Object Oriented Programming

Chapter 6

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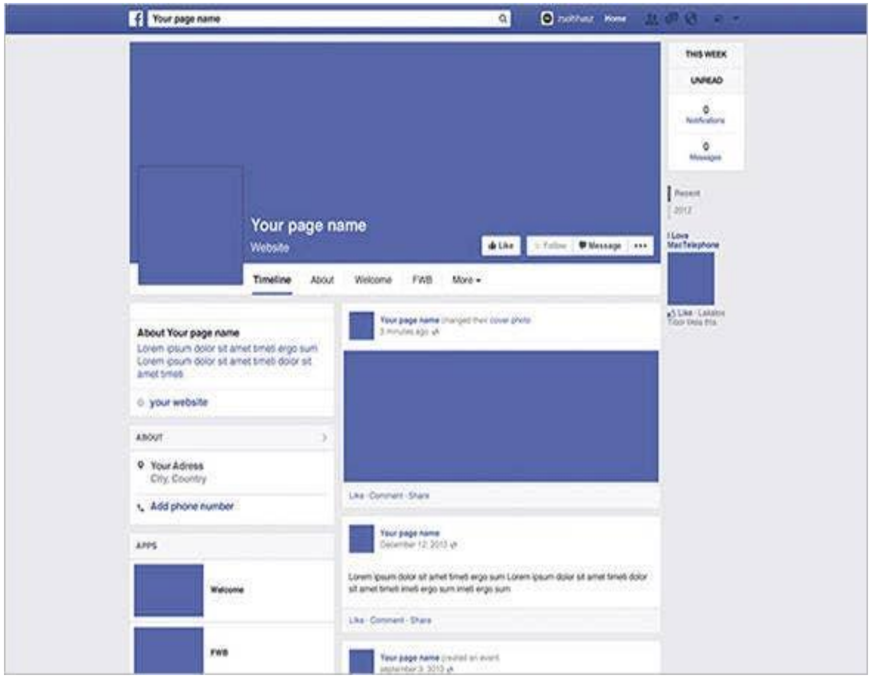
Class VS Object



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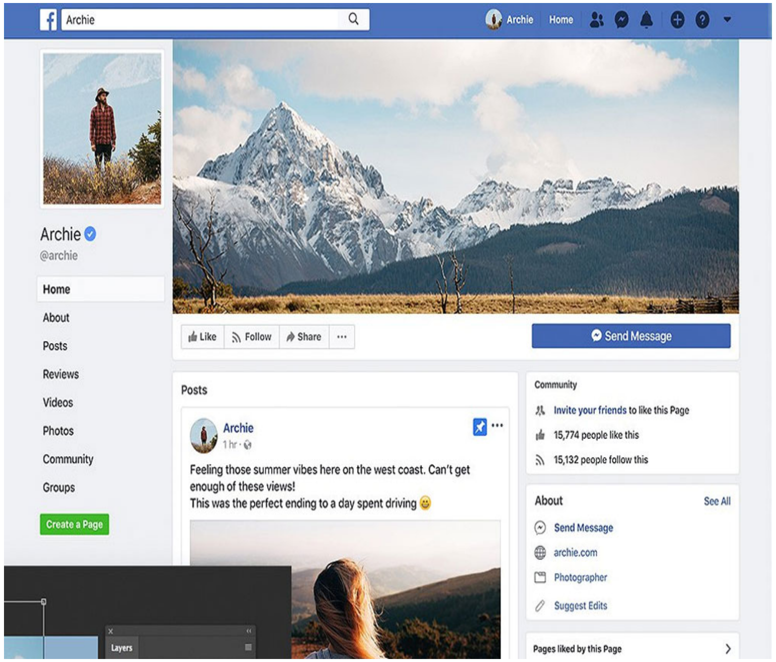

Archie
1 hr ·

Feeling those summer vibes here on the west coast. Can't get enough of these views!
This was the perfect ending to a day spent driving 😀

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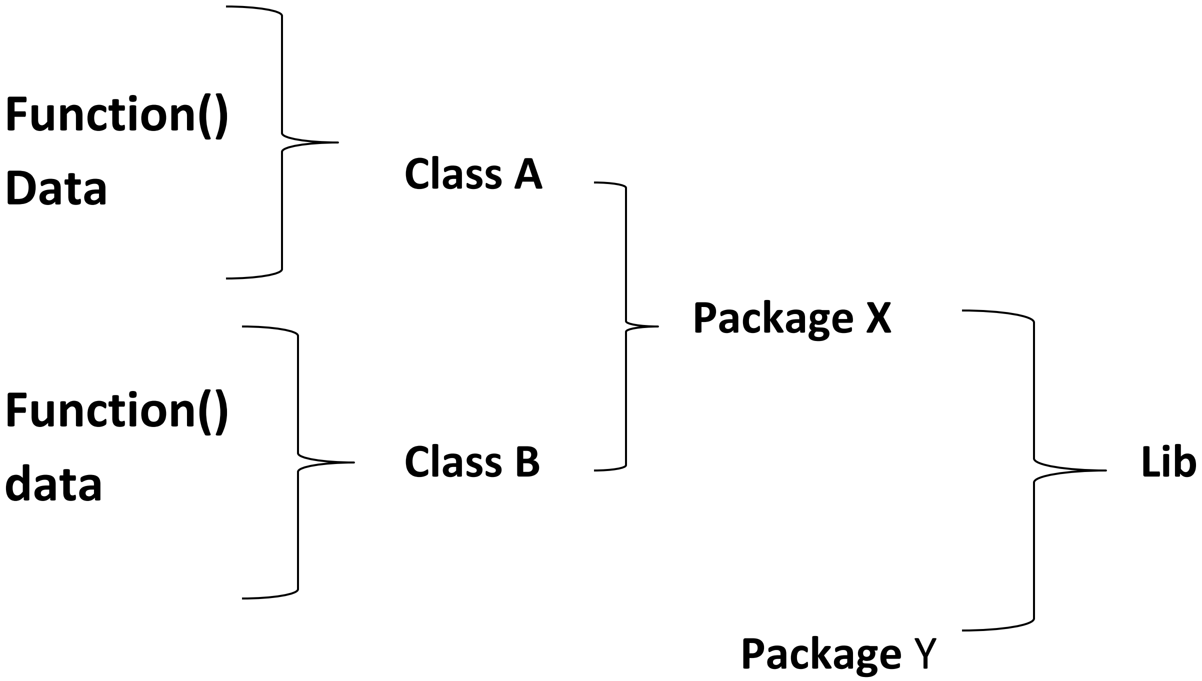
Class is like an empty template

When fill up the empty class, is like an object

A class can have millions of objects.

Basic Structure of OOP



Function()
Data

Class A

Package X

Function()
data

Class B

Lib

Package Y

The General Form of a Class

- class Box {
- double width;
- double height;
- double depth;
- }

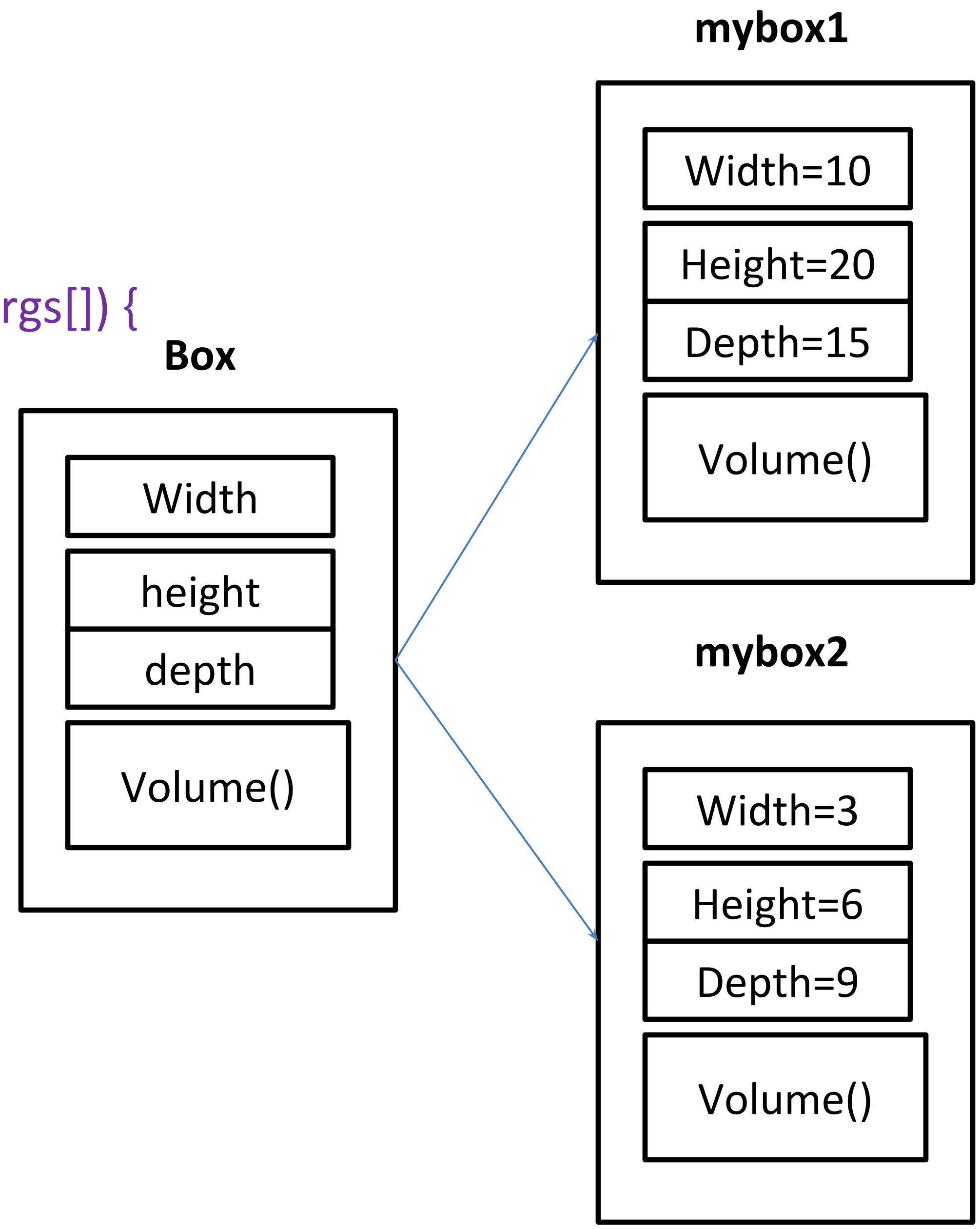
Object

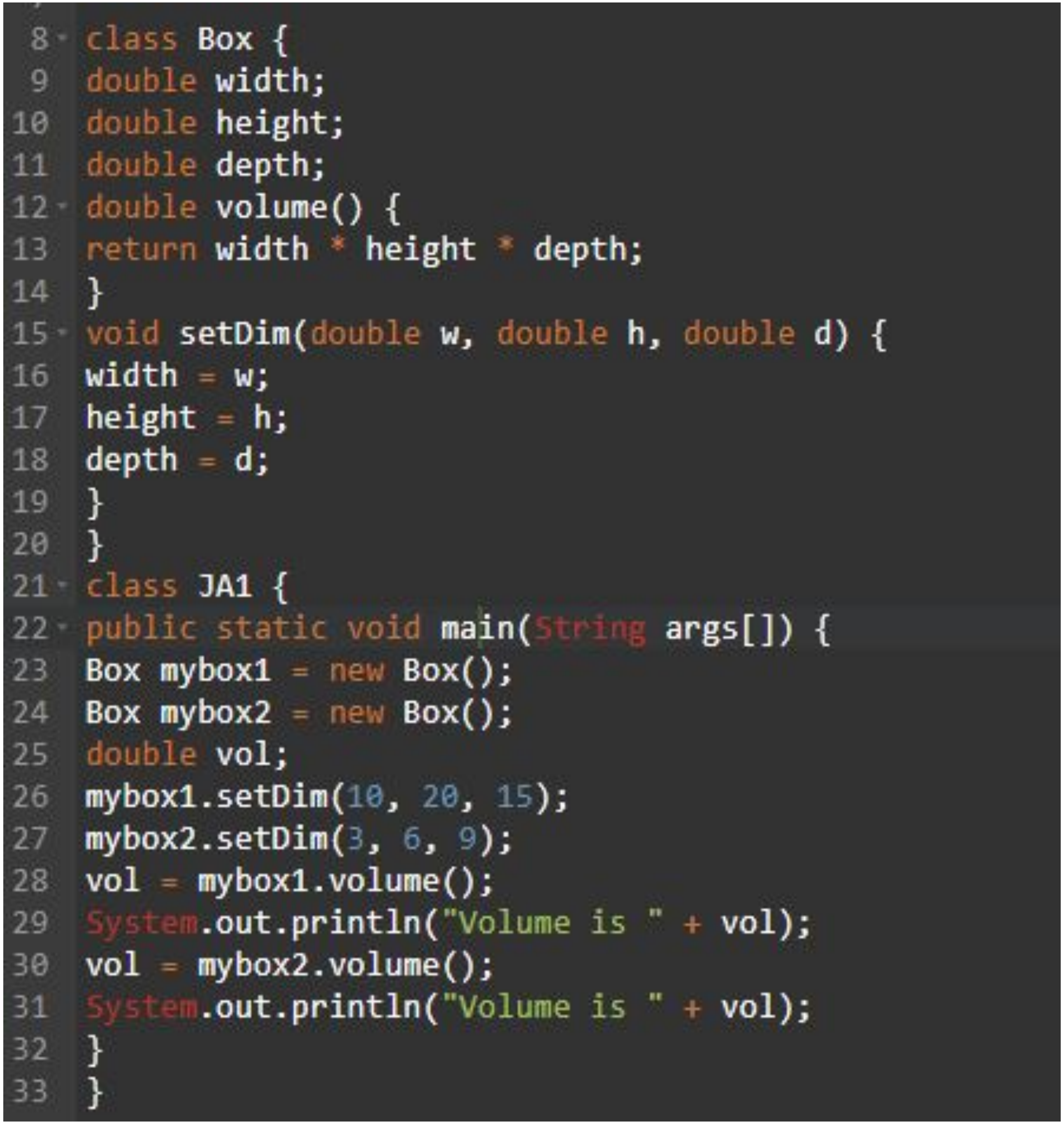
```
class Box {
double width;
double height;
double depth;   }
class BoxDemo {
public static void main(String args[]) {
Box mybox = new Box();
double vol;
mybox.width = 10;
mybox.height = 20;
mybox.depth = 15;

vol = mybox.width * mybox.height * mybox.depth;
System.out.println("Volume is " + vol); } }
```

Adding a Method to the Box Class

- class Box {
- double width;
- double height;
- double depth;
- // display volume of a box
- void volume() {
- System.out.print("Volume is ");
- System.out.println(width * height * depth);
- }
- }

```
class BoxDemo3 {
public static void main(String args[]) {
Box mybox1 = new Box();
Box mybox2 = new Box();
mybox1.width = 10;
mybox1.height = 20;
mybox1.depth = 15;
mybox2.width = 3;
mybox2.height = 6;
mybox2.depth = 9;
mybox1.volume();
mybox2.volume();
}
```





```java
class Box {
double width;
double height;
double depth;
double volume() {
return width * height * depth;
}
void setDim(double w, double h, double d) {
width = w;
height = h;
depth = d;
}
}
class JA1 {
public static void main(String args[]) {
Box mybox1 = new Box();
Box mybox2 = new Box();
double vol;
mybox1.setDim(10, 20, 15);
mybox2.setDim(3, 6, 9);
vol = mybox1.volume();
System.out.println("Volume is " + vol);
vol = mybox2.volume();
System.out.println("Volume is " + vol);
}
}
```

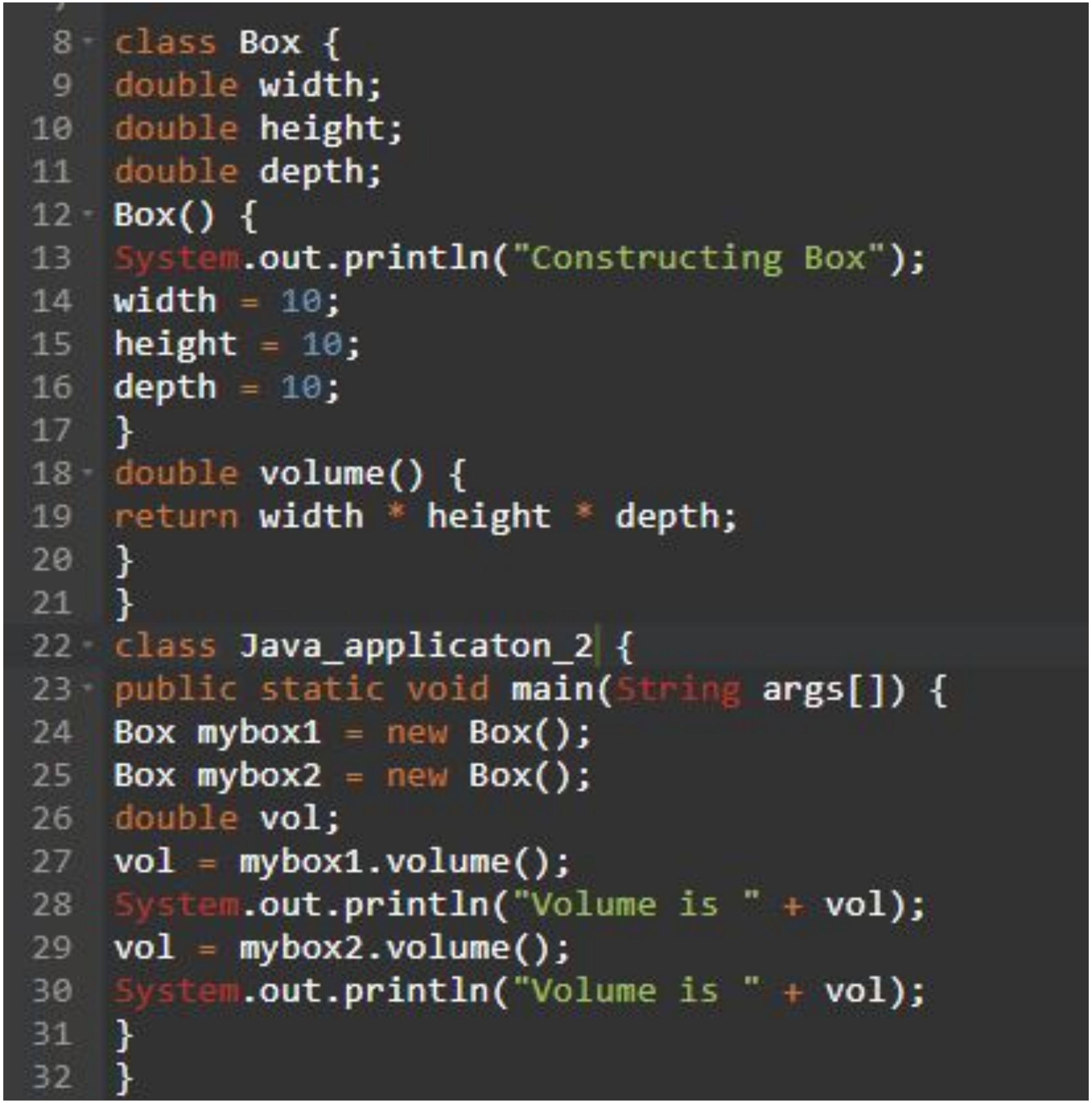
Constructors

- A *constructor initializes an object immediately upon creation.*

  1. class name=function name

  2. No return type

  3. value Initialization



```
class Box {
double width;
double height;
double depth;
Box() {
System.out.println("Constructing Box");
width = 10;
height = 10;
depth = 10;
}
double volume() {
return width * height * depth;
}
}
class Java_applicaton_2 {
public static void main(String args[]) {
Box mybox1 = new Box();
Box mybox2 = new Box();
double vol;
vol = mybox1.volume();
System.out.println("Volume is " + vol);
vol = mybox2.volume();
System.out.println("Volume is " + vol);
}
}
```

Parameterized Constructors

```
class Box {
double width;
double height;
double depth;
Box(double w, double h, double d)
{
width = w;
height = h;
depth = d;
}
double volume() {
return width * height * depth;
}
}
```

```
class BoxDemo7 {
public static void main(String args[])
{

Box mybox1 = new Box(10, 20, 15);
Box mybox2 = new Box(3, 6, 9);

double vol;
vol = mybox1.volume();
System.out.println("Volume is " +
vol);
vol = mybox2.volume();
System.out.println("Volume is " +
vol);
}
}
```

“this” Keyword

- this can be used inside any method to refer to the current object.

```
Box() {
this.width = w;
this.height = h;
this.depth = d;
}
```

Garbage Collection

- objects are dynamically allocated by using the new operator, you might be wondering how such objects are destroyed and their memory released for later reallocation.

- Java handles deallocation automatically. The technique that accomplishes this is called *garbage collection.*