Practical Computing for Scientists

Armin Sobhani

CSCI 2000U

UOIT – Fall 2015

UNIVERSITY OF ONTARIO
INSTITUTE OF TECHNOLOGY

Checkpoint 0

- Please complete the *Survey of Computing Background*:
  - Blackboard > Course Content > Week 1 (Sept. 14-18) > Monday Sept. 14 > Checkpoint 0

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Typing Speed

- Character per minute (CPM)
- Word per minute (WPM)
- Average: 190 CPM (38 WPM)
- http://typing-speed-test.aoeu.eu/
- http://www.typing.com/
- http://play.typeracer.com/

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How to run multiple OS on one computer

- Live CDs/DVDs/USBs
- Co-Installing (AKA Dual-Booting)
- Virtual Machines

Armin Sobhani

- UNIVERSITY OF ONTARIO INSTITUTE OF TECHNOLOGY

  IT & HPC Specialist

- SHARCNET™

  Technical Staff

What's SHARCNET

- Consortium of 18 Canadian academic institutions who share a network of high performance computers

- Partner organization of **Compute Ontario** and the **Compute Canada**

compute calcul ONTARIO

compute canada | calcul canada

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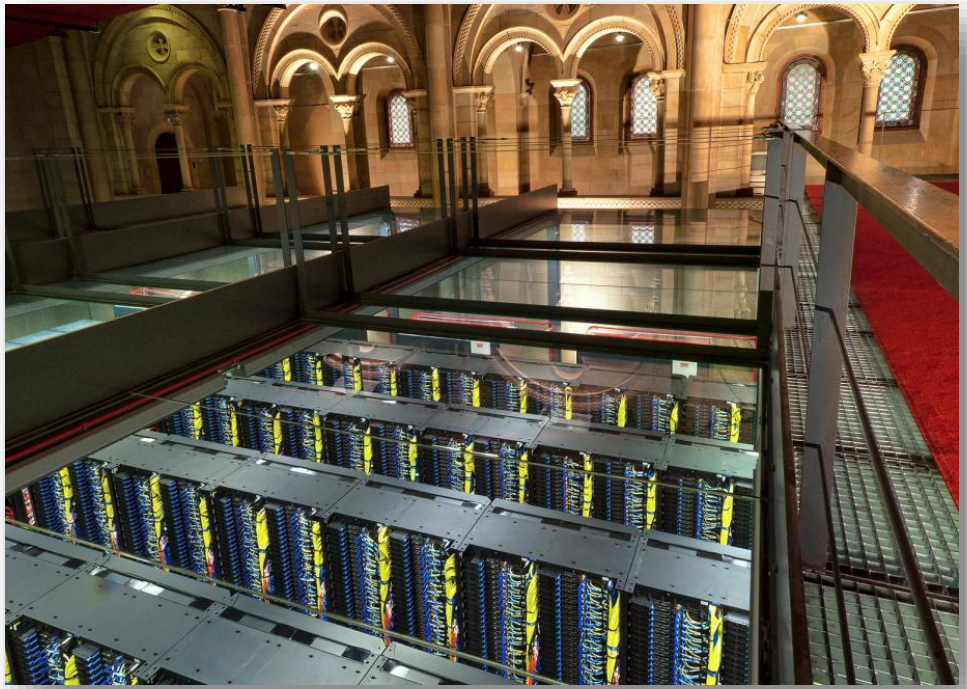
Barcelona Supercomputing Center

- Senior researcher
- 4 years
- PELE

Barcelona Supercomputing Center
Centro Nacional de Supercomputación



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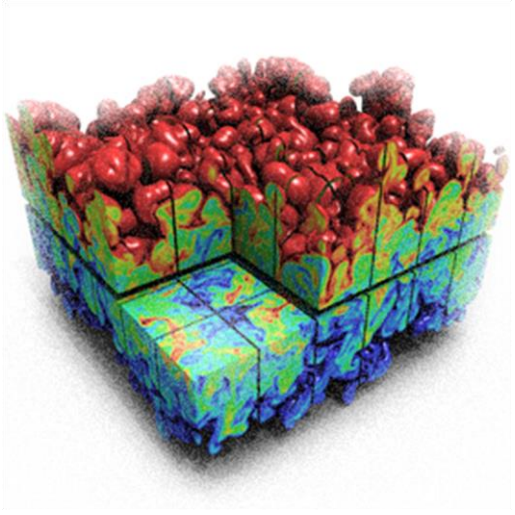
Field of Expertise

- Scientific Programming
- Bioinformatics
- In Silico Drug Design
- Computational Chemistry/Biology



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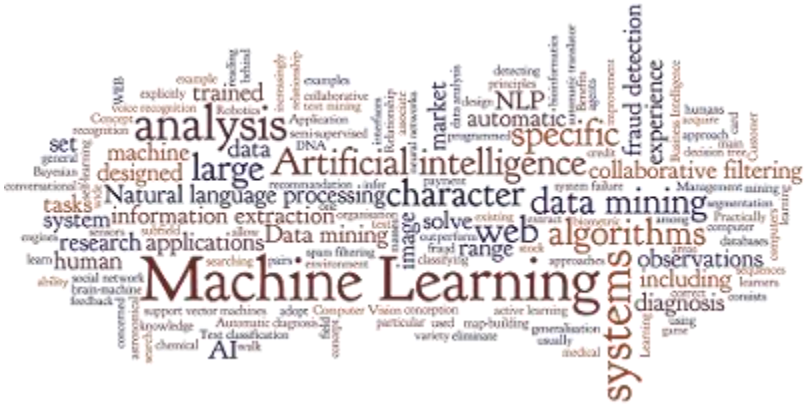
CSCI 2000U – Course Syllabus



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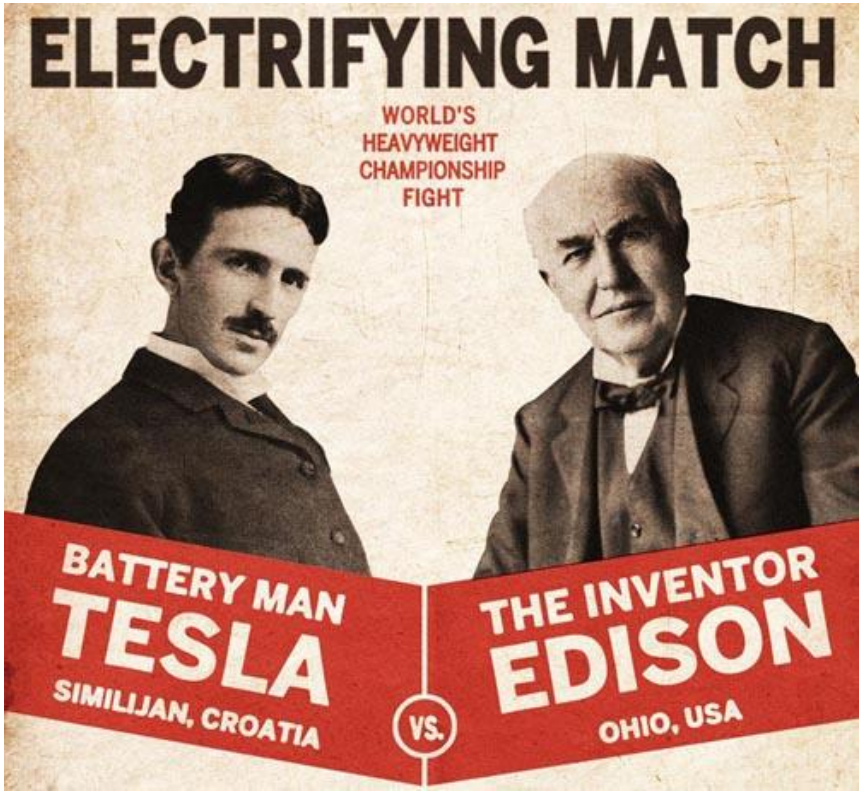
Tesla vs. Edison

Blackboard

http://theoatmeal.com/comics/tesla



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The Unix Shell

Introduction

Created by Greg Wilson

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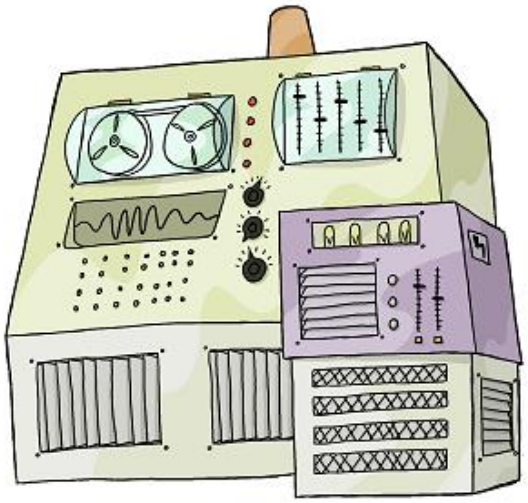
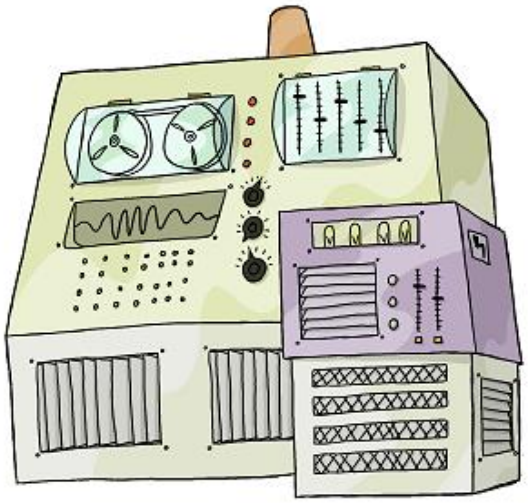
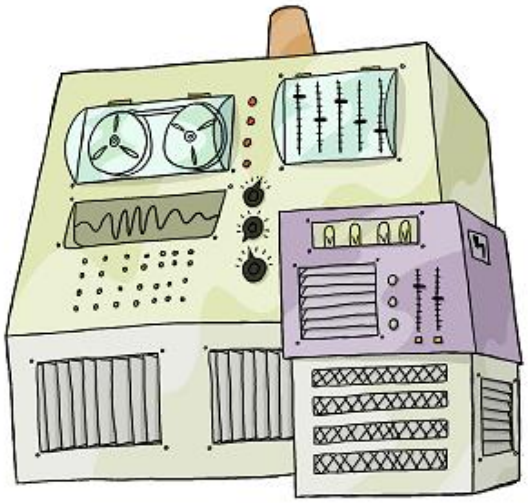




Run

Programs



Run

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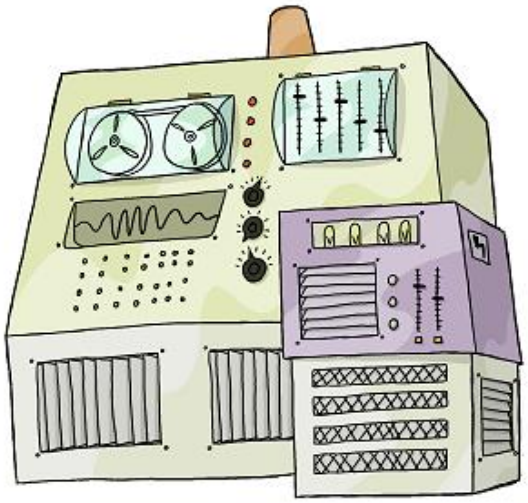
Store

Data



Run

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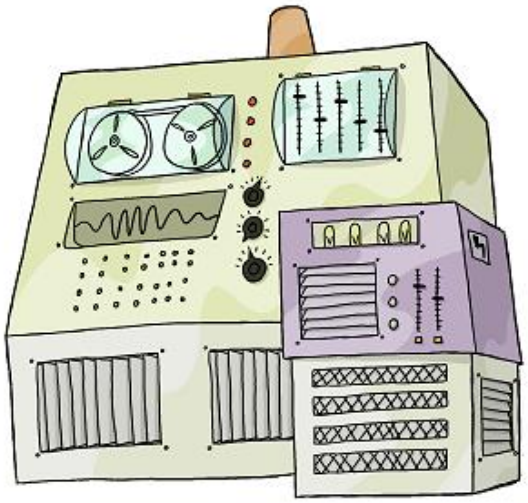
Store

Data

Communicate

with each other



Run Programs

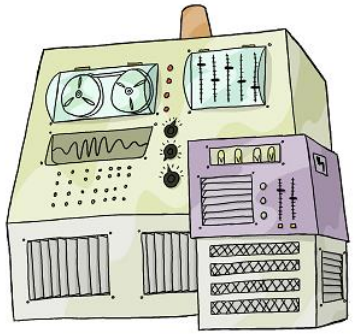
Store Data

Communicate with each other

Interact with us

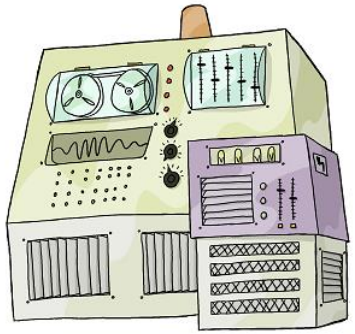
Interact

with us



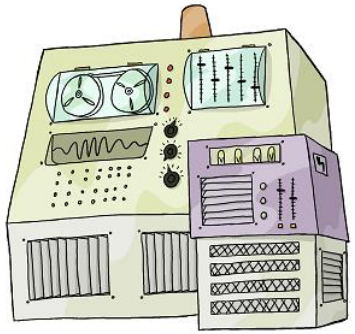
Interact

with us



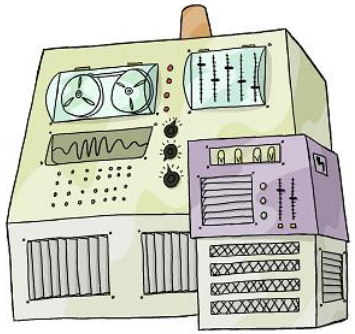
Telepathy

Interact with us



Telepathy

Speech



Interact with us

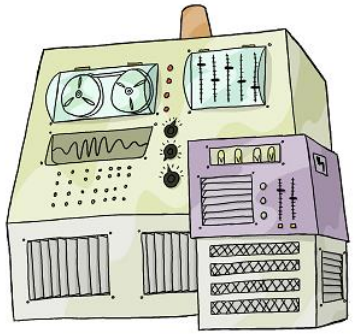
Telepathy

Speech

WIMP

(windows, icons, mice, pointers)

Interact with us

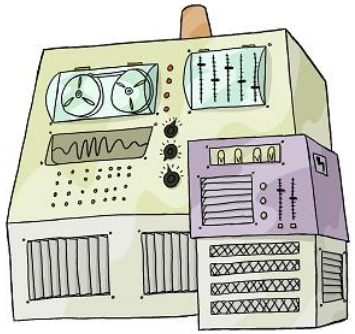


Rewiring

Telepathy

Speech

WIMP



Interact with us

Rewiring

Typewriter

WIMP

Speech

Telepathy

Typewriter

~~Typewriter~~

Line printer + keyboard

~~Typewriter~~

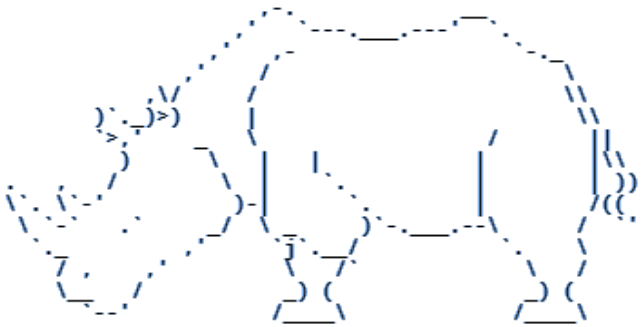
Line printer + keyboard

Text only

~~Typewriter~~

Line printer + keyboard

Text only



~~Typewriter~~

Line printer + keyboard

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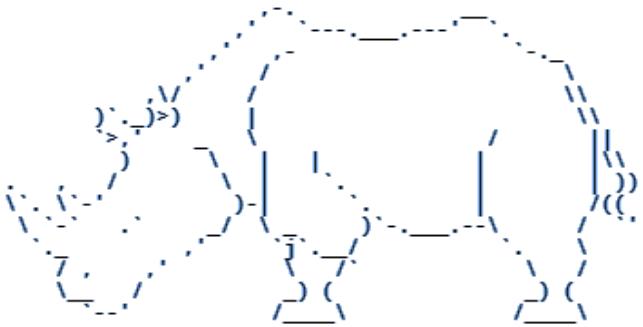

CLI: command-line interface

user logs in

user logs in

user types command

user logs in

user types command

computer executes command

and prints output

user logs in

user types command

computer executes command

and prints output

user types another command

user logs in
user types command
computer executes command
  and prints output
user types another command
computer executes command
  and prints output

```
user logs in
user types command
computer executes command
  and prints output
user types another command
computer executes command
  and prints output
⋮
user logs off
```

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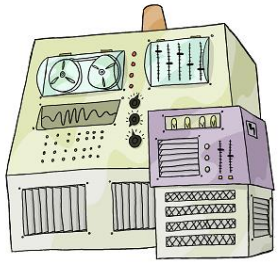

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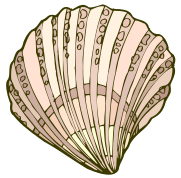
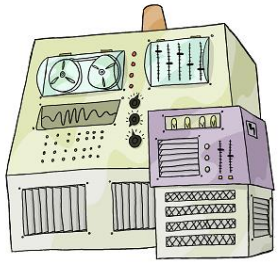
```

shell





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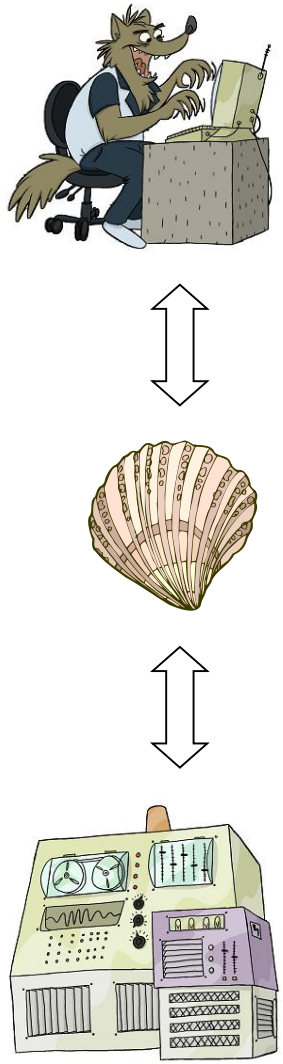

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Most popular is bash (the Bourne again shell)

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Using it feels a lot more like programming

than using windows, a mouse, etc.

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Use it because:

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Commands are terse and often cryptic

Use it because:

– many tools only have command-line interfaces

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Use it because:

– many tools only have command-line interfaces

– allows you to combine tools in powerful new ways

FAQTS – the Game

- Frequently Asked Questions with Tiny Sentences
- Both Q and A with least possible words
- The ideal word count for answers is *two*
- Our first round:

What is  science ?

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Checkpoint 1

- Please complete the *Survey of Student Goals and Values*:
  - Blackboard > Course Content > Week 1 (Sept. 14-18) > Monday Sept. 14 > Checkpoint 1

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Tutorial

- After our next session on Wednesday, *Jamil* will help you getting Linux installed on your laptop in case you haven't done that yet