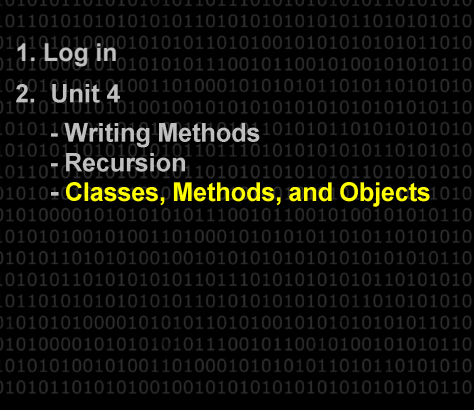




1. Log In
2. Unit 4
 - Writing Methods
 - Recursion
 - **Classes, Methods, and Objects**

Mar 9-11:28 AM

Objects, Classes, and Methods Vocabulary ...

Types of Methods

- Constructor Method
- Default Constructor Method
- Mutator Method
- Accessor Method
- Main Method

Types of Variables

- Instance Variables
- State Variables
- Object Reference
- Static Variable - today
- Static Final Variable

Other Terms

- Encapsulation
- Instance of an Object
- Public
- Private
- Recursion
- Base Case in Recursion
- Method Header
- Access Specifiers-public/private/static
- Return Types-int/double/String/boolean/void
- Parameter

May 18-1:29 PM

Video

Understanding Objects

(6 minutes)

[watch video](#)

Nov 6-10:32 PM

Today We Make Puppy Objects



Nov 6-10:32 PM

```
public class Puppy {  
    public int age;  
    public String breed, name;  
    public static int puppyCount=0;
```

```
public Puppy(String n, int a, String b) {
    name = n;
    age = a;
    breed = b;
    puppyCount++;
}

public String getName() {
    return this.name;
}

public void getAge() {
    System.out.println("The puppy is "+this.age);
}

public int getAge2() {
    return this.age;
}

public void changeName(String x) {
    this.name = x;
}

public int humanAge(int a){
    return a * 7;
}
```

Analyze Encapsulation & Parts ...

```
public class Puppy {  
    public int age;  
    public String breed, name;  
    public static int puppyCount=0;
```

```
public Puppy(String n, int a, String b) {
    name=n;
    age=a;
    breed=b;
    puppyCount++;
}

public String getName() {
    return this.name;
}

public void setAge(int i) {
    System.out.println("The puppy is "+ this.age);
}

public int getAge2() {
    return this.age;
}

public void changeName(String x) {
    this.name=x;
}

public int humanAge(int a){
    return a*7;
}
```

Analyze Encapsulation & Parts ...

- Instance Variables

May 19-10:59 AM

May 19-10:59 AM

Analyze Encapsulation & Parts ...	
<pre> public class Puppy { public int age; public String breed, name; public static int puppyCount=0; public Puppy(String n, int a, String b) { name=n; age=a; breed=b; puppyCount++; } public String getName() { return this.name; } public void getAge(){ System.out.println("The puppy is "+this.age); } public int getAge2() { return this.age; } public void changeName(String x) { this.name=x; } public int humanAge(int a){ return a*7; } } </pre>	← Instance Variables ← Static Variable

May 19-10:59 AM

Analyze Encapsulation & Parts ...	
<pre> public class Puppy { public int age; public String breed, name; public static int puppyCount=0; public Puppy(String n, int a, String b) { name=n; age=a; breed=b; puppyCount++; } public String getName() { return this.name; } public void getAge() { System.out.println("The puppy is "+this.age); } public int getAge2() { return this.age; } public void changeName(String x) { this.name=x; } public int humanAge(int a){ return a*7; } } </pre>	← Constructor Method with Parameters ← Accessor Method - only accesses information ← Example of a Method Header ← Another Accessor Method ← Mutator Method - Changes something! ← Another Accessor Method

May 19-10:59 AM

Analyze Encapsulation & Parts ...	
<pre> public class Puppy { public int age; public String breed, name; public static int puppyCount=0; public Puppy(String n, int a, String b) { name=n; age=a; breed=b; puppyCount++; } public String getName() { return this.name; } public void getAge(){ System.out.println("The puppy is "+this.age); } public int getAge2() { return this.age; } public void changeName(String x) { this.name=x; } public int humanAge(int a){ return a*7; } } </pre>	← Static Variable - Shared with all Puppies ← this keyword - "this" instance (acting on?) Notice, we don't have to call every single object's name, we can just refer to the current object as "this" object. ← Parameter - What is passed to the method

May 19-10:59 AM

Analyze what the following does ...	
<pre> public class Puppy { public int age; public String breed, name; public static int puppyCount=0; public Puppy(String n, int a, String b) { name=n; age=a; breed=b; puppyCount++; } public String getName() { return this.name; } public void getAge(){ System.out.println("The puppy is "+this.age); } public int getAge2() { return this.age; } public void changeName(String x) { this.name=x; } public int humanAge(int a){ return a*7; } } </pre>	<pre> public static void main(String []args) { //main method System.out.println(puppyCount); Puppy myPuppy = new Puppy("Ranger",15,"Whipper"); //creates an instance of Puppy } </pre>

May 19-10:59 AM

Analyze what the following does ...	
<pre> public class Puppy { public int age; public String breed, name; public static int puppyCount=0; public Puppy(String n, int a, String b) { name=n; age=a; breed=b; puppyCount++; } public String getName() { return this.name; } public void getAge(){ System.out.println("The puppy is "+this.age); } public int getAge2() { return this.age; } public void changeName(String x) { this.name=x; } public int humanAge(int a){ return a*7; } } </pre>	<pre> public static void main(String []args) { //main method System.out.println(puppyCount); Puppy myPuppy = new Puppy("Ranger",15,"Whipper"); System.out.println(puppyCount); myPuppy.getAge(); //object reference } </pre>

May 19-10:59 AM

Analyze what the following does ...	
<pre> public class Puppy { public int age; public String breed, name; public static int puppyCount=0; public Puppy(String n, int a, String b) { name=n; age=a; breed=b; puppyCount++; } public String getName() { return this.name; } public void getAge(){ System.out.println("The puppy is "+this.age); } public int getAge2() { return this.age; } public void changeName(String x) { this.name=x; } public int humanAge(int a){ return a*7; } } </pre>	<pre> public static void main(String []args) { //main method System.out.println(puppyCount); Puppy myPuppy = new Puppy("Ranger",15,"Whipper"); System.out.println(puppyCount); myPuppy.getAge(); //object reference System.out.println(myPuppy.getAge2()); System.out.println(myPuppy.name+" is "+myPuppy.age); } </pre>

May 19-10:59 AM

```
public class Puppy {
    public int age;
    public String breed, name;
    public static int puppyCount=0;

    public Puppy(String n, int a, String b) {
        name=n;
        age=a;
        breed=b;
        puppyCount++;
    }

    public String getName() {
        return this.name;
    }

    public void getAge() {
        System.out.println("The puppy is "+this.age);
    }

    public int getAge2() {
        return this.age;
    }

    public void changeName(String x) {
        this.name=x;
    }

    public int humanAge(int a){
        return a*7;
    }
}
```

Analyze what the following does ...

```
public static void main(String []args) { //main method

    System.out.println(puppyCount);
    Puppy myPuppy = new Puppy("Ranger",15,"Whippet");
    System.out.println(puppyCount);
    myPuppy.getAge(); //object reference
    System.out.println(myPuppy.getAge2());
    System.out.println(myPuppy.name+" is "+myPuppy.age);

    Puppy pup2 = new Puppy("Rico",9,"Greyhound");

    //Create another instance of Puppy
    pup2.getAge0;
}
```

May 19-10:59 AM

```
public class Puppy {
    public int age;
    public String breed, name;
    public static int puppyCount=0;

    public Puppy(String n, int a, String b) {
        name=n;
        age=a;
        breed=b;
        puppyCount++;
    }

    public String getName() {
        return this.name;
    }

    public void getAge() {
        System.out.println("The puppy is "+this.age);
    }

    public int getAge2() {
        return this.age;
    }

    public void changeName(String x) {
        this.name=x;
    }

    public int humanAge(int a){
        return a*7;
    }
}
```

Analyze what the following does ...

```
public static void main(String []args) { //main method

    System.out.println(puppyCount);
    Puppy myPuppy = new Puppy("Ranger",15,"Whippet");
    System.out.println(puppyCount);
    myPuppy.getAge(); //object reference
    System.out.println(myPuppy.getAge2());
    System.out.println(myPuppy.name+" is "+myPuppy.age);
    Puppy pup2 = new Puppy("Rico",9,"Greyhound");
    pup2.getAge();

    System.out.println(pup2.getAge2()); //more object reference
    System.out.println(pup2.name+" is "+pup2.age);
    System.out.println(puppyCount);
}
```

May 19-10:59 AM

```
public class Puppy {
    public int age;
    public String breed, name;
    public static int puppyCount=0;

    public Puppy(String n, int a, String b) {
        name=n;
        age=a;
        breed=b;
        puppyCount++;
    }

    public String getName() {
        return this.name;
    }

    public void getAge() {
        System.out.println("The puppy is "+this.age);
    }

    public int getAge2() {
        return this.age;
    }

    public void changeName(String x) {
        this.name=x;
    }

    public int humanAge(int a){
        return a*7;
    }
}
```

Analyze what the following does ...

```
public static void main(String []args) { //main method

    System.out.println(puppyCount);
    Puppy myPuppy = new Puppy("Ranger",15,"Whippet");
    System.out.println(puppyCount);
    myPuppy.getAge(); //object reference
    System.out.println(myPuppy.getAge2());
    System.out.println(myPuppy.name+" is "+myPuppy.age);
    Puppy pup2 = new Puppy("Rico",9,"Greyhound");
    pup2.getAge();
    System.out.println(pup2.getAge2()); //more object reference
    System.out.println(pup2.name+" is "+pup2.age);
    System.out.println(puppyCount);

    //Want to change a puppy's name?
    myPuppy.name="Spot";
    System.out.println("myPuppy is now called "+myPuppy.getName());
}
```

May 19-10:59 AM

```
public class Puppy {
    public int age;
    public String breed, name;
    public static int puppyCount=0;

    public Puppy(String n, int a, String b) {
        name=n;
        age=a;
        breed=b;
        puppyCount++;
    }

    public String getName() {
        return this.name;
    }

    public void getAge() {
        System.out.println("The puppy is "+this.age);
    }

    public int getAge2() {
        return this.age;
    }

    public void changeName(String x) {
        this.name=x;
    }

    public int humanAge(int a){
        return a*7;
    }
}
```

Analyze what the following does ...

```
public static void main(String []args) { //main method

    System.out.println(puppyCount);
    Puppy myPuppy = new Puppy("Ranger",15,"Whippet");
    System.out.println(puppyCount);
    myPuppy.getAge(); //object reference
    System.out.println(myPuppy.getAge2());
    System.out.println(myPuppy.name+" is "+myPuppy.age);
    Puppy pup2 = new Puppy("Rico",9,"Greyhound");
    pup2.getAge();
    System.out.println(pup2.getAge2()); //more object reference
    System.out.println(pup2.name+" is "+pup2.age);
    System.out.println(puppyCount);
    myPuppy.name="Spot";
    System.out.println("myPuppy is now called "+myPuppy.getName());

    pup2.changeName("Gabby");
    System.out.println("pup2 is now called "+pup2.name);

    System.out.println(myPuppy.name+" is "+
        myPuppy.humanAge(myPuppy.getAge2())+
        " in human years!!");
}
```

May 19-10:59 AM

Things to do ...

1. Do you have Unit 4 WS01-05 completed?

2. Be wrapping up Unit 04 WS06 - Classes & Objects 1

3. Work on Unit 04 WS07 - Creative Objects!

Nov 6-3:25 PM