1-core-language-concepts

Contents

OOP Principles

- Encapsulation is the mechanism that binds together code and the data it manipulates, and keeps both safe from outside interference and misuse. One way to think about encapsulation is as a protective wrapper that prevents the code and data from being arbitrarily accessed by other code defined outside the wrapper.
- Inheritance is the process by which one object acquires the properties of another object. This is important because it supports the concept of hierarchical classification. As mentioned earlier, most knowledge is made manageable by hierarchical (that is, top-down) classifications.
- Polymorphism in Java allows objects of different classes to be treated as objects of a common superclass. It means "many forms" and enables a single method to behave differently based on the concrete object it is acting upon.

Technical requirements

- creating - The first thing that you must learn about Java is that the name you give to a source file is very important. In Java, a source file is officially called a compilation unit. It is a text file that contains (among other things) one or more class definitions. (For now, we will be using source files that contain only one class.) The Java compiler requires that a source file use the .java filename extension.
- compiling - To compile the program, execute the compiler, javac, specifying the name of the source file on the command line, as shown here:

```
javac <filename>.java
```

  The javac compiler creates a file called .class that contains the bytecode version of the program.

- running - To actually run the program, you must use the Java application launcher called `java`, which is part of the binaries provided by the java runtime along with the java compiler and others

```
java <filename>
```

  When Java source code is compiled, each individual class is put into its own output file named after the class and using the .class extension. This is why it is a good idea to give your Java source files the

same name as the class they contain-the name of the source file will match the name of the .class file. When you execute java as just shown, you are actually specifying the name of the class that you want to execute. It will automatically search for a file by that name that has the .class extension.