Objects and Classes

Java Fundamentals

Libre Education

Objects

Classes

A class is a blueprint or template from which objects can be created. The class defines information about the object such as its attributes.

Structure of a Methods

The following are components of classes used to create objects:

1. Fields - also known as attributes, they provide space to store information about the object

2. Methods - they will provide functionality to each object created from the class

3. Constructor(s) - allow an instance or object of the class to be created and pass values to the object at initialization

4. Mutators - methods that provide functionality to change attributes of the object, also known as setters

5. Accessors - methods that provide functionality to retrieve attributes of the object, also known as getters

6. Modifiers - includes the access and non-access modifiers

Access Modifiers

Access Modifiers set the access level for a class or method. The access level essentially describes where the class can be called from. There are three types of access modifier:

1. Public (public) - accessible to the whole program

2. Protected (protected) - accessible to the package and all sub classes

3. Private (private) - accessible to the class only

Non-Access Modifiers

The non-access modifiers provide a set of miscellaneous functionality, which will be discussed at a later point:

1. Static (static)

2. Final (final)

3. Abstract (abstract)

4. Synchronized (synchronized)

5. Volatile (volatile)

Types of Variables

Classes can contain three types of variable:

1. Local Variable - are variables declared inside a method. They are initialized when the method is called.

2. Instance Variables - are variables declared in the class but outside any method. They are initialized when the class is instantiated.

3. Class (Static) Variables - are variables declared in the class but outside any method with the static modifier. Class variables do not belong to any instance of the class but belong to the class itself. Therefore only one instance of a static field can exist.

Other Resources

1. The Java Tutorials (docs.oracle.com/javase/tutorial/java/concepts/) (docs.oracle.com/javase/tutorial/java/conce (docs.oracle.com/javase/tutorial/java/concepts/class.html)

2. Java2s (www.java2s.com/Tutorials/Java/Java_Object_Oriented_Design/index.htm)

3. JavaWorld (www.javaworld.com/article/2075202/core-java/object-oriented-language-basics-part-1.html)