

# CSGE602055 Operating Systems

## CSF2600505 Sistem Operasi

### Minggu 02: Protection, Security, Privacy, & C-language

Rahmat M. Samik-Ibrahim

Universitas Indonesia

<http://rms46.vlsm.org/2/207.html>

REV090 30-Oct-2017

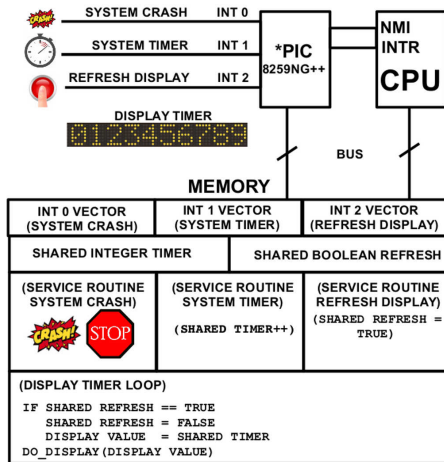
Minggu 00	29 Aug - 05 Sep 2017	Intro & Review
Minggu 01	07 Sep - 12 Sep 2017	IPR, SED, AWK, REGEX, & Scripting
Minggu 02	14 Sep - 19 Sep 2017	Protection, Security, Privacy, & C-language
Minggu 03	26 Sep - 30 Sep 2017	BIOS, Loader, Systemd, & I/O
Minggu 04	03 Okt - 07 Okt 2017	Addressing, Shared Lib, Pointer & I/O Programming
Minggu 05	10 Okt - 14 Okt 2017	Virtual Memory
Ming. UTS	15 Okt - 24 Okt 2017	
Minggu 06	26 Okt - 31 Okt 2017	Concurrency: Processes & Threads
Minggu 07	02 Nov - 07 Nov 2017	Synchronization
Minggu 08	09 Nov - 14 Nov 2017	Scheduling & Network Sockets Programming
Minggu 09	16 Nov - 21 Nov 2017	File System & Persistent Storage
Minggu 10	23 Nov - 28 Nov 2017	Special Topic: Blockchain
Cadangan	30 Nov - 09 Des 2017	
Ming. UAS	10 Des - 23 Des 2017	

# Agenda

- 1 Start
- 2 Jadwal
- 3 Agenda
- 4 Week 02
- 5 Goals and Principles of Protection
- 6 The Security Problem
- 7 Privacy
- 8 C Language
- 9 The End

# Week 02: Protection, Security, & C-language

- Reference: (OSCE2e ch13-4) (ETC 050-1 C001-8) (OLD 01)



(c) 2017 VauLSMorg – This is a free picture

Figure: How to protect and secure this design?

# Goals and Principles of Protection

- Principle of Least Privilege
- Domain Structure and Access Matrix
- Domain = set of Access-rights (eg. **user-id**).
- Access-right = <object-name, rights-set> (eg. object: file).

	File1	File2	File3	Printer
User1	Read		Read	
User2				Print
User3		Read	Execute	Print
User4	R/W		R/W	Print

- Access-right Plus Domain (Users) as Objects

	F1	F2	F3	Printer	U1	U2	U3	U4
U1	R		R			SW		
U2				Print			SW	SW
U3		R	EXEC	Print				
U4	R/W		R/W	Print	SW			

# Copy Rights

- Start

	File1	File2	File3
User1	Exec		Write*
User2	Exec	Read*	Exec
User3	Exec		

- User3: Read access to File2 (by User2)

	File1	File2	File3
User1	Exec		Write*
User2	Exec	Read*	Exec
User3	Exec	<b>Read</b>	

- Owner Rights

	File1	File2	File3
User1	O & E		W
User2		O & R* & W*	O & R* & W
User3		W	W

# The Security Problem

- Security Violation Categories
- Security Measure Levels
- Encryption
- Linux Security
- gnupg & sha1sum

- Privacy can mean different things in different contexts; different people, cultures, and nations have different expectations about how much privacy a person is entitled to or what constitutes an invasion of privacy.
- Considering all discussions as one of these concepts
  - Right to be let alone (such as one's own home).
  - Limited access (no information collection).
  - Control over information (in the era of big data).
  - States of privacy: solitude, intimacy, anonymity, and reserve.
  - Secrecy: does not apply for any already publicly disclosed.
  - Personhood and autonomy.
  - Self-identity and personal growth.



- Reference: (Any C Language Tutorial)

# The End

- This is the end of the presentation.