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 to class
• 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 and team
• 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
  - Compiler - Automatically compiles
  - Identifies syntax errors
  - Runs program
  - Output console
  - Visualization of files and folders
  - Submission of programs

  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 run program! Why?
Chap 2 - Java Types and Variables

- Every value has a type:

```java
int number = 6;
double pi = 3.14;
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!

A Java Program

```java
public class HelloCompSciClass {
    public static void main(String [] args) {
        // display a greeting
        System.out.println("Hello, CompSci 6!");
    }
}
```
About the Java Program

- What is the name of the class?
- What is the name of the method?
- What is printed?
- What does the “;” mean?
- What does “public static void” mean?
- What is “String [] args”?

Classwork Today

- One-Heap Nim
  - Go over solution
  - Prof. solve in Eclipse
- Write Java Code on paper – finish for homework
  - HingedDoor
  - DivToZero