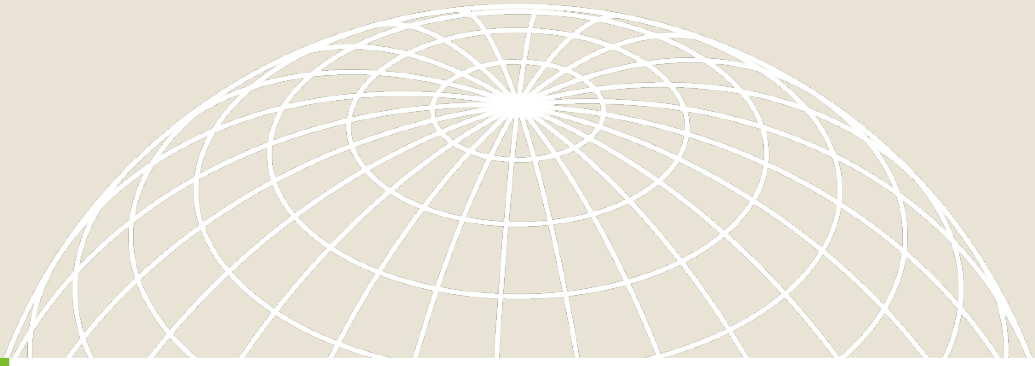

How To Java Tutorials

Lesson 4
OOP Concepts In Java

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What is OOP

Object Oriented Programming

Object oriented programing is the main concept about Modern and complex programming.
It is the core of all modern applications not only in Java But in the most of others programming languages.

OOP in short is about how to split the whole applications in Modules or models that can be programed in independent From others then they can put together to create the Complete functionally of the application.

Some of Developer describe the OOP concepts like to build The application as a set of Complete functions talk to each Others any one of them make certain task and deal with Others to make it done and so on.

So in these Theoretical lesson we will discussed the OOP Concepts in Java To So, after that it will be easier to Understand the code and what we will build in the next Lessons.

What is an Object

This is the Main Concept of OOP “Object”
An object is a software bundle of related state and behavior.
Software objects are often used to model the real-world
Objects that you find in everyday life. This lesson explains
How state and behavior are represented within an object,
Introduces the concept of data encapsulation, and explains
The benefits of designing your software in this manner.

In Example of Real-World objects look at you!! ,Ya I mean it YOU!!. You is an object in this world Now. you is an object has a related state and behavior Different from the others objects ”people ” in this world .

For Software Object Suppose we want to make the software for Your mobile Phone.
So we will start to split the whale features of this phone in To independent features like call log,Camera,Music player,..
Call log can be independent module in the software with Related state and behavior like
Who called you? ,Who you called? ,and Who you missed.
When and number of times.
So this is will be an object with state and behavior.

What Is a Class ?!

A class is a blueprint or prototype from which objects are Created. This section defines a class that models the state And behavior of a real-world object. It intentionally focuses On the basics, showing how even a simple class can cleanly Model state and behavior.

Let us back to our example of objects in real world
That is You again, as I said before you is an object with Related stat and behavior.
If you an object, You must be an object from a class
But Which Class you are object form?!
You are an object from Human Class,This is the class you are object from.
There are different Classes like animils, birds,and more
I am sure you now get the point, are you ?!

Now for Software,Again we will go back to our example
Your call log in your mobile phone is an object.
So Which class it is object from ?
System Class, Ya as the call log has some behavior to read Who calling you and there numbers, durations, names, Category, emails, and all information
These behavior or features is from the main phone system
So this object is an object form The System Class.

What Is Inheritance ?!

Inheritance provides a powerful and natural mechanism for Organizing and structuring your software .So classes can Inherit state and behavior from their super classes, and How to derive one class from another using the simple Syntax provided by the Java programming language.

Let us Make it clear using our example can explain in tow Examples.

You are an object from human class But how you come From or created ?!

You are an object from a child class from human class, You Are an object from men class or woman class

Each of the 2 classes inherit the behavior from the human Like a father and a Mather.

You inherit from them some behaviors like body color Eyes color, Your face, hair and more.

Now for Software inheritance the same concepts as in real world as we said before.

A class can inherit behaviors from others classes called the Parent class.

The system Class in our example inherit OS class For Example So it will inherit the behavior of the OS class to Have the ability to access the phone contents in your phone.

What Is an Interface ?!

An interface is a contract between a class and the outside World. When a class implements an interface, it promises to Provide the behavior published by that interface.

Let us Make it clear using our examples
The human class can be an abstract class “interface” as it is has It's behavior But Not implemented
The implementation will be in the Classes that will inherit It. Like the Man and Woman Class. inherit the Human Interface and implement their behavior.
The hire will be implemented short in man and long in Woman and So on.

Now for Software The interface is an abstract class has it's Behavior but not implemented,It will be implemented in the Class that inherit from it.
We can suppose The contact info view is an interface
The system will inherit and implement their behavior like
The font will be Arial the background color will be blue
And so on.
In Other Phone the implementation can be changed as the Need of the child class.

What Is a Package ?!

A package is a namespace for organizing classes and interfaces in a logical manner. Placing your code into packages makes large software projects easier to manage. .

The package As we mention in the Hello world Lesson
Contain some collection of classes and interfaces
You will import them in your code and use any class of Them
Inherit,implement, Call function from them
All of these features you can do them in the package
You can think of packages as being similar to different
Folders on your computer. You might keep HTML pages in
One folder, images in another, and scripts.

The Java platform provides an enormous class library
(a set of packages) suitable for use in your own applications.
This library is known as the "Application Programming
Interface", or "API" for short. Its packages represent the tasks
Most commonly associated with general-purpose programming.
For example, a String object contains state and behavior for
Character strings; a File object allows a programmer to easily
Create, delete, inspect, compare, or modify a file on the
Filesystem; a Socket object allows for the creation and use of
Network sockets; various GUI objects control buttons and
Checkboxes and anything else related to graphical user
Interfaces. There are literally thousands of classes to choose
From. This allows you, the programmer, to focus on the
Design of your particular application, rather than the
Infrastructure required to make it work.

Thank You For Watching

I am still not Better, But I always try .

See You Next