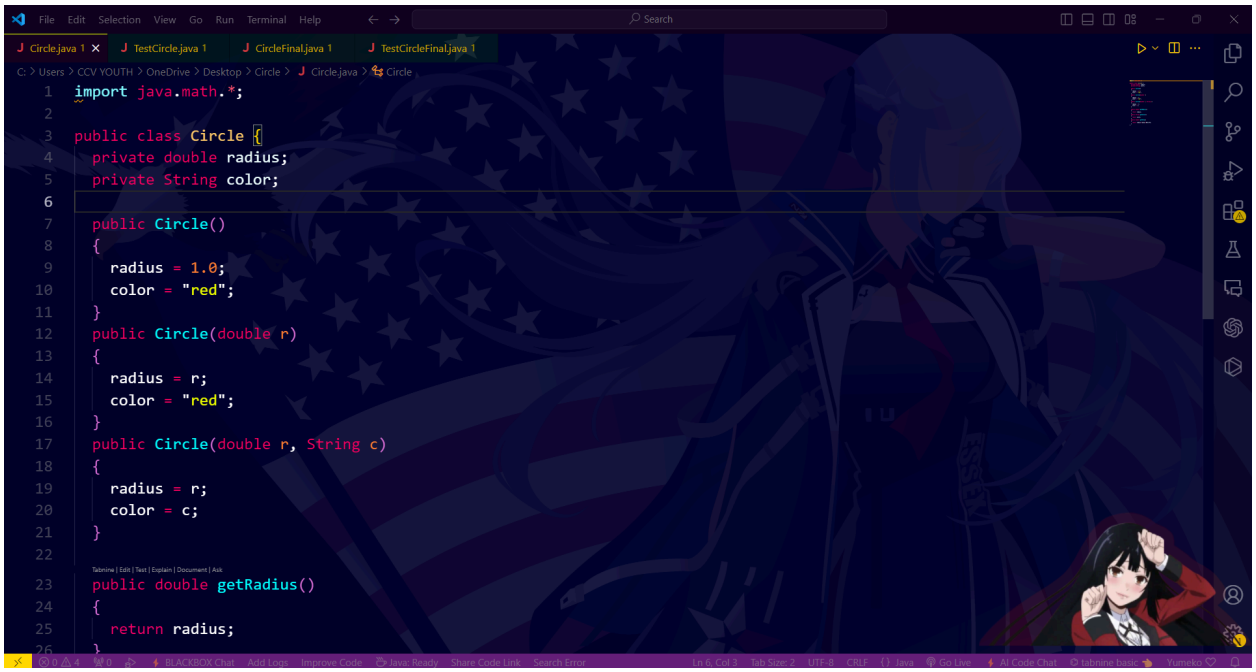
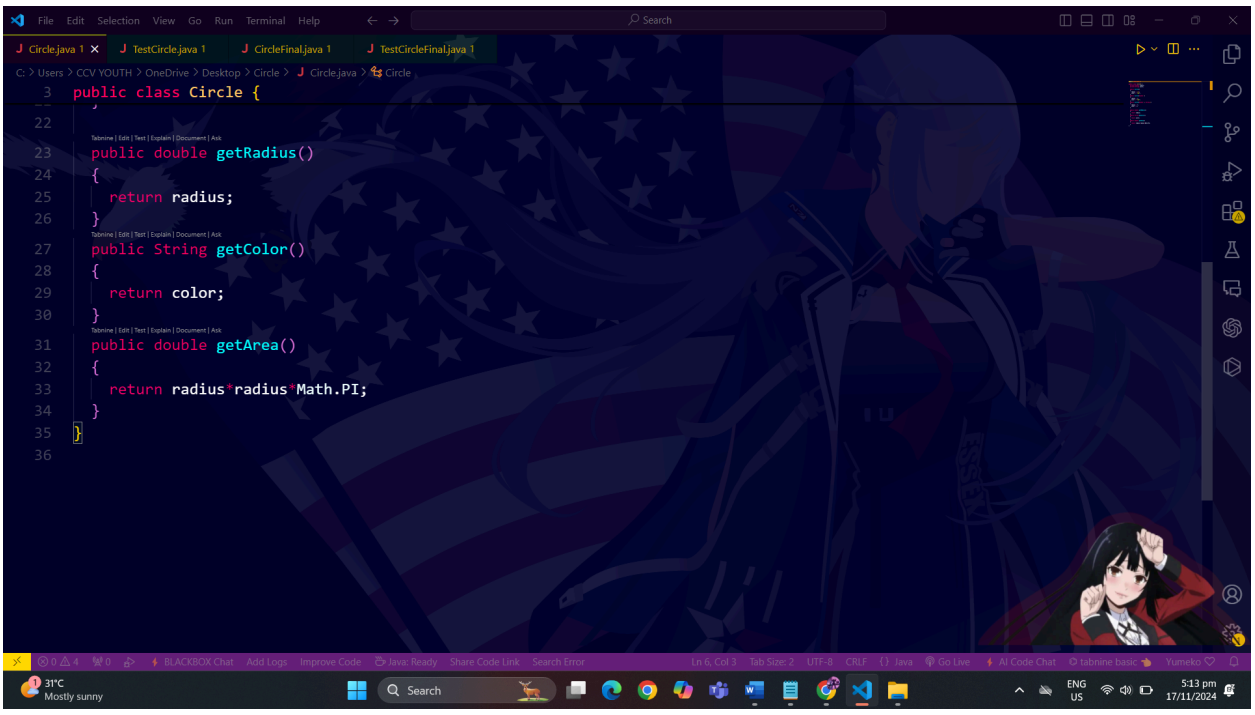
Circle Class Documentation

The `Circle` class represents a circle with a radius and a color. It includes constructors to initialize these properties, getter methods to retrieve them, and a method to calculate the area of the circle.





Fields

- `radius` (type: `double`): Represents the radius of the circle.
- `color` (type: `String`): Represents the color of the circle.

Constructors

- **`Circle()`**: Initializes a circle with a default radius of `1.0` and color `"red"`.
- **`Circle(double r)`**: Initializes a circle with the given radius `r` and a default color `"red"`.
- **`Circle(double r, String c)`**: Initializes a circle with the given radius `r` and the given color `c`.

Methods

- **`getRadius()`**: Returns the radius of the circle.
- **`getColor()`**: Returns the color of the circle.
- **`getArea()`**: Returns the area of the circle, calculated using the formula: Area=π×radius2\text{Area} = \pi \times \text{radius}^2 Area=π×radius2

TestCircle Class Documentation

The `TestCircle` class is a simple test class to demonstrate the usage of the `Circle` class. It creates instances of `Circle` with different constructors and prints the circle's properties (radius, color, and area).

Main Method

- Creates three `Circle` objects (`c1`, `c2`, `c3`) using different constructors.
- Prints the radius, color, and area of each circle using `getRadius()`, `getColor()`, and `getArea()`.

Output Example

The `TestCircle` class outputs the radius, color, and area of each circle in a formatted manner.

```java
public class CircleFinal {

  public static final double DEFAULT_RADIUS = 1.0; //final = cannot be changed
  public static final String DEFAULT_COLOR = "red"; // both of them are constants

  private double radius;
  private String color;

  public CircleFinal()
  {
    radius = DEFAULT_RADIUS;
    color = DEFAULT_COLOR;
  }
  public CircleFinal(double radius)
  {
    this.radius = radius;
    color = DEFAULT_COLOR;
  }
  public CircleFinal(double radius, String color)
  {
    this.radius = radius;
    this.color = color;
  }
```

```java
public class CircleFinal {

  public double getRadius()
  {
    return this.radius;
  }
  public void setRadius(double radius)
  {
    this.radius = radius;
  }
  public String getColor()
  {
    return this.color;
  }
  public void setColor(String color)
  {
    this.color = color;
  }
  public String toString()
  {
    return "Circle [raius = " + radius + ", color = " + color + "]";
  }
  public double getArea()
```

Fields

- `DEFAULT_RADIUS` (type: `final double`): A constant representing the default radius (value: `1.0`).
- `DEFAULT_COLOR` (type: `final String`): A constant representing the default color (value: `"red"`).
- `radius` (type: `double`): Represents the radius of the circle.
- `color` (type: `String`): Represents the color of the circle.

Constructors

- **`CircleFinal()`**: Initializes a circle with the default radius `DEFAULT_RADIUS` and color `DEFAULT_COLOR`.
- **`CircleFinal(double radius)`**: Initializes a circle with the given radius and the default color `DEFAULT_COLOR`.
- **`CircleFinal(double radius, String color)`**: Initializes a circle with the given radius and color.

Methods

- **`getRadius()`**: Returns the radius of the circle.
- **`setRadius(double radius)`**: Sets the radius of the circle to the given value.
- **`getColor()`**: Returns the color of the circle.
- **`setColor(String color)`**: Sets the color of the circle to the given value.
- **`toString()`**: Returns a string representation of the circle in the format `"Circle [radius = x, color = y]"`.

- **`getArea()`**: Returns the area of the circle, calculated using the formula: Area=π×radius2\text{Area} = \pi \times \text{radius}^2 Area=π×radius2
- **`getCircumference()`**: Returns the circumference of the circle, calculated using the formula: Circumference=2×π×radius\text{Circumference} = 2 \times \pi \times \text{radius}Circumference=2×π×radius

TestCircleFinal Class Documentation

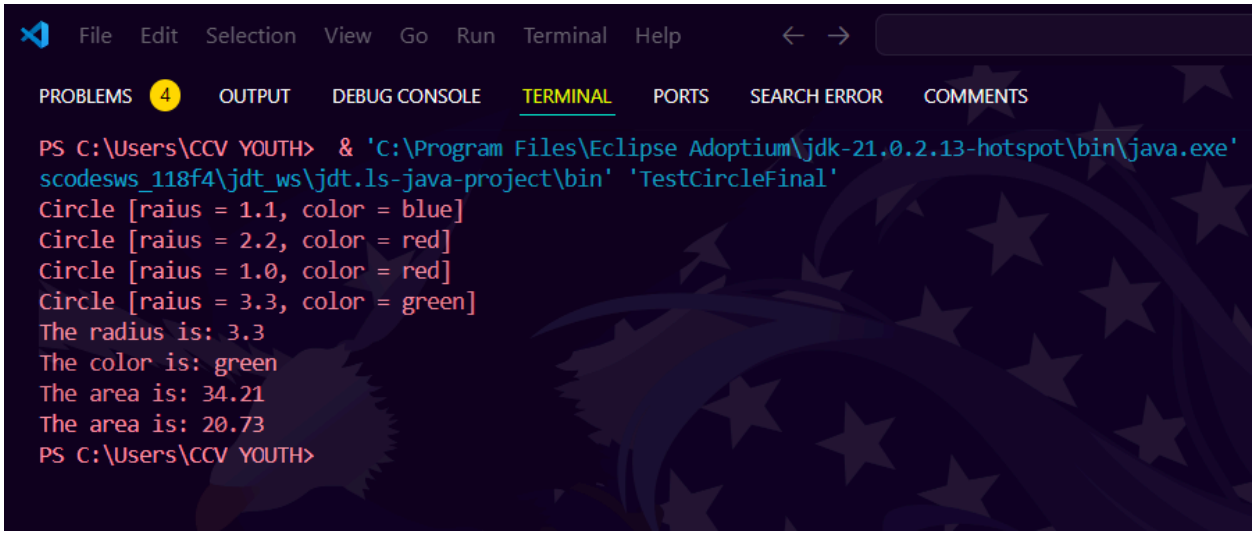
The `TestCircleFinal` class demonstrates the functionality of the `CircleFinal` class. It creates instances of `CircleFinal`, modifies their properties using setters, and prints their details.

Main Method

- Creates three `CircleFinal` objects (`c1`, `c2`, `c3`) using different constructors.
- Modifies the properties of `c1` using `setRadius()` and `setColor()`.
- Prints the string representation of each circle.
- Prints the radius, color, area, and circumference of `c1` after modification.

Output Example

The `TestCircleFinal` class prints the circle's string representation (`toString()`) and its calculated area and circumference.


File Edit Selection View Go Run Terminal Help
PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH ERROR COMMENTS
PS C:\Users\CCV YOUTH> & 'C:\Program Files\Eclipse Adoptium\jdk-21.0.2.13-hotspot\bin\java.exe'
scodesws_118f4\jdt_ws\jdt.ls-java-project\bin' 'TestCircleFinal'
Circle [raius = 1.1, color = blue]
Circle [raius = 2.2, color = red]
Circle [raius = 1.0, color = red]
Circle [raius = 3.3, color = green]
The radius is: 3.3
The color is: green
The area is: 34.21
The area is: 20.73
PS C:\Users\CCV YOUTH>