Week-8

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IT PCC-CS593 L - OBJECT ORIENTED PROGRAMMING LAB

Abstract Class & Interface

```java
package com.randrita.week8;

public class Area {
    public static void main(String[] args) {
        Rectangle r = new Rectangle();
        Circle c    = new Circle();

        System.out.println("The area of Rectangle: "+ r.calculate(10,10));
        System.out.println("The area of Circle: "+ c.calculate(5,5));
    }
}


interface  A {
    public double calculate(double x,double y);
}

class Rectangle implements A{
    @Override
    public double calculate(double x, double y) {
        return x*y;
    }
}

class Circle implements A{
    public double calculate(double x,double y){
        return x*x*Math.PI;
    }
}
```
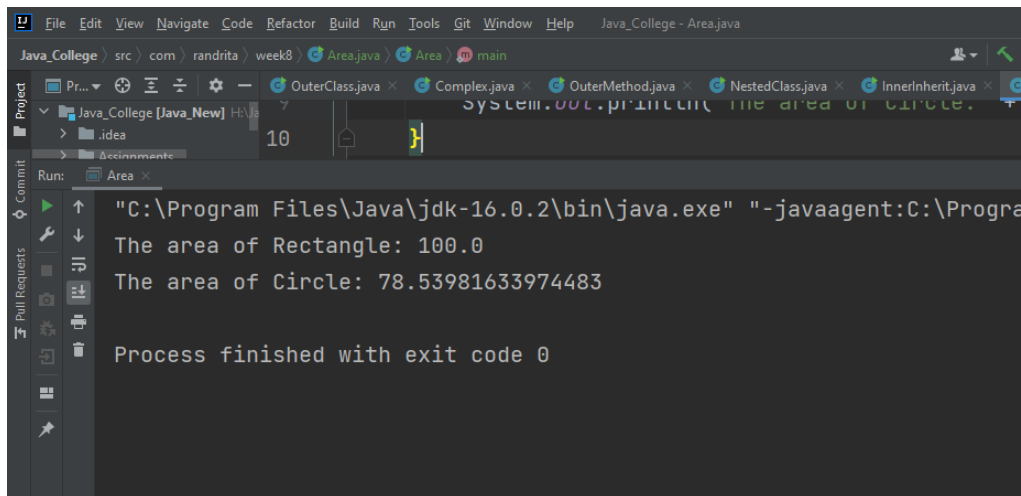
Output:

2.

```java
package com.randrita.week8;

abstract class Animal {
    protected int legs;

    protected Animal(int legs){
        this.legs=legs;
    }

    abstract void eat();

    public void walk(){
        System.out.println("I have:"+legs+"
legs.");
    }
}

class Spider extends Animal{
    Spider(){
        super(8);
    }

    public void eat(){
        System.out.println("I like to eat meat!");
    }
}
```

```java
}

interface pet{
    public String getName();
    public void setName(String petName);
    public void play();
}

class Cat extends Animal implements pet{
    String petName;
    Cat(String petName){
        super(4);
        this.petName=petName;
    }

    Cat(){
     this("");
    }

    public String getName(){
        return petName;
    }

    public void setName(String petName){
        this.petName=petName;
    }

    @Override
    public void play() {
        System.out.println("I love to walk!");
    }

    @Override
    void eat() {
        System.out.println("I love milk!");
    }
}

class Fish extends Animal implements pet {
    Fish() {
        super(0);
```

```java
    }

    private String fishName;

    public void eat() {
        System.out.println("I like to eat
insects!");
    }

    public String getName() {
        return fishName;
    }

    public void setName(String fishName) {
        this.fishName = fishName;
    }

    public void play() {
        System.out.println("I love to swim");
    }

    public void walk() {
        System.out.println("I have:" + legs + "
legs.");
    }
}
public class TestAnimals {
    public static void main(String[] args) {
        Cat c = new Cat("Fluffy");

        Animal a = new Fish();

        Animal e = new Spider();

        pet p = new Cat();

        //spider
        System.out.println("Hello I'm Spider
Class!");
        e.eat();
        e.walk();
```

```java
        System.out.println("===================");

        //pet
        System.out.println("Hello I'm Pet
Interface!");
        p.setName("Leo");
        System.out.println("My pet's name is:
"+p.getName());
        p.play();
        System.out.println("===================");

        //cat
        System.out.println("Hello I'm Cat
Class!");
        System.out.println("My cat's name
is:"+c.getName());
        c.walk();
        c.eat();
        c.play();
        System.out.println("===================");

        //fish
        System.out.println("Hello I'm Fish
Class!");
        a.walk();
        a.eat();
        System.out.println("===================");


    }
}
```

Output:

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program
Hello I'm Spider Class!
I like to eat meat!
I have:8 legs.
====================
Hello I'm Pet Interface!
My pet's name is: Leo
I love to walk!
====================
Hello I'm Cat Class!
My cat's name is:Fluffy
I have:4 legs.
I love milk!
I love to walk!
====================
Hello I'm Fish Class!
```

Java_College src com randrita week8 TestAnimals.java

OuterClass.java   Complex.java   OuterMethod.java   NestedClass.java   InnerInherit.java   Area.java   TestAnimals.java

```java
System.out.println("I have:" + legs + " legs.");
```

Run: TestAnimals

```
My pet's name is: Leo
I love to walk!
====================
Hello I'm Cat Class!
My cat's name is:Fluffy
I have:4 legs.
I love milk!
I love to walk!
====================
Hello I'm Fish Class!
I have:0 legs.
I like to eat insects!
====================


Process finished with exit code 0
```