CompSci 6
Programming Design and Analysis

January 19, 2010

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Announcements

• Read for next time Chap. 2.3-2.10
• Finish Classwork 2 for homework
  – Bring to class next time
• 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
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!
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”? 
Program to Convert Temperature

```java
public class WeatherConversion {
    public static void main(String[] args) {
        // temp in Fahrenheit
        double temp = 65.0;  // declare, initialize
        double ctemp = (5/9) * (temp - 32);
        System.out.println(temp + "F" + " = " + ctemp + "C");
    }
}
```
Error in Previous Program

• Output for this program is:
  65.0F = 0.0C

That is not correct! How do we fix it?
Go over work from last class

• One-Heap Nim
  – Go over solution
  – Prof. solve in Eclipse

• Turn in your handwritten solution
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?
Classwork Today

• Write Java Code on paper – finish for homework
  – HingedDoor
  – DivToZero
About the Java Program

• What is the name of the class?
  – HelloCompSciClass
• What is the name of the method? main
• What is printed?
  – Hello, CompSci 6!
• What does the “;” mean? end of a statement
• What does “public static void” mean?
  – IGNORE for now
• What is “String [] args”? Parameter, ignore for now