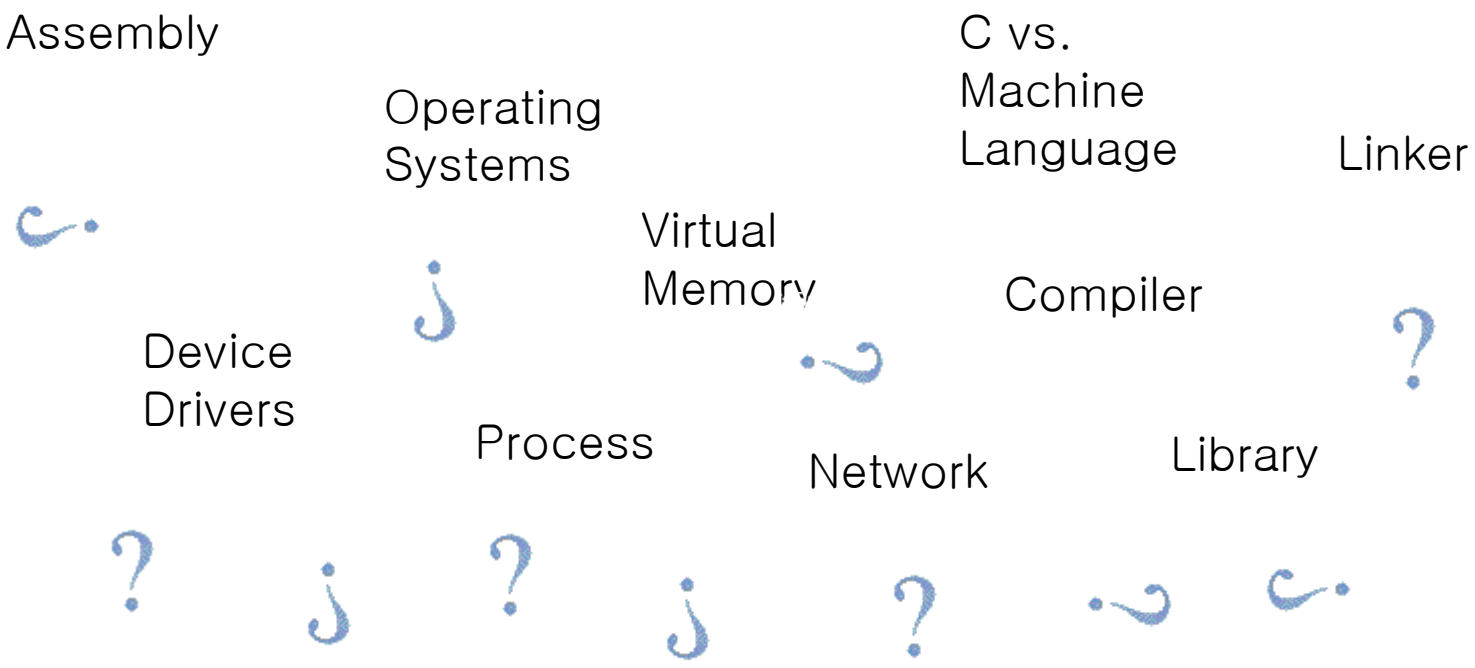
Introduction to System Programming

Chan-Gun Lee

Confused about computer systems?



Don't worry....

The "System Programming" course will give you the clear answers

What is System Programming?

- Computer Systems as we see

Application Programs

System Program

Operating System

Device Drivers

- System Programming
  - Writing system programs
  - Using system programs

What we are going to learn?

- How the computer hardware is organized?
- How programs run on the hardware?
- How to write and understand assembly programs to directly control HW?
- How the OS (operating system) works?
- How to write programs using OS services?
- How to make computers communicate?

At the end of the semester ...

- We will understand
  - the way computer hardware operates,
  - the way software programs run,
  - low-level programming (assembly instructions, machine instructions),
  - operating systems,
  - network programming, and so on.
- Comprehensive understanding of Computer Systems
- Fundamental knowledge for further studies
  - Computer Architecture
  - Operating Systems
  - Embedded Systems

Course Information

- Instructor: Chang-Gun Lee (cglee@snu.ac.kr)
- TA: Jung-Eun Kim (deep0314@snu.ac.kr)
- Class meeting time: Tue, Thur 9 am
- Classroom: 301-203
- Office Hours: Tue, Thur 12-1pm (Pizza or Gim-Bob will be served by appointment)
- Textbook:
  - R. E. Bryant and D. O'Hallaron, Computer Systems: A Programmer's Perspective, Prentice-Hall, 2003
  - C programming related books
  - Linux/Unix related books
  - Intel x86 Assembly language related books
- Grading
  - Attendance: 5%, Homework 35%, Midterm 30%, Final 30%

Before We Start ....
Passive vs. Active Learning

- After 2 weeks, we tend to remember

- Passive learning
  - 10% of what we read
  - 20% of what we hear
  - 30% of what we see (picture)
  - 50% of what we hear and see

- Active learning
  - 70% of what we say
  - 90% of what we say and do

Everybody! be an Active Learner

- recall prior material
- answer a question (say a lot!)
- guess the solution first (even guessing wrong will help you to remember the right approach)
- raise questions
- think of application
- imagine that you were the professor and think about how you would give a test on the subject material so that key concepts and results will be checked
- summarize a lecture, a set of homework or a lab in your own words concisely

An Active Learner will become an Independent Researcher and Engineer

Will it be an easy course?

- Easy for hard working guys
- Difficult for ...

- At the end, you will learn a lot and realize that this course is useful for your future!