An Animated Introduction to Programming

Today

1. What this course is about
2. Admin
3. The Basic Components of a Computer
4. The Definition of a Programming Language

Computer programming

- What is this course about?

Prerequisites

We're making several assumptions about you as a student. In particular, we assume that you have:

- **Never taken a programming course before.**
- **Have an interest in learning how to program.**
- **Have an interest in graphics and animation.**

General Information

Weekly Lectures

- 8:30 - 9:20 every Monday, Wednesday, and Friday in room 5280 (Surrey)
- You should attend every lecture.
- Lecture slides and notes will be made available, but don't count on them!
- Course Website - www.sfu.ca/~oshklars/teaching/cmpt166s13/index.html

General Information

Teaching Staff - Instructor

- Oren Shklarsky
- oshklars [at] sfu [dot] ca
- Office hours every **Monday, Wednesday, Friday, 9:30 - 10:30.**
- Available by appointment.

General Information

Teaching Staff - TA

- **TBA**

Always include CMPT 166 in the subject line of any email you send us!

Weekly labs

Weekly labs are every Wednesday from 9:30 to 14:20 in room 4050. The labs are run by the Teaching Assistants and may cover specific course topics.

There are no labs this week!

Marking Scheme

- Assignments - %10 each, submitted electronically at 23:59.
  - Assignment 1, due Friday, Jan 25th.
  - Assignment 2, due Friday, Feb 8th.
  - Assignment 3, due Monday, March 4th.
  - Assignment 4, due Monday, March 25th.
  - Assignment 5, due Friday, Apr. 12th (last day of classes).

Important

Sometimes instead of giving you a mark based on the assignment work you submit, we may replace an assignment with an oral quiz based on the assignment.
Such a quiz is meant to test your understanding of what you submitted, and may ask you to do things like explain your work, make small changes to it, and so on.

Marking Scheme

- Midterm - %20, Monday, Feb. 18th, during class (right after reading week).
- Final exam - %30, Friday, April 19th, 8:30-11:30.

Note

You must obtain %40 or higher in the final exam in order to obtain a 'clear pass'; see the marking FAQ.

Ethics
Academic Offences

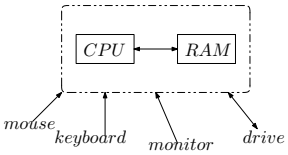
- All of the work you submit must be your own!
- Markers may sometimes use software to check for similar code, and flag it for further inspection.

Ethics
How to Be Good

- To avoid plagiarism
  - Never look at someone else's work.
  - Never **Show** someone else your work.
- Always cite any help that you get
  - e.g. friend, internet, Bill Gates.

What is a Computer?

- A central processing unit (CPU)
- Random-access memory (RAM)
- Input & Output (I/O)



Computer Variety

A typical desktop

- A fast CPU (maybe two or four) .
  $\approx$ 2.5 **billion** ops per second per CPU**.**
- Lots of RAM.
  4 Gigabytes $\approx$ 8000 color images.
- Mouse, keyboard, large disk drive.

The Arduino micro-controller

- One slow CPU.
- Memory: About 32 Kb $\approx$ 1 color image.
- No input/output devices...

What is a Programming Language?

- Computers are stupid! They need specific instructions.

Assembly Language

```
SEGMT SEGMENT ASSUME CS:SEGMT, DS:SEGMT ORG 100h
Main:
MOV AH,09h
MOV DX,OFFSET Text
INT 21h
MOV AX,4C00h
INT 21h

Text:
DB "Hello, World$"
SEGMT ENDS
END Main
```


Our Programming Language

- Processing
- Processing is actually Java in disguise (remember this for your resume!)
- Java is a **high-level language**

Other Programming Languages

Language	Created	Purpose
Fortran	1957	Scientific computing
LISP	1958	A.I.
C	1972	systems
Smalltalk	1972	education
C++	1983	systems/applications
Perl	1987	scripting/applications
Python	1991	scripting/applications
Java	1995	applications
JavaScript	1996	Web browser language
C#	2001	applications