Intro to CSC 116 & Java

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Outline

• Syllabus
• Intro to Programming
• Programming Languages
• Java
• Errors and Common Problems
• Comments
• Java Keywords
Intro to Programming

• “A programming language or computer language is a standardized communication technique for expressing instructions to a computer.” [Wikipedia – Programming Language]
• Syntax – structure/pattern of the language
• Semantics – meaning or behavior
• 3 levels of computer programming languages
  – Machine language
  – Assembly language
  – High-level languages

Vocabulary

• Source Code – human readable code
• Machine Code – machine readable code (1s and 0s)
• Compiler – translates source code into machine code
Java

- Uses Virtual Machine
- Virtual Machine – converts Java Machine Code (also called bytecode) into native machine code
- Write once, run everywhere
- Object-Oriented (OO) programming language

Java @ NCSU

- In terminal window
  - eos% add jdk142
    - Adds the Java libraries to your class path
  - eos% javac ProgramName.java
    - The source code file should end in .java. The javac command compiles the source code into bytecode. The byte code is stored in ProgramName.class.
  - eos% java ProgramName
    - Runs the program using the Virtual Machine.
Running a Java Program

Create and Save Program
ProgramName.java

Compile Program into Bytecode
javac ProgramName.java

Creates Bytecode File
ProgramName.class

Other Libraries

Run Program Using the JVM
java ProgramName

Errors

- Compile Errors – occur when code is compiled
- Runtime Errors – occur when program is running
- Logic Errors – BUGS!
Common Problems

- Omitting semicolons
- Misspelling words
- Forgetting quotation marks, parentheses, or curly braces.

Java Comments

- Comments are used to tell others what your program does – maintainability!
- //Comment goes to the end of the line
- /* Comment can go across several lines */
Javadoc

- Special comments used to create APIs
- /**
  * Calculate body mass index
  * @param height in inches
  * @param weight in pounds
  * @return body mass index
  */

Java Keywords

- Words that have special meaning in Java
- Cannot be used as names of classes, methods, or variables
- Ex: public, static, void, private, class, return
Java Identifiers

- Used to name classes, methods, and variables in programs
- Consists of a letter followed by zero or more letters or digits
  - Letters: 26 English alphabetic characters (upper and lower case), $, and _ (underscore)
  - Digits: 0 through 9
  - Case Sensitive

Valid Identifier?

- $abcdefg
- _abcdefg
- 1234567
- A
- a
- abcd.efgh
- ABCD/EFGH
References