CompSci 6  
Programming Design and Analysis

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Announcements
• Read for next time Chap. 2.3-2.10
• Homework (pre or post classwork due)
• Reading Quiz on Blackboard
  – Due beginning of class next time
• Bring laptops if you want starting next time
• Must install Eclipse and Ambient
  – Update if you already have it installed

History of Programming
• Harvard Mark 1
  – 1944, first automatic digital computer in US
  – Grace Hopper - first programmer for Mark 1
  – Still at Harvard

• ENIAC – Eckert and Mauchly
  – 1946, University of Pennsylvania
  – First useable computer

Java
• Developed 1995 by Sun
  – James Gosling and Patrick Naughton
• Simpler than C++
• Rich and LARGE library
• Portable – runs on different platforms
Compiling Java

• Compiler
  – Translator from high-level language (Java) to machine language (JVM – Java virtual machine)
  – Path
    • Use editor to create source file (.java)
    • Compiler
    • Join with class files and library files
    • Result is code for JVM (a running program!)

What can you do with Eclipse?

• Almost everything!
• Editor
• Automatically compiles
• Identifies syntax errors
• Runs program

• Question: What is a logic error?

What will we use Eclipse for in CompSci 6?

• Use to write complete java programs
  – Access libraries
• Use as an editor to write text files
  – README – gives info about the program
• Use to write simple methods, then test with APT

APT – Algorithmic Program Testing

• Not a complete java program
  – No main method
• Focus on and solve one small problem
• Rich set of data for testing
• Use Eclipse editor for APT, but cannot compile! Why?
Chap 2 - Java Types and Variables

• Every value has a type:

    ```java
    int number = 6;
    String month = "January";
    FileStream infile;
    Color originalColor;
    ```

Identifiers

• Choose meaningful names for variables, methods and classes

    ```java
    int x = 60; // what does x represent?
    int numberOfDays = 6;
    ```

• Follow rules for identifiers
• Follow conventions for identifiers
• What is the difference?

Assignment Statement

```java
int numberOfDays;
numberOfDays = 6;
```

• numberOfDays is “assigned” the value 6
• OR 6 is stored in memory location for numberOfDays
• Don’t say
  – numberOfDays equals 6!

Problem Solving

• One-Heap Nim
• HingedDoor
• DivToZero
• Laundry
• Pancakes