Getting Started with Java

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Running Programs

C++, Fortran, Pascal

Python, PHP, Ruby, Perl
Java is compiled into device-independent code and then interpreted.
Java Overview: JRE & JDK

- There are two main software products in the Java Platform Standard Edition (Java SE):
  - Java SE Runtime Environment (JRE)
    - No command-line tools
  - Java SE Development Kit (JDK)
    - JRE + command-line tools
Install the JDK

• Double-click on the downloaded file from java.sun.com.

• Windows: Modify the PATH environment variable so that javac can be found. (See Installing JDK movie in ctools or ask us for help).
Control Panel -> System -> Advanced -> Environment Variables. Edit Path. Add semi-colon followed by `C:\Program Files\Java\jdk1.6.X_XX\bin`

Note: The version may be different from the above.
Java Overview: Virtual Machine

- An abstract computing machine that has an instruction set and manipulates memory at run time
- The Java virtual machine is ported to different platforms to provide hardware- and operating system-independence
Hello World Explained

// HelloWorld.java
/**
 * Your first Java program.
 */

public class HelloWorld {

    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

Use any text editor to create this file and save it in a 282 folder

Use javac to compile it:
% javac HelloWorld.java

Use java to run it:
% java HelloWorld
Hello World Explained

// HelloWorld.java
/**
 * Your first Java program.
 */
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• A Java file name must be the same as the class name
  – Class = HelloWorld
  – File name = HelloWorld.java
  – Bytecode class file name = HelloWorld.class
Hello World Explained

```java
// HelloWorld.java

/**
 * Your first Java program.
 */

public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
```

- Java comments come in two forms
  - Line comments: `//`
  - Block comments `/* */`
- Use line comments for single-line comments
- Use block comments for multi-line comments
- There are also Javadoc comments
Hello World Explained

// HelloWorld.java
/**
 * Your first Java program.
 */

public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• All Java programs exist within classes
Hello World Explained

// HelloWorld.java
/**
 * Your first Java program.
 */
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• Almost all Java programs you write start with a call to the main method
Hello World Explained

// HelloWorld.java
package edu.um.eecs285.packageexample;

/**
 * Your first Java program.
 */

public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• Almost all Java programs you write start with a call to the main method
  • static means the method is part of its class and not part of objects
Hello World Explained

// HelloWorld.java
package edu.um.eecs285.packageexample;

/**
 * Your first Java program.
 */
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• Almost all Java programs you write start with a call to the main method
  • static means the method is part of its class and not part of objects
  • void: main does not return a value
Hello World Explained

// HelloWorld.java
package edu.um.eecs285.packageexample;

/**
 * Your first Java program.
 */
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• Almost all Java programs you write start with a call to the main method
  • static means the method is part of its class and not part of objects
  • Does not return a value
  • Its parameter is an array of Strings
    • args[0] = the first argument, not the name of the program
Hello World Explained

```java
// HelloWorld.java
package edu.um.eecs285.packageexample;

/**
 * Your first Java program.
 */
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
```

- The “Hello, World” is called a string literal
- This is a string that begins and ends with a double quote
- This line is printed to the console
Hello World Explained

// HelloWorld.java
package edu.um.eecs285.packageexample;

/**
 * Your first Java program.
 */
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• You use braces to enclose, or group multiple programming statements into compound statements or blocks
• There are many different bracing styles

foo() {
}
foo() {
}
Hello World Explained

// HelloWorld.java

/**
* Your first Java program.
*/

public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}

• Statements are terminated by a semicolon
Install Eclipse

- Eclipse needs to be simply unzipped.