1 Java Development Kit

Java Development Kit JDK 1.1.7a (or above) is installed on all department machines (HP workstations and PCs). The executable files for Java are located in /opt/java/bin. Modify your path (one way to do this is to edit your .cshrc or .tcshrc file) to include /opt/java/bin. This enables you to invoke Java without specifying the entire path each time.

2 Getting Started

A Java program runs on a wide variety of hardware platforms after it is compiled into a byte code by the Java compiler. Byte code is executed by a byte code interpreter, which is called a Java virtual machine. Once a system is equipped with a Java virtual machine, the system can execute any compiled Java program.

There are two types of Java programs: applications and applets. Applications can be executed as standalone programs and applets are run within a Java-compatible browser (e.g., netscape) via references inserted into HTML (hypertext markup language) files. Most of the programs that you will write in this course are Java applications.

All Java programs contain one or more class definitions, each of which may contain various method definitions. You must store the definition of a (primary) class in a file identified by the name of the class with .java as the extension. (For example, Store.java should be used for the class Store). Most Java programmers start each class name with an uppercase letter.

3 Java Applications

1. Create a Java Source File.
   Edit following program and name it HelloWorldApp.java.

   ```java
   public class HelloWorldApp {
   public static void main (String argv[]) {
      System.out.println("Hello World!");
   }
   }
   ```

2. Compile the source file.
   > javac HelloWorldApp.java
The Java compiler places the resulting byte code in a file named HelloWorldApp.class in the current directory.

3. Run the application.
   > java HelloWorldApp

The system displays “Hello World!” on the screen.

4 Applets

1. Create a Java source file.
   Edit following program and name it HelloWorld.java.

   ```java
   import java.applet.Applet;
   import java.awt.Graphics;

   public class HelloWorld extends Applet {
       public void paint(Graphics g) {
           g.drawString("Hello world!", 50, 25);
       }
   }
   ```

   Every applet must implement at least one of the following methods: init, start, or paint. Unlike Java applications, applets do not need to implement a main method.

2. Compile the source file.
   > javac HelloWorld.java

   The Java compiler places the resulting byte code in a file named HelloWorld.class in the current directory.

3. Create an HTML file that includes the applet.
   Edit following program and name it Hello.html:

   ```html
   <HTML>
   <HEAD>
   <TITLE> A Simple Program </TITLE>
   </HEAD>
   <BODY>
   Here is the output of my program:
   <APPLET CODE="HelloWorld.class" WIDTH=150 HEIGHT=25>
   </APPLET>
   </BODY>
   </HTML>
   ```
4. Run the applet.
Load the HTML file by entering the following into a browser’s URL (uniform resource locator):

`file:../your directory../Hello.html`

The execution of the applet will cause the following to be displayed:

`Here is the output of my program: Hello World!`