Development Tools

CSE 142, Summer 2002

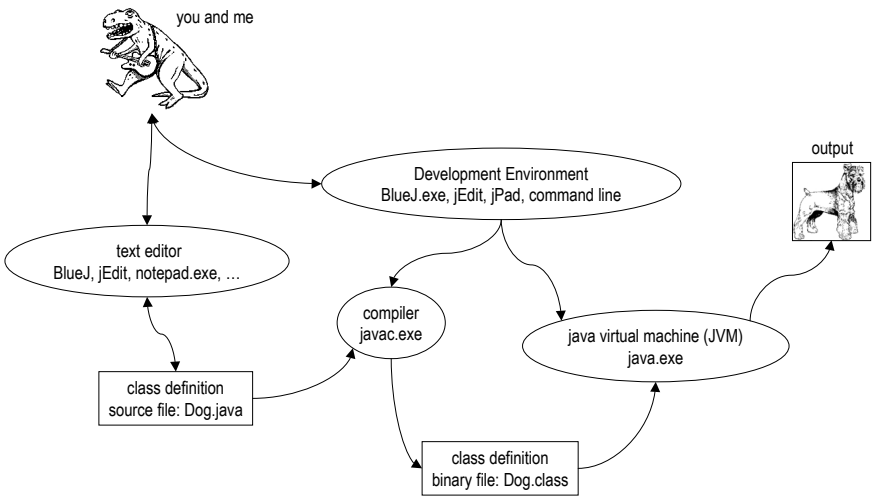
Computer Programming 1

http://www.cs.washington.edu/education/courses/142/02su/

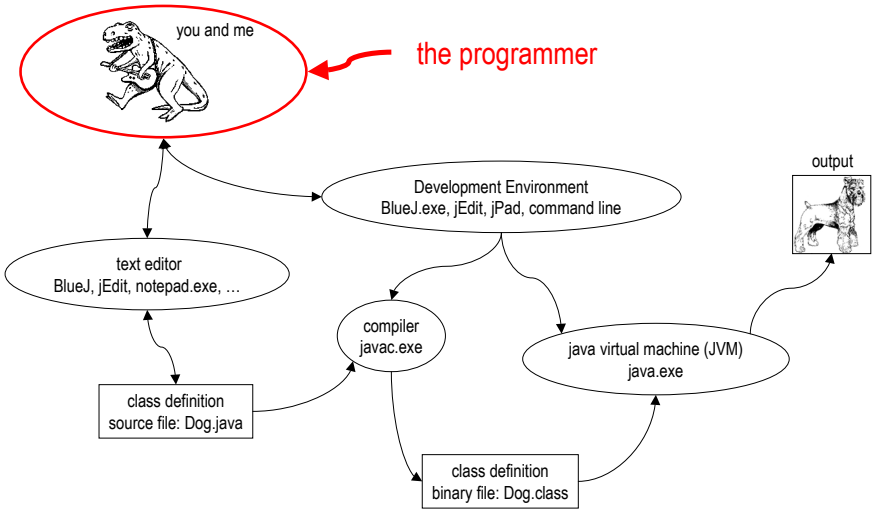
Readings and References

- Reading
  - » Chapter 8, Compiling Java Classes, *Introduction to Programming in Java*, Dugan
- Other References

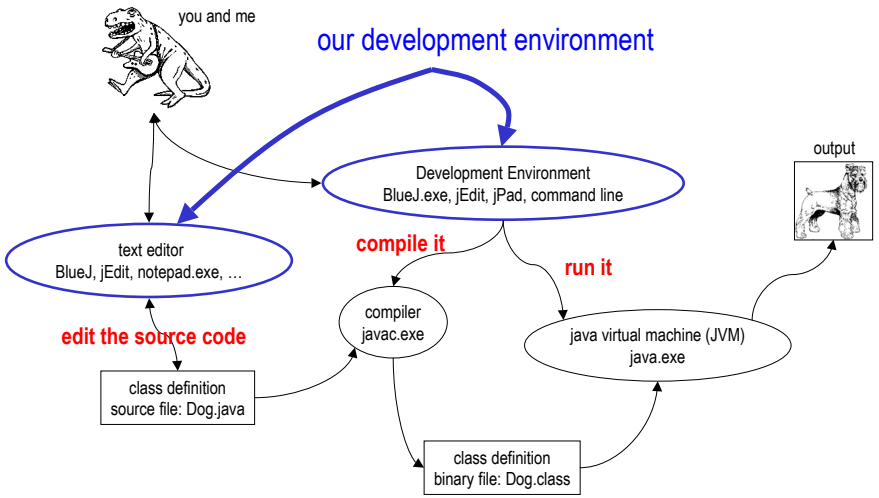
Our Environment



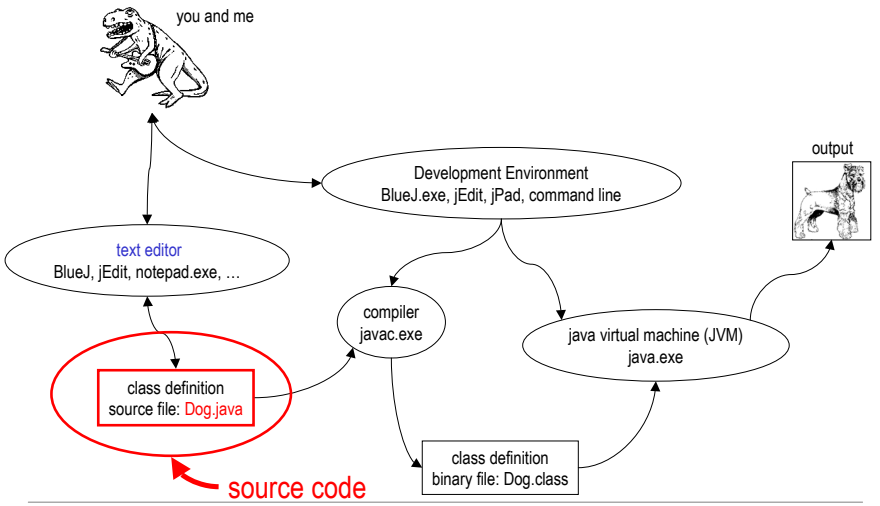
Us



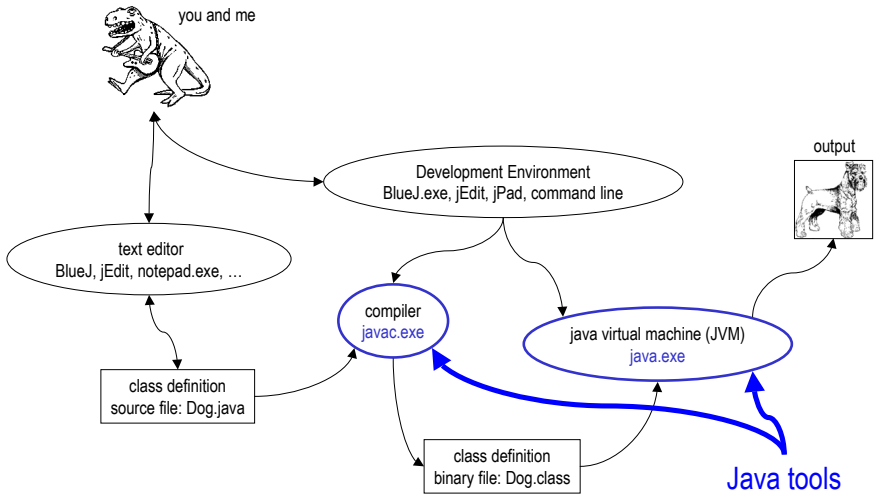
Development Environment



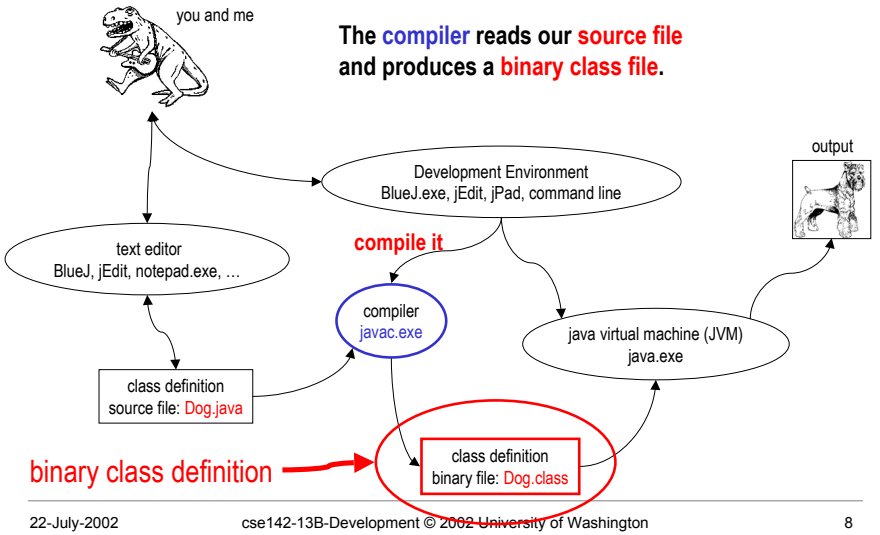
Source code (we write this)



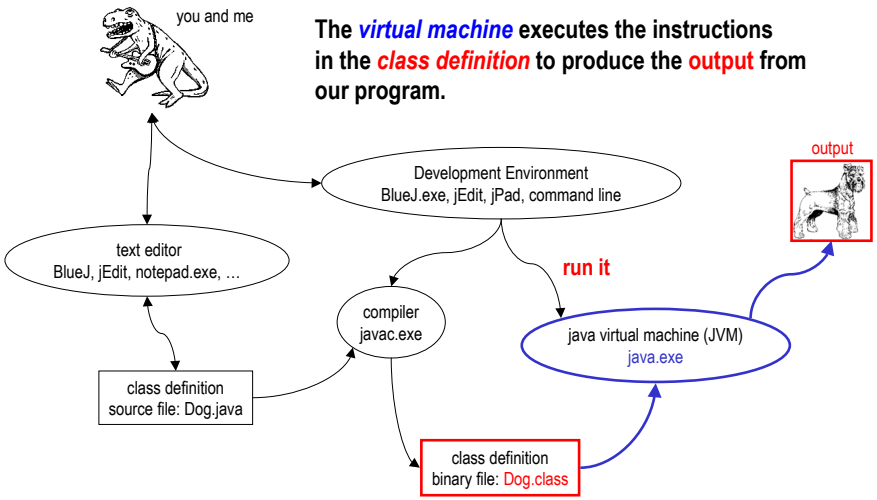
Java compiler and virtual machine



Compile it



Run it



Tools - BlueJ

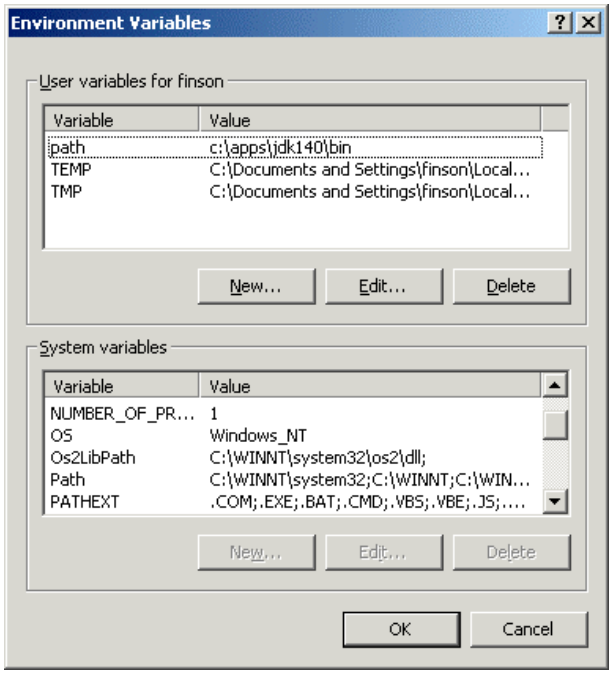
- BlueJ is a simple "Integrated Development Environment" or IDE
  - » BlueJ uses the regular Java compiler from Sun to convert our Dog.java source file into Dog.class class files
  - » Then we can create new objects (*instantiate* them) using the class definition and manipulate them
  - » BlueJ lets us do slowly and visibly what our code can do very quickly

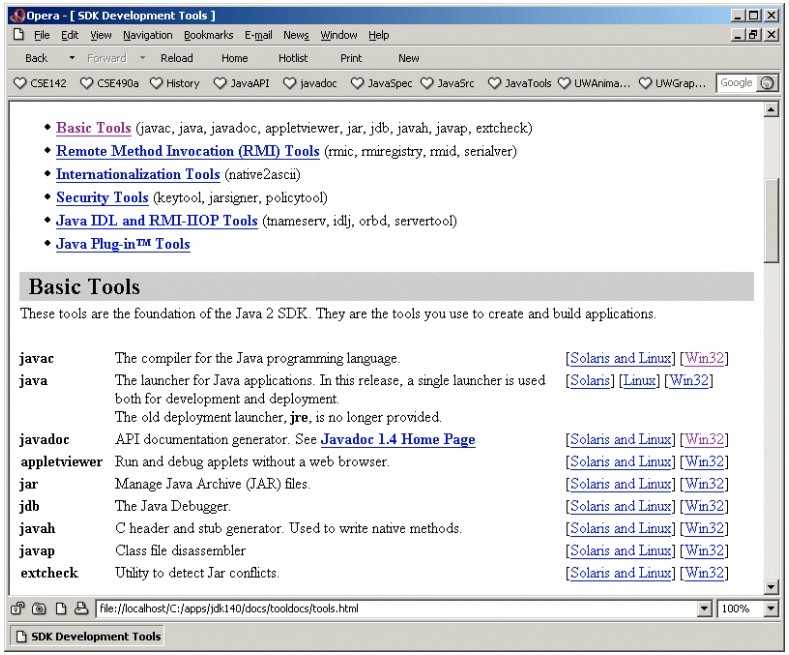
Tools - jEdit editor

- You don't need to use BlueJ - there are many other editors and integrated development environments available
- jEdit is an editor that is written in Java
  - » open-source
  - » free to download (from jEdit.org)
  - » available on the lab machines
- jEdit is a programming editor
  - » it understands Java syntax and can highlight code

Tools - javac

- javac.exe is the Java compiler from Sun
  - » javac converts your X.java file to X.class file
- located in the Java directory tree
  - » C:\apps\jdk140\bin\javac.exe
- Operating system must be able to find compiler
  - » set PATH variable so that it includes <java>\bin
  - » Settings -> Control Panel -> System -> Advanced
  - » then select Environment Variables
  - » add or edit PATH





Classpath

- Compiler must be able to find other classes that we use
  - » Standard java classes found by the default setup
  - » Special classes like uwcse Shape must be located
    - in BlueJ we set uwcse.jar as a user library
    - when running java ourselves we set the library as part of the class path
- Classpath tells the compiler where to look
  - » `javac -classpath .;\cse\lib\uwcse.jar *.java`

Tools - java

- java.exe runs the Java virtual machine from Sun
  - » the virtual machine reads your class files and actually runs the program you've written
- java.exe is located in the Java directory tree
  - » C:\apps\jdk140\bin\java.exe
- Operating system must be able to find java.exe
  - » Path should be set already for the compiler

Launching a java program

- The java tool launches a Java application. It does this by
  - » starting a Java runtime environment
  - » loading a specified class
  - » invoking that class' main method.
- The method declaration must look like the following:
  - » `public static void main(String args[])`

Classpath

- Just as with the compiler, java must be able to find other classes that we use in the program
  - » Standard java classes found by the default setup
  - » Special classes like uwcse Shape must be located
    - in BlueJ we set uwcse.jar as a user library
    - when running java ourselves we set the library as part of the class path
- Classpath tells java where to look
  - » `java -classpath .;\cse\lib\uwcse.jar Director`

Tools - File System

- It is important that you be able to find the source files that you write and understand what they are and how they relate
- Look at the directories
  - » find the .java files and the .class files
- Notice that the files that I supplied for homework 4 are in a subdirectory “skel”
  - » they are part of package “skel” as a result
  - » more about packages in later lectures