pe.java | Shape1.java | Main3.java | Main.

File Edit View

```java
// Animal class
class Animal {
    void makeSound() {
        System.out.println("Animal makes a sound");
    }
}

// Cat subclass overriding makeSound()
class Cat extends Animal {
    @Override
    void makeSound() {
        System.out.println("Meow");
    }
}

public class Main {
    public static void main(String[] args) {
        Animal myAnimal = new Animal();
        myAnimal.makeSound();  // Animal makes a sound

        Animal myCat = new Cat();
        myCat.makeSound();  // Meow
    }
}
```

C:\Windows\System32\cmd.e

```
Microsoft Windows [Version 10.0.22631.4249]
(c) Microsoft Corporation. All rights reserved.

D:\MyJava\class_\inheritence-assignment>javac Main.java

D:\MyJava\class_\inheritence-assignment>java Main.java
error: can't find main(String[]) method in class: Animal

D:\MyJava\class_\inheritence-assignment>java Main
Animal makes a sound
Meow

D:\MyJava\class_\inheritence-assignment>
```

pe.java | Shape1.java | Main: | Main.java

File Edit View

```java
// BankAccount class
class BankAccount {
    double balance;

    public void deposit(double amount) {
        balance += amount;
    }

    public void withdraw(double amount) {
        balance -= amount;
    }

    public double getBalance() {
        return balance;
    }
}

// SavingsAccount subclass overriding withdraw method
class SavingsAccount extends BankAccount {
    @Override
    public void withdraw(double amount) {
        if (balance - amount >= 100) {
            balance -= amount;
        } else {
            System.out.println("Insufficient balance for withdrawal.");
        }
    }
}

public class Main3 {
    public static void main(String[] args) {
        SavingsAccount myAccount = new SavingsAccount();
        myAccount.deposit(500);
        myAccount.withdraw(200);  // Successful withdrawal
        System.out.println("Balance: " + myAccount.getBalance());

        myAccount.withdraw(400);  // Withdrawal blocked (balance would be below 100)
        System.out.println("Balance: " + myAccount.getBalance());
    }
}
```

C:\Windows\System32\cmd.e

```
D:\MyJava\class_\inheritence-assignment>javac Main3.java

D:\MyJava\class_\inheritence-assignment>java Main3
Balance: 300.0
Insufficient balance for withdrawal.
Balance: 300.0

D:\MyJava\class_\inheritence-assignment>
```

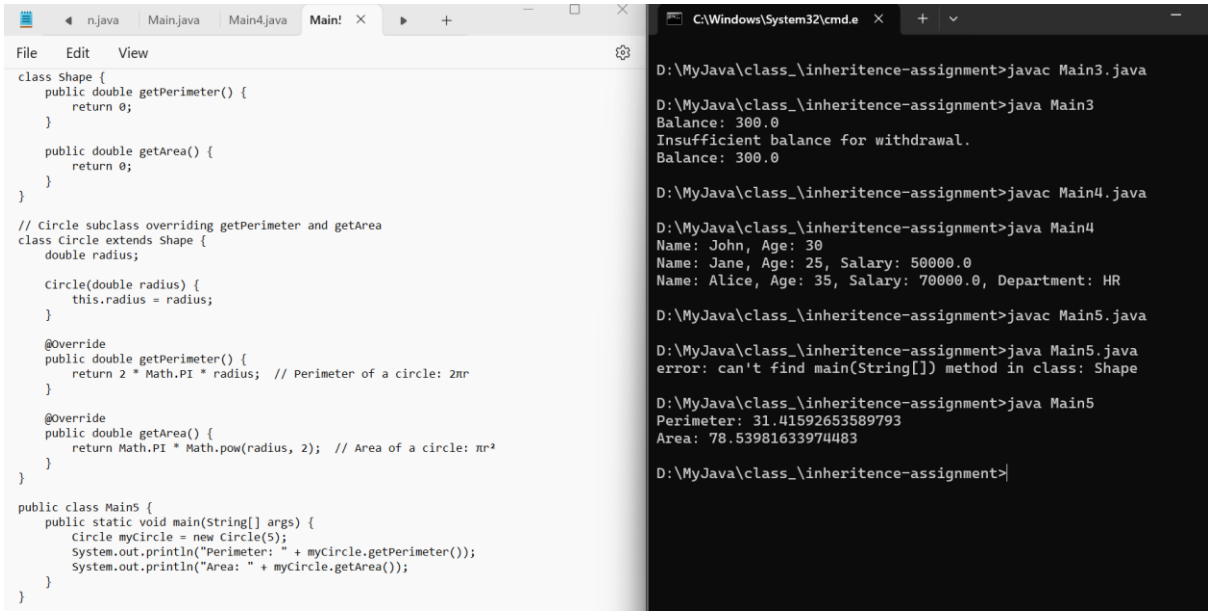
n3.java | Main.java | Main.java | Main

File Edit View

```java
// Person class
class Person {
    String name;
    int age;

    Person(String name, int age) {
        this.name = name;
        this.age = age;
    }

    void display() {
        System.out.println("Name: " + name + ", Age: " + age);
    }
}

// Employee subclass
class Employee extends Person {
    double salary;

    Employee(String name, int age, double salary) {
        super(name, age);
        this.salary = salary;
    }

    @Override
    void display() {
        System.out.println("Name: " + name + ", Age: " + age + ", Salary: " + salary);
    }
}

// Manager subclass
class Manager extends Employee {
    String department;

    Manager(String name, int age, double salary, String department) {
        super(name, age, salary);
        this.department = department;
    }

    @Override
    void display() {
        System.out.println("Name: " + name + ", Age: " + age + ", Salary: " + salary + ", Department: " + department);
    }
}

public class Main4 {
    public static void main(String[] args) {
        Person person = new Person("John", 30);
        person.display();

        Employee employee = new Employee("Jane", 25, 50000);
        employee.display();

        Manager manager = new Manager("Alice", 35, 70000, "HR");
        manager.display();
    }
```

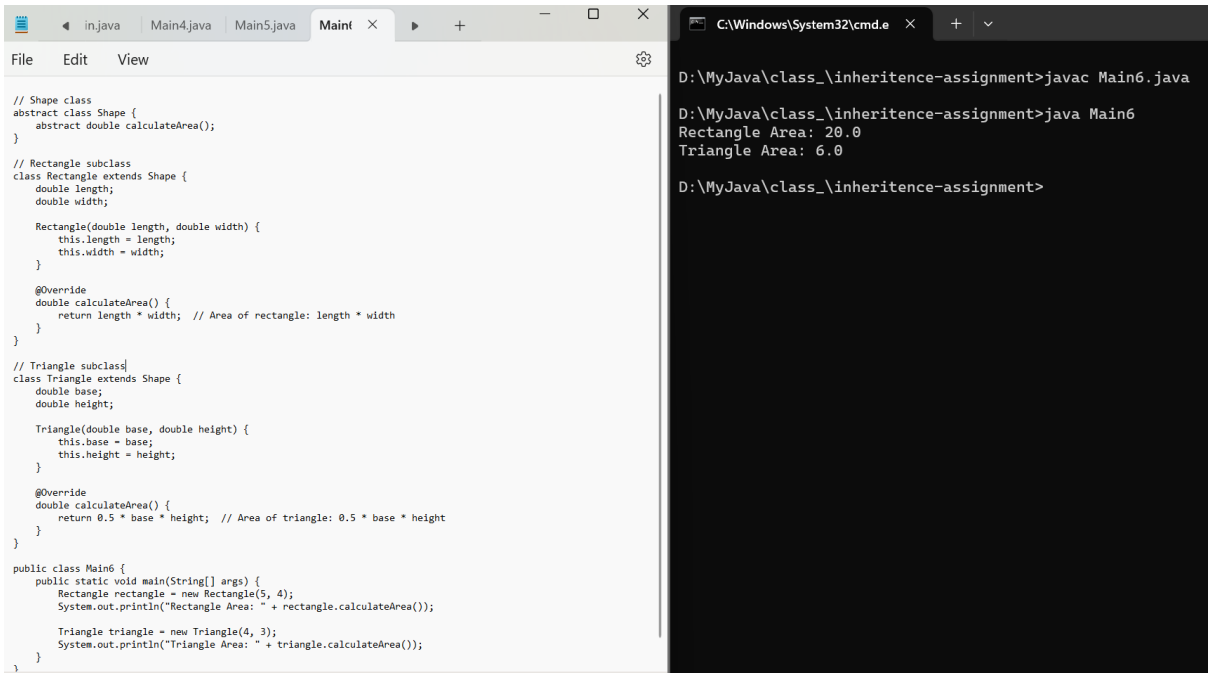
C:\Windows\System32\cmd.e

```
D:\MyJava\class_\inheritence-assignment>javac Main3.java

D:\MyJava\class_\inheritence-assignment>java Main3
Balance: 300.0
Insufficient balance for withdrawal.
Balance: 300.0

D:\MyJava\class_\inheritence-assignment>javac Main4.java

D:\MyJava\class_\inheritence-assignment>java Main4
Name: John, Age: 30
Name: Jane, Age: 25, Salary: 50000.0
Name: Alice, Age: 35, Salary: 70000.0, Department: HR

D:\MyJava\class_\inheritence-assignment>
```



```
class Shape {
    public double getPerimeter() {
        return 0;
    }

    public double getArea() {
        return 0;
    }
}

// Circle subclass overriding getPerimeter and getArea
class Circle extends Shape {
    double radius;

    Circle(double radius) {
        this.radius = radius;
    }

    @Override
    public double getPerimeter() {
        return 2 * Math.PI * radius;  // Perimeter of a circle: 2πr
    }

    @Override
    public double getArea() {
        return Math.PI * Math.pow(radius, 2);  // Area of a circle: πr²
    }
}

public class Main5 {
    public static void main(String[] args) {
        Circle myCircle = new Circle(5);
        System.out.println("Perimeter: " + myCircle.getPerimeter());
        System.out.println("Area: " + myCircle.getArea());
    }
}
```

```
D:\MyJava\class_\inheritence-assignment>javac Main3.java

D:\MyJava\class_\inheritence-assignment>java Main3
Balance: 300.0
Insufficient balance for withdrawal.
Balance: 300.0

D:\MyJava\class_\inheritence-assignment>javac Main4.java

D:\MyJava\class_\inheritence-assignment>java Main4
Name: John, Age: 30
Name: Jane, Age: 25, Salary: 50000.0
Name: Alice, Age: 35, Salary: 70000.0, Department: HR

D:\MyJava\class_\inheritence-assignment>javac Main5.java

D:\MyJava\class_\inheritence-assignment>java Main5.java
error: can't find main(String[]) method in class: Shape

D:\MyJava\class_\inheritence-assignment>java Main5
Perimeter: 31.41592653589793
Area: 78.53981633974483

D:\MyJava\class_\inheritence-assignment>
```



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

// Rectangle subclass
class Rectangle extends Shape {
    double length;
    double width;

    Rectangle(double length, double width) {
        this.length = length;
        this.width = width;
    }

    @Override
    double calculateArea() {
        return length * width;  // Area of rectangle: length * width
    }
}

// Triangle subclass
class Triangle extends Shape {
    double base;
    double height;

    Triangle(double base, double height) {
        this.base = base;
        this.height = height;
    }

    @Override
    double calculateArea() {
        return 0.5 * base * height;  // Area of triangle: 0.5 * base * height
    }
}

public class Main6 {
    public static void main(String[] args) {
        Rectangle rectangle = new Rectangle(5, 4);
        System.out.println("Rectangle Area: " + rectangle.calculateArea());

        Triangle triangle = new Triangle(4, 3);
        System.out.println("Triangle Area: " + triangle.calculateArea());
    }
}
```

```
D:\MyJava\class_\inheritence-assignment>javac Main6.java

D:\MyJava\class_\inheritence-assignment>java Main6
Rectangle Area: 20.0
Triangle Area: 6.0

D:\MyJava\class_\inheritence-assignment>
```