

CSGE602055 Operating Systems CSF2600505 Sistem Operasi

Minggu 06: Concurrency: Processes & Threads

Rahmat M. Samik-Ibrahim

Universitas Indonesia

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

REV72 14-Sep-2017

Jadwal OS172

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 Agenda
- 3 Week 06
- 4 The End

Week 06: Processes & Threads

- Reference: (OSCE2e ch3/4) (UCB 02 03) (UDA P2L1/2/3) (OLD 03)
- Process Concept
 - Program (passive) \leftrightarrow Process (active)
 - Process in Memory: | *Stack* \cdots *Head* | *Data* | *Text* |
 - Process State: | *running* | *waiting* | *ready* |
 - `fork()` and `exec1p()`
- The Multi-process Synchronization Problem
 - Producer-Consumer (Bounded Buffer)
 - Readers-Writers
 - Dining Philosopher
- Communication
 - Pipes
 - Sockets
 - RPC

Thread

- Multicore Programming
- Multithreading Models
- Threading Issues
- Benefits
 - Responsiveness
 - Resource Sharing
 - Economy
 - Scalability
- Concurrency vs. Parallelism
- Multithreading Models
 - Many to One
 - One to One
 - Many to Many
 - Multilevel Models
- Pthreads
- Lab
 - `fork()`

The End

- This is the end of the presentation.