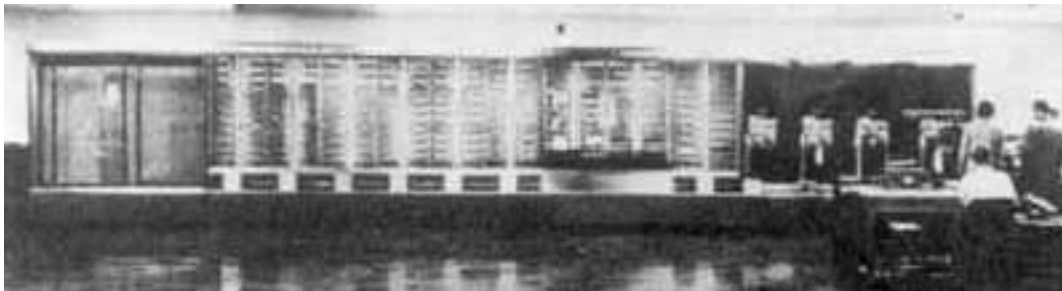# CompSci 6
Programming Design and Analysis
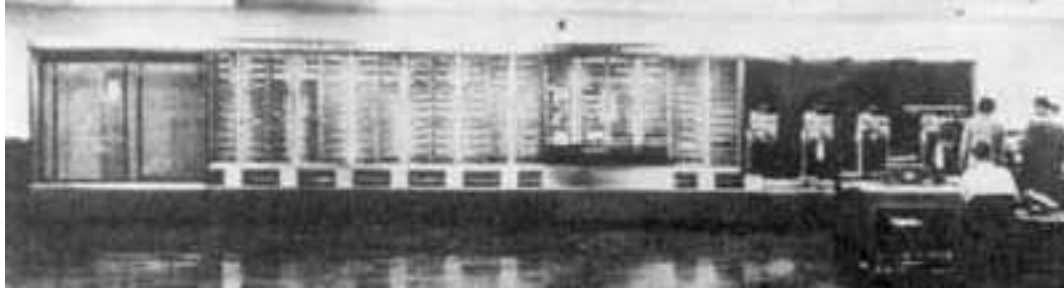

January 19, 2010

Prof. Rodger

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:

```
int number = 6;
double pi = 3.14;
String month = "January";
FileStream infile;
Color originalColor;
```

Identifiers

- Choose meaningful names for variables, methods and classes

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

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

Assignment Statement

```
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"?

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