

CPSC 233: Introduction to Computers II



The "nuts and bolts" of programming



Object-oriented programming

Introduction to CPSC 233



Object-oriented design



And a whole lot ole fun
(you'll have a ...)

James Tam

Administrative (James Tam: L04)

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Office hours

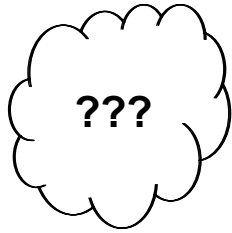
- Office hours: MW 12:00 – 12:50
- Email: (any time)
- Appointment: phone or call
- Drop by for urgent requests (but no guarantee that I will be in!)



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Feedback



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How You Will Be Evaluated

Assignments (30%)

- Assignment 1: Transition from Pascal to Java
- Assignment 2: Developing your first Java class
- Assignment 3: Stacks, Object-Oriented Design and Problem Decomposition in a simple game
- Assignment 4: Composition, Aggregation, Encapsulation; introduction to BNF and text parsing
- Assignment 5: Inheritance
- Assignment 6: Encryption (Low-level concepts using "C")

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How You Will Be Evaluated (2)

More on assignments

- Bonus marks for assignments
- Due dates for assignments (Friday or Monday)

How You Will Be Evaluated (3)

- Exams (70%)
 - Midterm exam (25%)
 - Final exam (45%)

Note: In order to attain a final grade of C- or higher you must receive a minimum grade of C- on the final exam and submit at least four out of the six assignments (this excludes the bonus assignment)

Course Resources

Course website: <http://pages.cpsc.ucalgary.ca/~becker/233>

(Supplements): <http://pages.cpsc.ucalgary.ca/~tamj/233>

Course textbooks:

- Java by Dissection, Pohl, McDowell (Addison-Wesley)
- Fundamentals of Object-Oriented Design in UML, Meilir (Addison-Wesley)

Recommended textbooks (Unix):

- A Practical Guide to Solaris, Sobell (Addison-Wesley)
- (Good alternative) Harley Hahn's Student Guide to Unix, Hahn (McGraw-Hill)

CPSC 231: What was it like

A whole lot of work!



CPSC 233: What To Expect

Even more work!!!



But you share it with up to 2 other friends

Java: History

Released in 1995 by Sun (Gosling and Naughton)



Blatant advertisement: James Gosling was a graduate of the U of C Computer Science program.

Java: History (2)

Originally Devised to run on many types of (soon to be) intelligent devices



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Java: History (3)

The popularity of the Internet resulted in a focus on computers:

- Prior to the advent of Java web pages allowed you to download text and images.

Your computer at home running a web browser



Server containing a web page



User clicks on a link

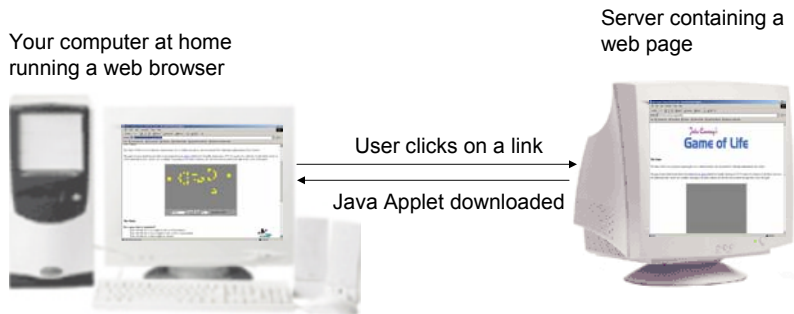
Images and text get downloaded

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Java: History (4)

- Java enabled web browsers allowed for downloading of programs (Applets)

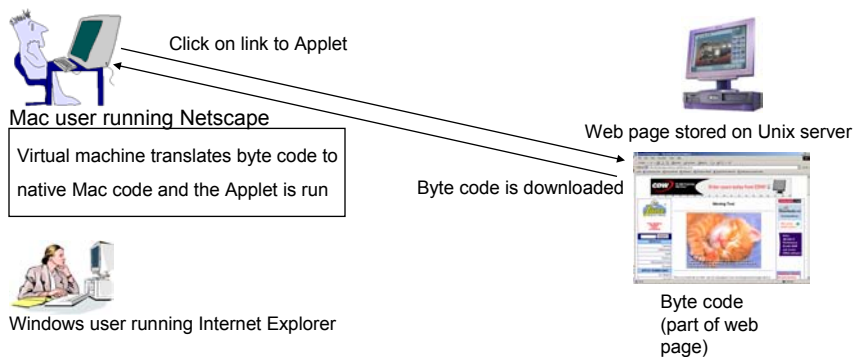


Java version of the Game of Life: <http://www.bitstorm.org/gameoflife/>

Online checkers: <http://www.darkfish.com/checkers/index.html>

Java: Write Once, Run Anywhere

Consequence of having web-based roots: platform-independent



Java: Write Once, Run Anywhere

Consequence of having web-based roots: platform-independent



Mac user running Netscape



Web page stored on Unix server



Windows user running Internet Explorer

Virtual machine translates byte code to native Windows code and the Applet is run

Click on link to Applet

Byte code is downloaded



Java: Write Once, Run Anywhere (2)

But Java can also create standard (non-web based) programs

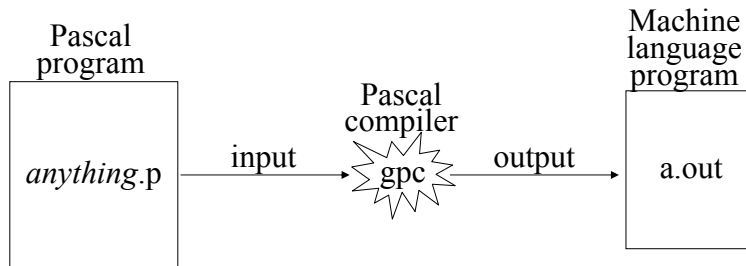


Dungeon Master (Java version)

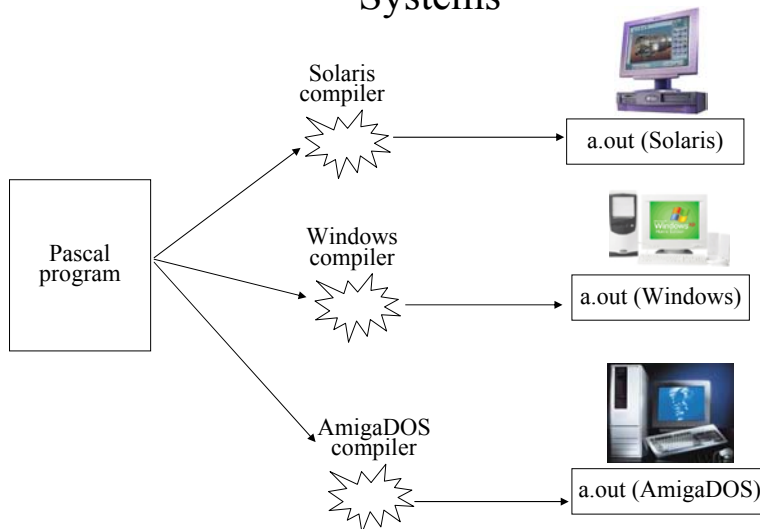
<http://www.cs.pitt.edu/~alandale/dmjjava/>

Don't play this game on the CPSC network!

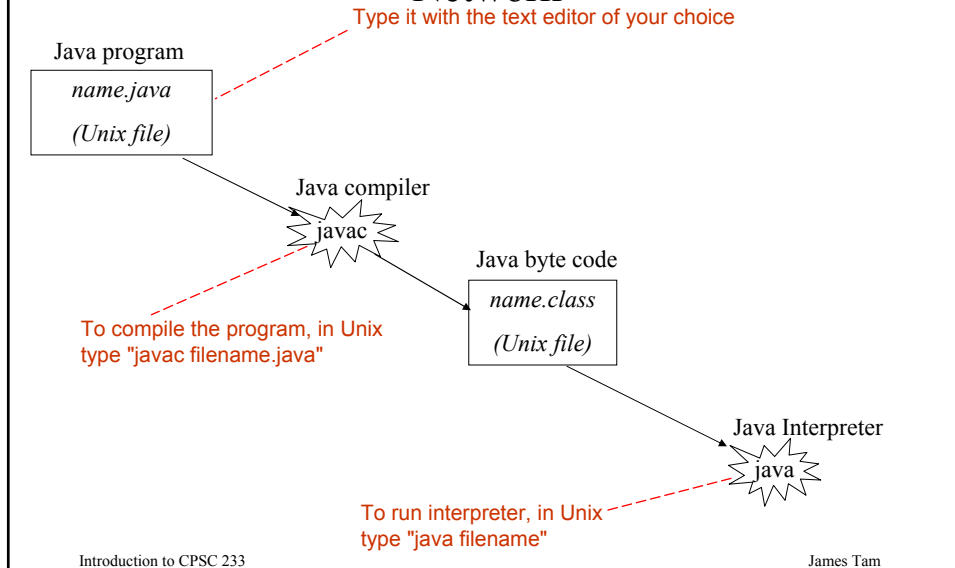
Review: Compiling Pascal programs



Compiling Programs On Different Operating Systems



Creating, Compiling And Running Java Programs: On The Computer Science Network



Smallest Compilable Programs (Pascal, C)

(* Pascal-language program *)

```
program smallest;  
begin  
end.
```

(* C-language program *)

```
main (int argc, char argv [[]])  
{  
}
```

Smallest Compilable Java Program

```
/* Java-language program */  
class Smallest  
{  
    public static void main (String[] args)  
    {  
    }  
}
```

Basic Output: Pascal And Java

Pascal

```
write('..');  
writeln('..');
```

Java

```
System.out.print("");  
System.out.println("..");
```

Basic Java Output

Format:

```
System.out.println(<string or variable name one> + <string or variable name  
two>..);
```

Examples (Assumes a variable called num has been declared.):

- `System.out.println("Good-night gracie!");`
- `System.out.print(num);`
- `System.out.println("num=" + num);`