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& TECHNOLOGY

OPERATING SYSTEMS

MASTER IN COMPUTER SCIENCE & BUSINESS TECHNOLOGY

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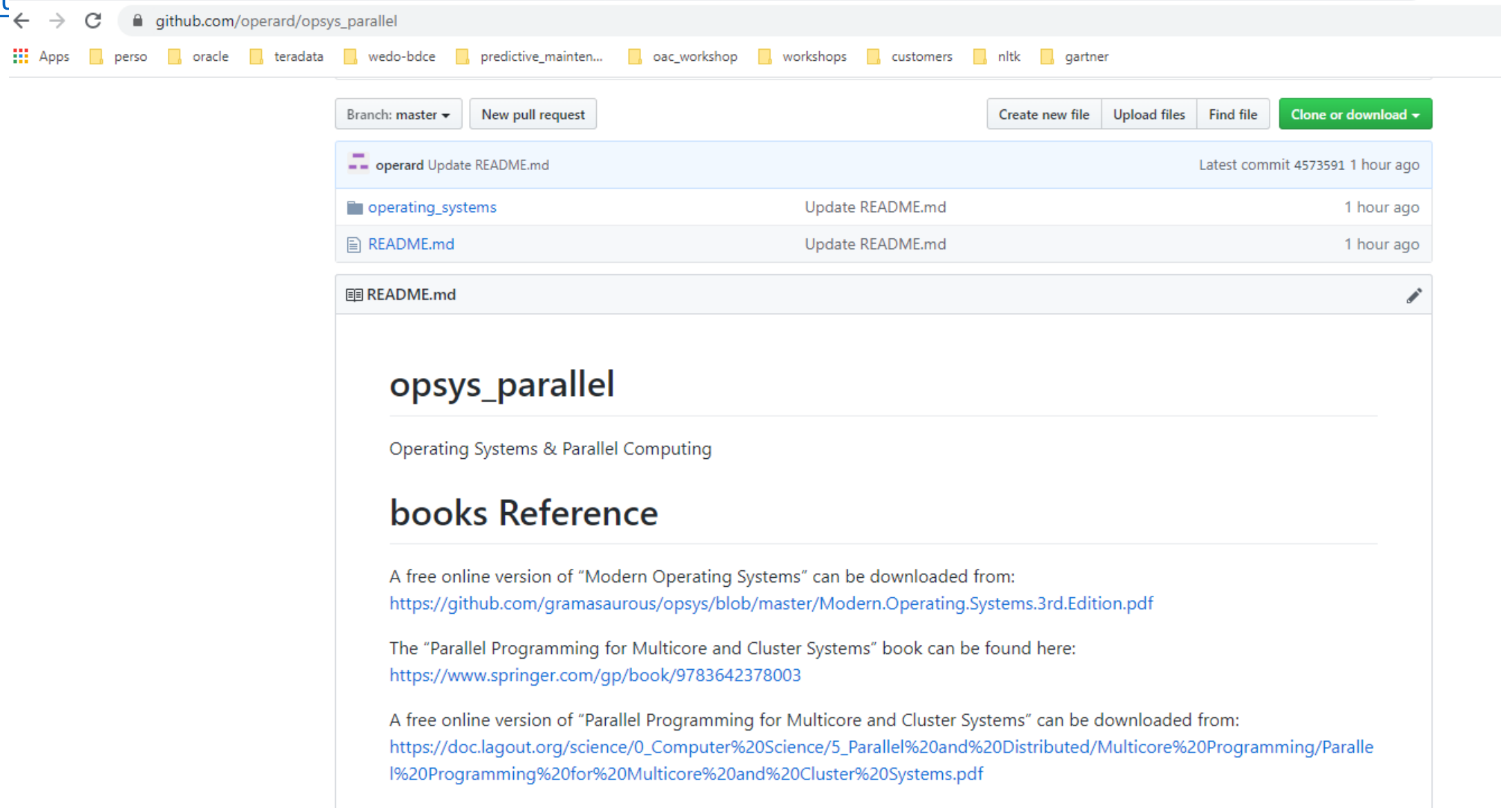
Github: https://github.com/operard/opsys_parallel/blob/master/mcsbt/README.md

https://github.com/operard/opsys_parallel/blob/master/mcsht/README.md



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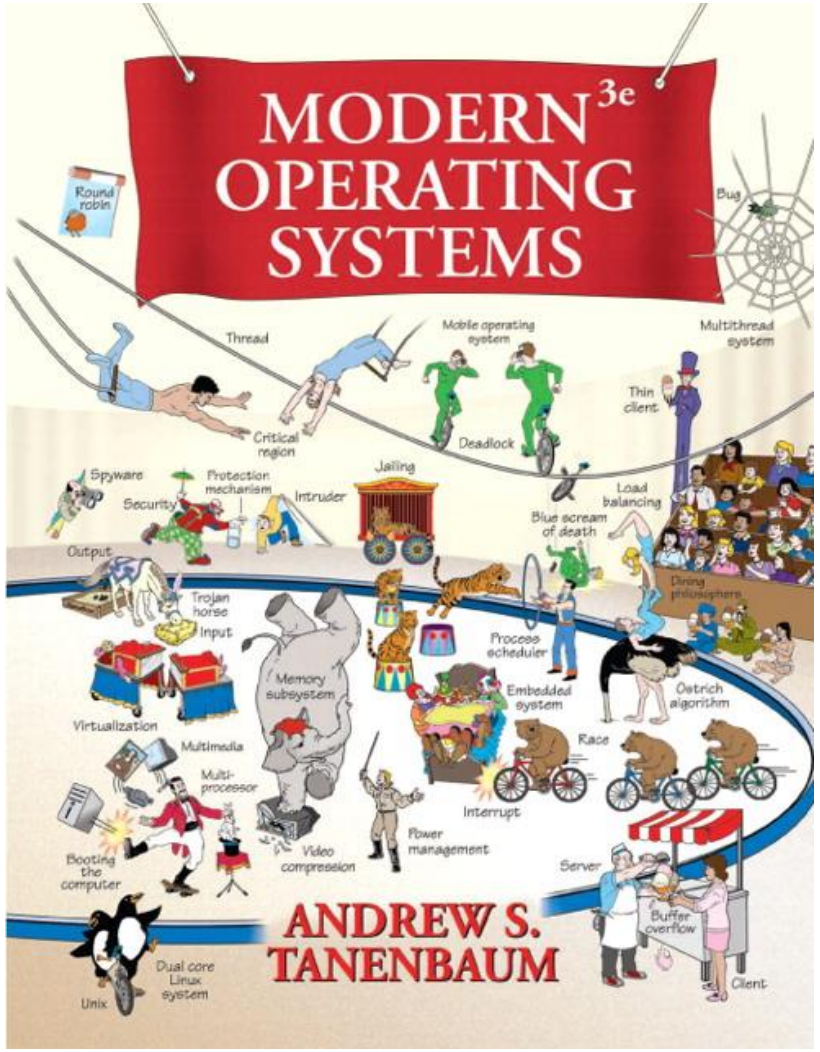
Books References

Operating Systems book

- A free online version of “Modern Operating Systems” can be downloaded from:
- https://github.com/gramasaurous/opsys/blob/master/Modern.Operating.Systems.3rd.Edition.pdf

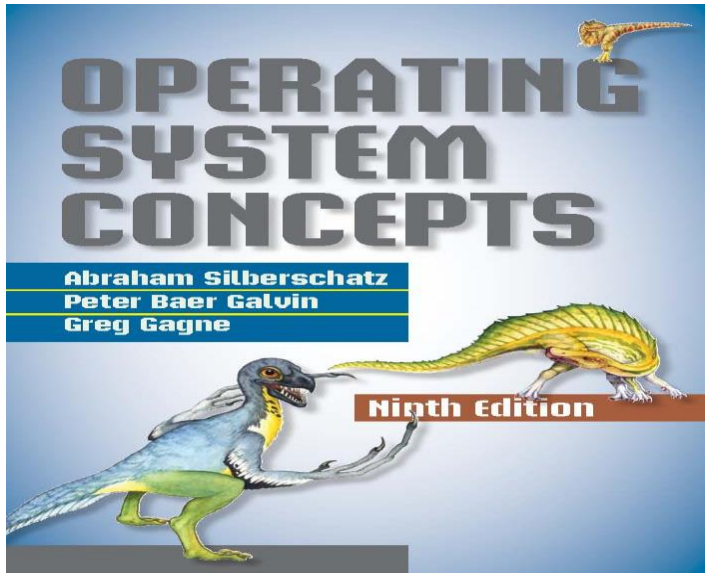
- https://github.com/gramasaurous/opsys/blob/master/MOS_3e_SM.pdf

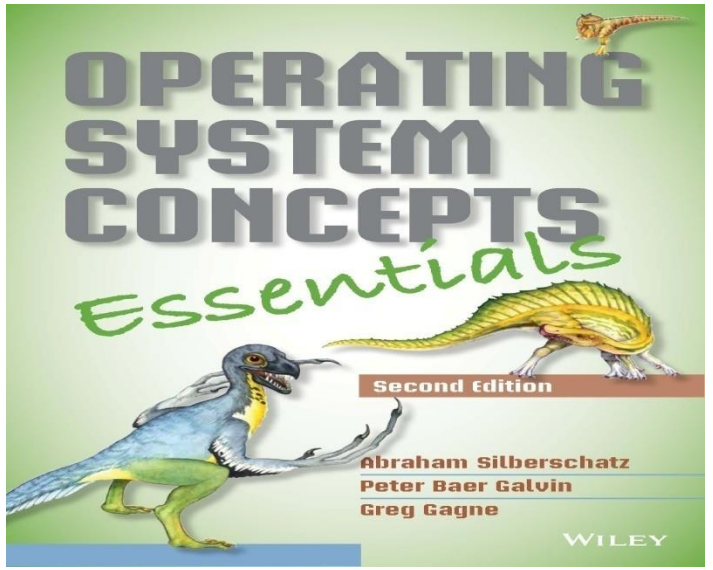


Other links (1)

- A. Silberschatz, P. B. Galvin, and G. Gagne, “Operating Systems Concepts (Essentials)”, 9th Edition, John Wiley & Sons, 2012.
- http://codex.cs.yale.edu/avi/os-book/

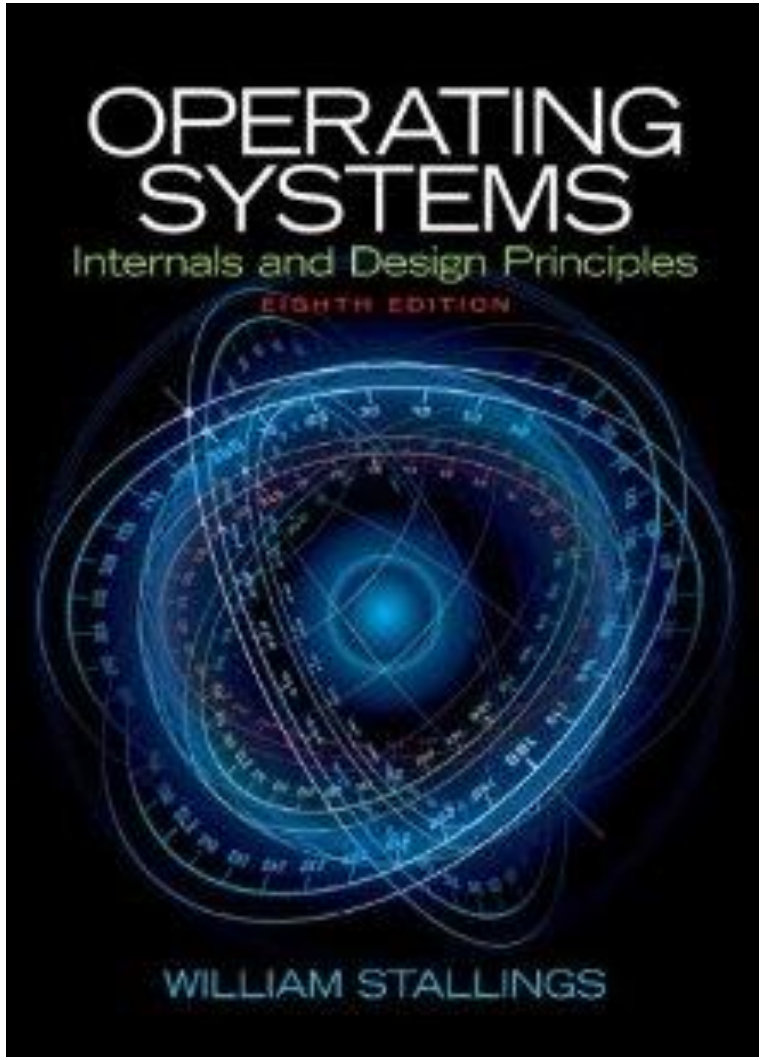
- https://www.os-book.com/OSE2/index.html
- https://www.os-book.com/OS9/index.html
- https://www.os-book.com/OS10/index.html





Other links (2)

- W. Stallings, “Operating Systems: Internals and Design Principles”, 8th ed, Pearson, 2015.
- http://williamstallings.com/OperatingSystems/



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Current Syllabus

Syllabus

- **Session 1**
  - What is an Operating System?
  - History of Operating Systems
  - Computer Hardware
  - File System
  - Operating Systems
- **Session 2**
  - System Calls
  - Monolithic Systems
  - Virtual Machines
  - Process Model
  - Cloud Google Shell *Practice
  - Process Life Cycle

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Syllabus

- **Session 3**
  - **Interprocess Communication**
  - Producer-Consumer problem
  - Deadlock
  - Banker's Algorithm
- **Session 4**
  - **Concurrency, synchronization and Scheduling**
  - Read and Write problem
  - Monitors
  - Semaphores
  - **Dining Philosophers Problem *Practice**

Syllabus

- **Session 5**
  - **Concurrency, synchronization and Scheduling**
  - Process Scheduler
  - Scheduler Algorithms: FCFS, SJF,
  - Python FCFS *practice
- **Session 6**
  - **Memory Management**
  - Address space
  - Dynamic address
  - Segmentation, Paging
  - Replacement policies: FIFO, LRU
  - **LRU python code *practice**

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Syllabus

- **Session 7**
  - **File systems**
  - ownership and permissions
  - changing and removing permissions
  - Access modes
  - file creation mask
  - moving around the file system
  - wild cards
  - **File testing *practice**
- **Session 8**
  - **Input Output I/O**
  - overhead, latency, bandwidth
  - Direct Memory Access DMA
  - Sync and Async I/O
  - **Redirection *practice**

Syllabus

- **Session 9**
  - **Multimedia**
  - Browser support
  - Multimedia formats
  - Multimedia operating systems
- **Session 10**
  - **Network**
  - TCP/IP Network model
  - **The routing table *practice**

Syllabus

- **Session 11**
  - **Security and Encryption**
  - Phishing
  - Trojan Horse
  - XSS Attacks
  - **my unsecure bank *practice**
- **Session 12**
  - **Exam**

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