CSGE602055 Operating Systems
CSF2600505 Sistem Operasi

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Agenda

The Lecturer

- UILA: since 1984.
- GNU/Linux user: since 1994.
- VauLSMorg (vlsm.org): since 1996.
- Blog: `rahmatm.samik-ibrahim.vlsm.org/`
  - Blog: `2016/08/panggil-saya-rahmat.html`
  - Blog: `2013/10/kumpulan-hal.html`
- Twitter: `@rms46`
- Facebook Page: `facebook.com/RMS46F/`
- Contact: via SCELE - Operating Systems REG/MTX/INT/EXT
  `https://scele.cs.ui.ac.id/course/view.php?id=124`

Terms of Conditions

1. My name is Rahmat. There shall no other name then Rahmat!
2. Thou shall not be late for the lecture!
3. Thou shall not swear and not be noisy in the classroom!
4. Remember the Operating System time slot. Prepare for a quiz!
5. Honour thy lecturer's privacy. No Puss in Boots, please!
6. Thou shall not play games in the classroom!
7. Thou shall not net chatting in the classroom!
8. Thou shall not borrow from your neighbour during a quiz or examination!
9. Thou shall not wrongly answer the quiz or examination!
10. Thou shall not covet your neighbour's quiz or examination sheet!

Honour thy lecturer's privacy.

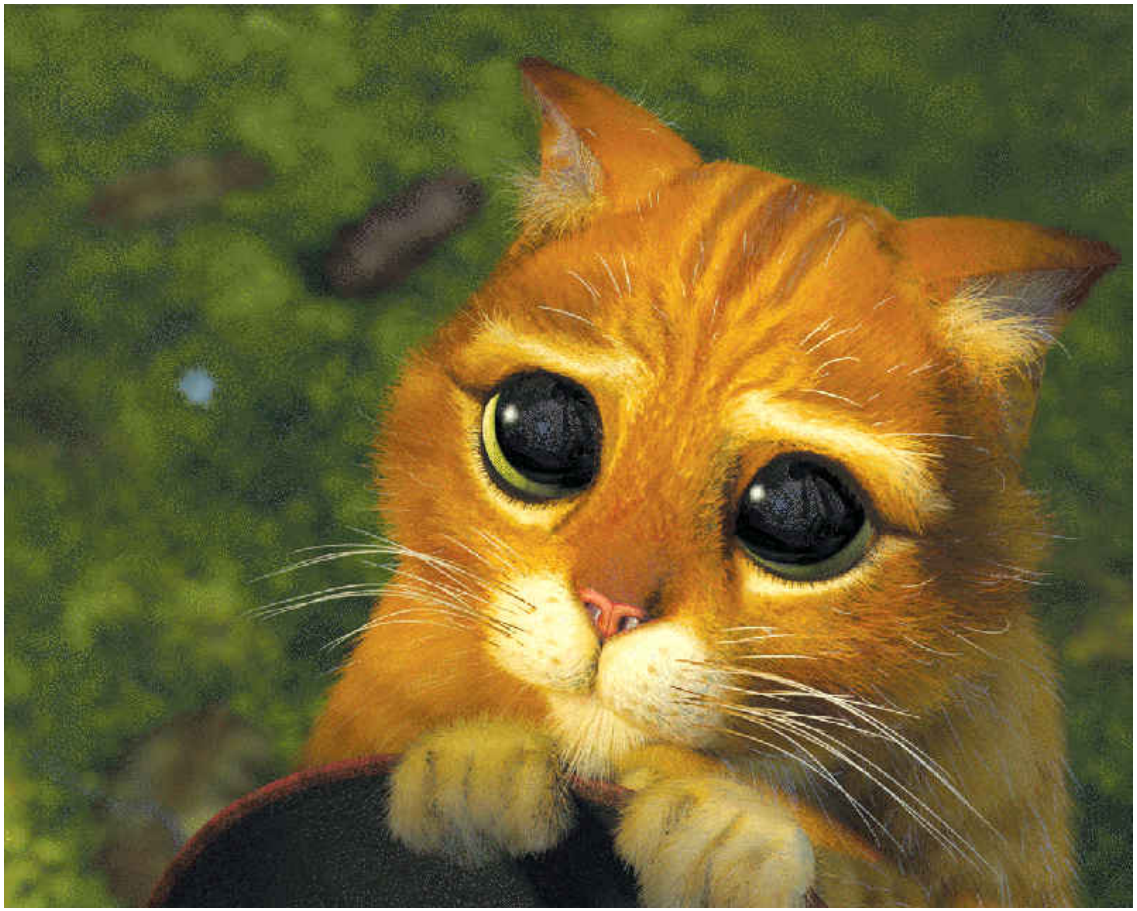


Figure : No Puss in Boot, please![1].

[1]This is a fair use of a DreamWorks/Paramount Picture character.

Goal

Coverage

This is an introduction to a modern operating systems course. It will cover general overview, computer architecture review, operating system overview, software licenses, GNU/Linux CLI, versioning, scripting, C language overview, protection, security, gnupg, processes and threads, addressing and pointers, memory management, virtual memory, synchronization, mutual exclusion, deadlock, CPU scheduling algorithms, file systems.

Student-Centered

This course is student-centered where responsibility is in the hands of the students. Students are expected to be prepared for the class meeting.

GNU/Linux

Students will have a thorough understanding of how GNU/Linux provides services by using a Command Line Interface.

ETC

- SCELE: `https://scele.cs.ui.ac.id/course/view.php?id=124`
  - Enrollment key: "01101010"[1].
  - Check the "Announcement" regularly.
  - Topic of the week will be in the weeks section.
- ARCHIVE: `https://scele.cs.ui.ac.id/course/view.php?id=126`
  - Enrollment key: "11001100"[1].
  - Check it out!
- There will be **No Lab. Assistant**.
- There will be **No Teaching Assistant**.
- There will be **Grader only**.
- Go to SEKRE (B Building 2nd floor) for any administrative issues!

[1] For a limited time only!

Resources

- Any recent Operating System text book published - say - less than 10 years ago.
- OLD — (ARSIP)(017_BAHAN-AJAR-LAMA) Previous Slides.
- OSC2E — (ARSIP)(050_OSC-Silberschatz) OSC2E
- UCB — (ARSIP)(070_KULIAH-INTERNASIONAL) UC Berkeley
- UDA — (ARSIP)(070_KULIAH-INTERNASIONAL) UDACITY
- ETC — (ARSIP)(075_ETC-Video) ETC

Schedule

- Week00 – Intro (OSCE2e ch1/2)(UCB 01)(UDA P1L1/2) (OLD 00)
- Week01 – IPR, CLI, GIT, Scripting (ETC 000 001 002) (OLD 02-HKI 02-scripting) + Any Scripting - Git - AWK - SED - REGEX Tutorial.
- Week02 – Protection & Security (OSCE2e ch13/14) (ETC 050 051) + Any C Language Tutorial
- Week03 – Processes & Threads (OSCE2e ch3/4) (UCB 02 03) (UDA P2L1/2/3)
- Week04 – Addressing & Pointer (Any C Language Tutorial)
- Week05 – Memory (OSCE2e ch7/8) (UCB 11 12 13) (UDA P3L2)
- UTS 00 01 02 03 04 05
- Week06 – Synchronization (OSCE2e ch5) (UCB 7/8) (UDA P3L3/4)
- Week07 – Schedulling (OSCE2e ch6) (UCB 9/10) (UDA P3L1)
- Week08 – File System (OSCE2e ch10/11) (UCB 18/19) (UDA P4L2)
- Week09 – Storage System (OSCE2e ch9) (UCB 17A (UDA P4L4))
- Week10 – Cloud System & Virtualization (UCB 24)
- UAS 06 07 08 09 10

Week 00: Introduction

- Reference: (OSCE2e ch1/2)(UCB 01)(UDA P1L1/2)(OLD 00)
- Operating System
  - Definition
  - Managers
  - Layers
  - Interfaces
- Computer Organization Review
  - Buses, Bridges, Transfer Rate, Clock.
  - Memory: DDR, DDR-2, ...
  - Port & Memory Mapped I/O
  - CPU: privilidge and user mode
  - Hardware Limitation
  - Priority: Read vs Write
  - Numbers: base 2, base 8, base 10, base 16.
- Lab
  - Google Account
  - Github Account
  - SSO (LDAP) Account
  - Scele Account

Week 01: IPR & Scripting

- Reference: (ETC 000 001 002)(OLD 02-HKI 02-scripting) (Any Related Tutorial)
- Intelectual Property Right (IPR)
  - Patent, Copyright, Trademark, Servicemark, Tradesecret.
  - Software Licences
  - Free Software Definition (FSF)
  - Free Software, Open Source Software, Copyleft Software
- The GNU/Linux Command Line Interface (CLI)
  - shell (Bash)
  - basic cli: cat, cd, cp, ls, man, more, mv, rm, touch, wc.
  - vi, sed, awk, git.
  - regex
- Lab
  - editor exercise
  - git: pull, commit
  - git: 11 weekly folders + 1 SandBox
  - simple scripts
  - git push to github

Week 02: Protection & Security

- Reference: (OSCE2e ch13/14) (ETC 050 051) (Any C Language Tutorial)
- Protection
- Security
- gnupg
- sha1sum
- encryption
- C language
- Lab
  - tba.

Week 03

- Week03 – Processes & Threads (OSCE2e ch3/4) (UCB 02 03) (UDA P2L1/2/3)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 04

- Week04 – Addressing & Pointer (Any C Language Tutorial)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 05

- Week05 – Memory (OSCE2e ch7/8) (UCB 11 12 13) (UDA P3L2)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 06

- Week06 – Synchronization (OSCE2e ch5) (UCB 7/8) (UDA P3L3/4)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 07

- Week07 – Schedulling (OSCE2e ch6) (UCB 9/10) (UDA P3L1)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 08

- Week08 – File System (OSCE2e ch10/11) (UCB 18/19) (UDA P4L2)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 09

- Week09 – Storage System (OSCE2e ch9) (UCB 17A (UDA P4L4))
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

Week 10

- Week10 – Cloud System & Virtualization (UCB 24)
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.
- tba.

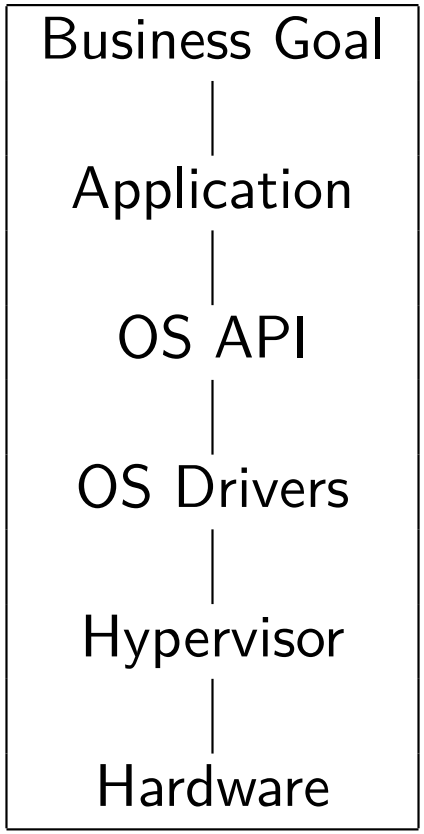
Assesment

85 - ... = A	80 - 85 = A-	75 - 80 = B+	70 - 75 = B
65 - 70 = B-	60 - 65 = C+	55 - 60 = C	50 - 55 = D or C[1]

- Midterm: 6 problem sets @ 6 points (=36).
- Final: 5 problem sets @ 6 points (=30).
- Pre-midterm assignments: 6 sets @ 3 points (=18).
- Post-midterm assignments: 5 sets @ 3 points (=15).
- Extra: 1 point[1].
- C-2C: upto 5 points[1].
- Midterm remedy/replacement: upto 3 points[1].
- Final remedy/replacement: upto 3 points[1].
- You are allowed to bring a cheat-sheet (A4 size) to the exam room[1].

[1] Terms and conditions apply

General View



- Account: Google, Github, SSO
- Scele
- Report/Wait
- Cek Home

Arithmetic

- Base 2: 110010101010_2
- Base 8: $01234567_8 = 000\ 001\ 010\ 011\ 100\ 101\ 110\ 111_2$
- Base 10: 012 345 679
- Base 16: $9AB\ CDEF_{16} = 1001\ 1010\ 1011\ \ 1100\ 1101\ 1110\ 1111_2$

The End

- This is the end of the presentation.