

ITP20004

Open-Source Software Labs

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Handong Global University



Agenda

- Course Overview
- Course Motivation
- Administrivia

Course Overview

- Course: ITP20004 Open-Source Software Labs
 - Section #1 (English): Mon/Thur 4:00-5:15pm
- Instructors



- Charmgil Hong (홍참길)
- Office: NTH201
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- Shin Hong (홍신)
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Course Overview

- Course: ITP20004 Open-Source Software Labs
 - Section #1 (English): Mon/Thur 4:00-5:15pm
- Teaching Assistant: TBD
 - Email: -

Course Overview

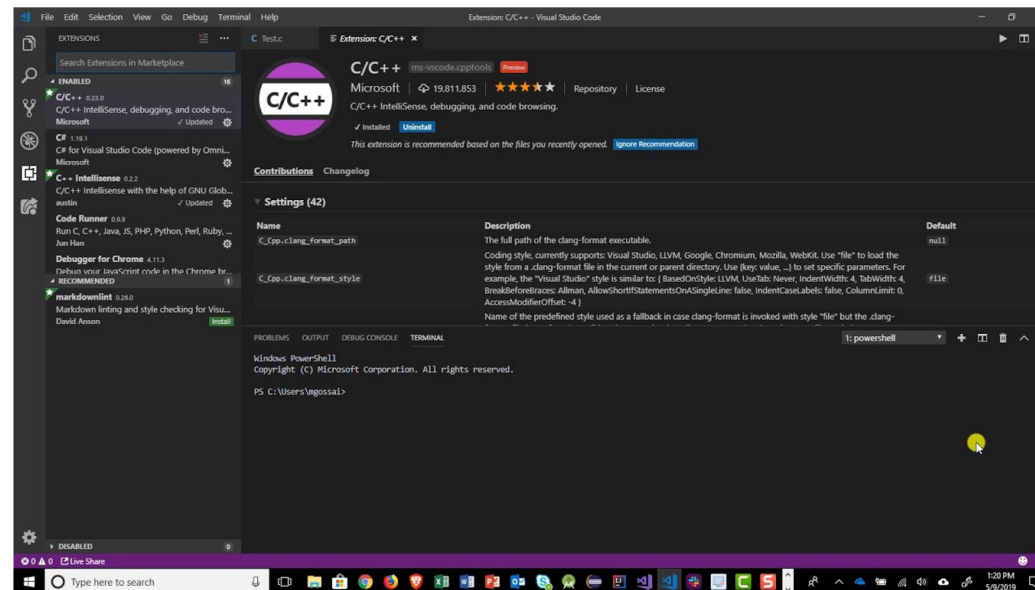
- Course objectives:
 - Students can articulate Linux, an open-source operating system in operating and writing programs



Linux

Course Overview

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 - Students are equipped with basic skills of contemporary software development tools



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Course Overview

- Course objectives:
 - Students can articulate Linux, an open-source operating system in operating and writing programs
 - Students are equipped with basic skills of contemporary software development tools
 - Students understand the nature and the process of open-source projects
 - Students know how to find and use open-source software fitted for their needs



Course Overview

- Prerequisite: C Programming
 - Recommended: Data Structures, Java Programming
- Textbooks
 - William Shotts. *The Linux Command Line*. 5th Internet Edition. 2019.
<https://sourceforge.net/projects/linuxcommand/files/TLCL/19.01/TLCL-19.01.pdf/download>
 - Robert G. Plantz. *Introduction to Computer Organization: ARM Assembly Language Using the Raspberry Pi*. 2017.
<https://bob.cs.sonoma.edu/IntroCompOrg-RPi/intro-co-rpi.html>
 - Robert C. Seacord. *Effective C: An Introduction to Professional C Programming*. No Starch Press. 2020.
<https://www.oreilly.com/library/view/effective-c/9781098125677/>

Course Overview

- This course is **offered in English**
 - Use English in your homework, exams, and all communication in class
 - You **will get no credit** for your submission **if it is not in English**

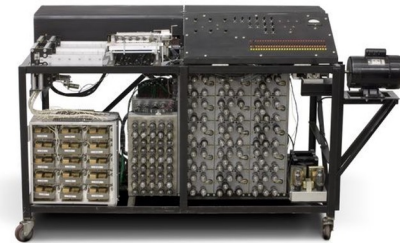
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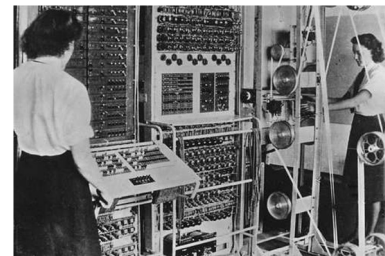
Motivation

- A brief computer history
 - First generation (~ mid-1940s)
 - Computers handled a single task each time
 - There was no operating system

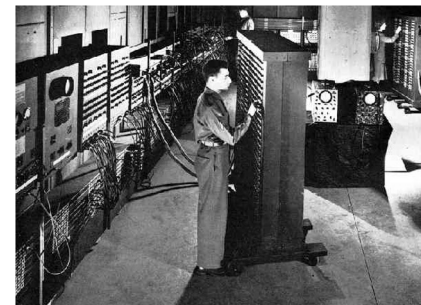
1937 Atanasoff-Berry Computer (ABC)
-- the first electronic computer



1943 Colossus
-- the first fixed program electronic computer



1946 Electronic Numerical Integrator and Computer (ENIAC) -- the first general-purpose computer

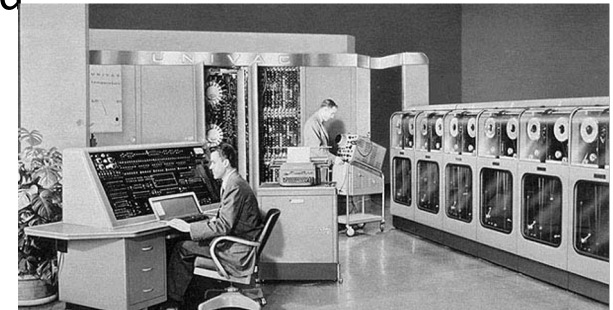


Motivation

- A brief computer history
 - Second generation (mid-1940s ~ mid-1960s)
 - **Transistors** made computers smaller
 - Computers had **memory** and **operating systems**
 - Storage devices (tape or disk) and printers were introduced
 - Over 100 programming languages were developed



1951 Universal Automatic Computer (UNIVAC)
-- the first commercial computer

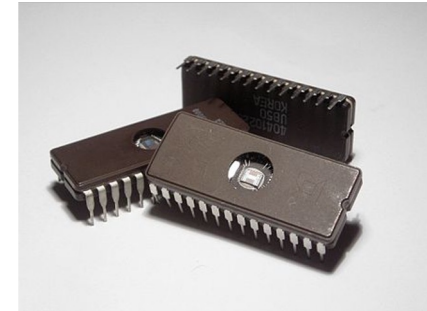


1953 The IBM 650 Series, 700 Series
-- the magnetic drum calculator (MDC)
-- the “mainframe” computers



Motivation

- A brief computer history
 - Third generation (mid-1960s ~ present)
 - “Modern computing era”
 - **Integrated circuit (IC)** made computers much smaller but powerful



The PC revolution



1976



1980



1981

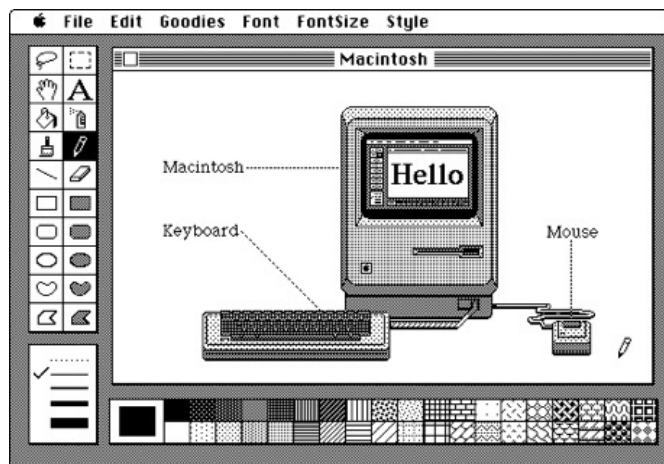
Mainframes were alive and well



Motivation



```
Starting MS-DOS...  
C:\>_
```



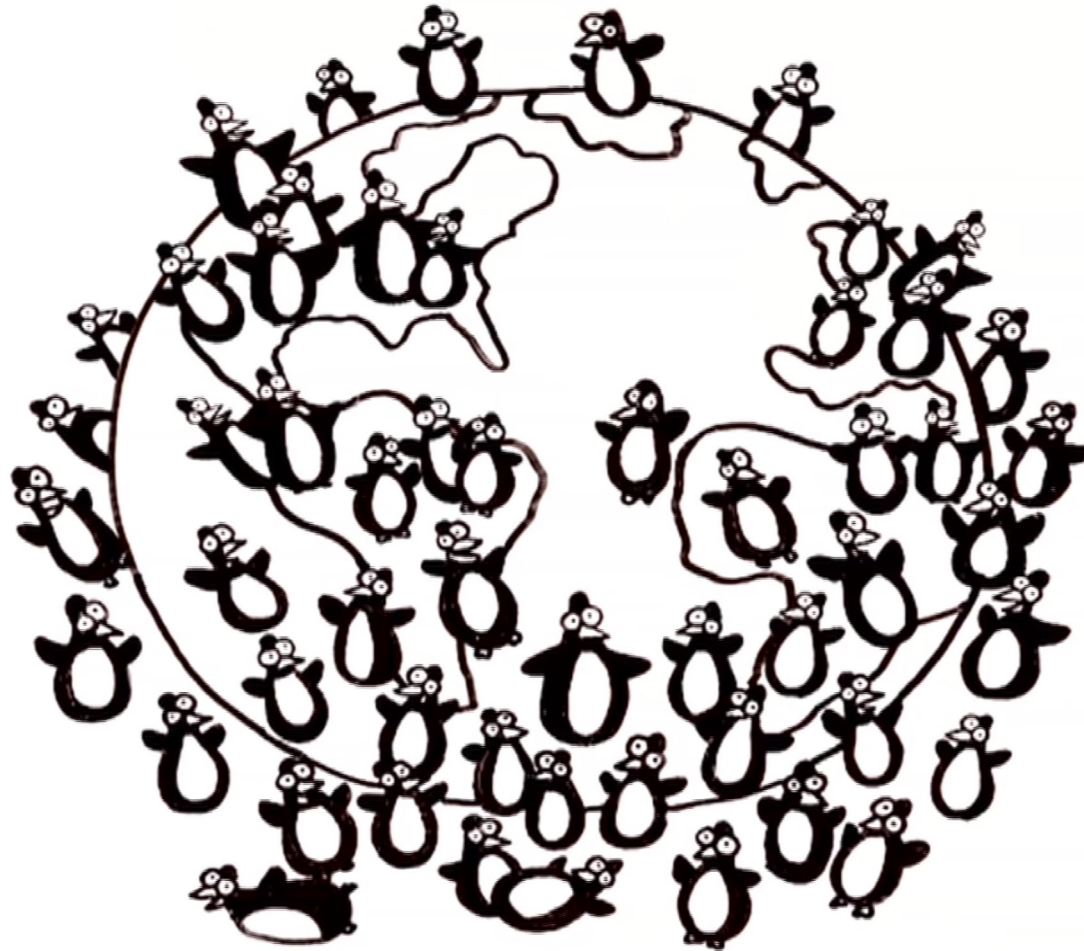
Motivation



"Hello everybody out there... I'm doing a (free) operating system (just a hobby, won't be anything big and professional like gnu)...it probably will never support anything other than AT-hard disks, as that's all I have..."

* Image src: https://www.youtube.com/watch?v=5ocq6_3-nEw (by the Linux Foundation)

Motivation



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Motivation

- Linux is everywhere
 - Behind tons of online services
 - Running 95% of supercomputers
 - Running 75% stock exchanges worldwide
 - In your living room
 - In your pocket

Google

amazon

NETFLIX

Meta



Learning Components

1. Understanding the Linux environment and system
2. Writing and managing code on Linux
 - C Programming Reviews
3. Working in collaborations
4. Launching services with Linux

Agenda

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Schedule (tentative)

Week	Plans
1-3	Getting started <ul style="list-style-type: none">- Course overview, motivation, administrivia- Computer organization and Linux environment- CPR: C Programming Review
4-5	Interacting with Linux <ul style="list-style-type: none">- Basic Linux commands + Writing code on Linux- Linux command-line tools- Accessing files and directories
6-9	Project management <ul style="list-style-type: none">- make- Exploring standard libraries- Project: BASIC interpreter- Debugging with GDB, Unit testing with gtest

Week	Plans
9-11	Computer network and services <ul style="list-style-type: none">- Computer network basics- Linux network commands- Linux machine as a server + Web services
12-16	Running projects in collaboration <ul style="list-style-type: none">- Using Github- Project: Developing a multi-user game

Lectures and Labs

- **Lecture:** learn about modern computing systems and environments in a regular lecture format
- **Lab:** one to three quests that are closely related to the topics from the lectures
 - You will be teamed up with another student to conquer the quests
 - Teams will be re-assigned monthly by the instructors
 - **Prelab assignment:** prior to each lab session, a **prelab assignment** will be given with a reading assignment
 - **Postlab report:** Check in and out with TA that you have started and completed the quests

Administrivia

- Grading
 - **Attendance: 10%**
 - **Midterm: 15%**
 - **Final: 15%**
 - **Lab (Prelab & Postlab Reports): 60%**
 - Make sure to submit your work before each deadline
 - **Late submissions** will be accepted **within 24 hours** after the deadline with a **penalty of -20%** of the assignment grade
 - Submissions made **after 24 hours from the deadline will be rejected**
 - For additional extensions, reasonable excuse should be submitted **before the deadline**

Honor Code

- Please review HGU CSEE Standard
 - 한국어: <https://drive.google.com/file/d/0B9iQGS7v1k9ORGhXSHNyTkpvQW8/view>
 - English: <https://drive.google.com/file/d/0B9iQGS7v1k9Ob0oxTExmMjhPU28/view>
- Any of the followings will result in **failure (F)**:
 - Conducting any form of cheating or academic dishonesty
 - Not appearing in lectures & labs for more than 6 times
 - Three times of tardiness will be countered as one absence
 - Not participating in more than 2 lab sessions
 - Skipping midterm exam or final presentation

Honor Code

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 - English: <https://drive.google.com/file/d/0B9iQGS7v1k9Ob0oxTExmMjhPU28/view>
- Attendance
 - Marking her/his own attendance sheet without attending the class or marking other student's attendance sheet who is absent is regarded as cheating.
- Assignments
 - Submitting assignments or program codes written by others or acquired from the internet without explicit approval of the professor is regarded as cheating.
 - Showing or lending one's own homework to other student is also considered cheating that disturbs fair evaluation and hinders the academic achievement of the other student.
 - It is regarded as cheating if two or more students conduct their homework together and submit it individually when the homework is not a group assignment.
- Laboratory
 - It is cheating if students conduct an experiment or practical exercise by referring to other students' pre-report/code (in case of team project, referring other team's report/code) while doing experiment and practice.

*Sounds cool?
Let's dive in!*

