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UNIX

Course: Operating Systems

Lecturer: Alexander Kernozhitsky

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Lecture Plan

- Shell, basic UNIX commands and concepts
  a. File system
  b. Processes
  c. Shell and bash programming
- UNIX programming (using C language)
- Internals and advanced concepts
  a. System calls
  b. Assembly
  c. Operating system internals

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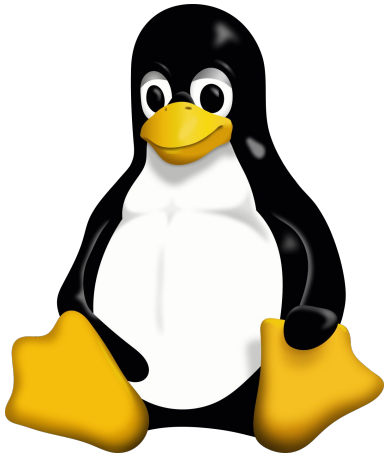
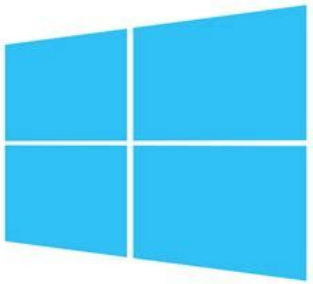
Operating Systems



macOS



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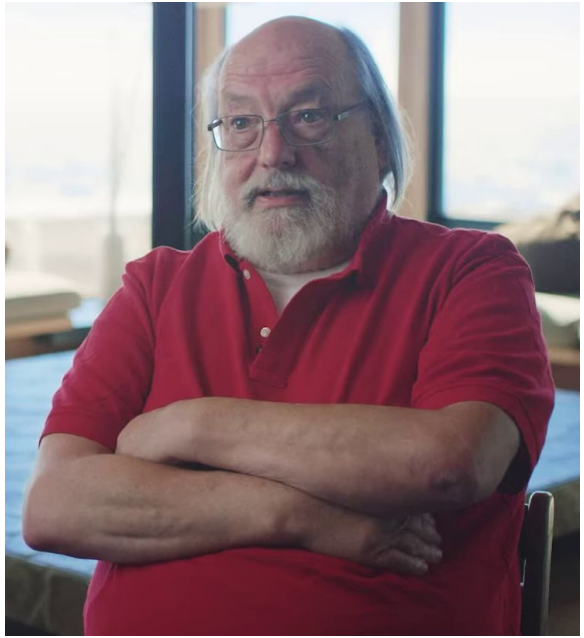
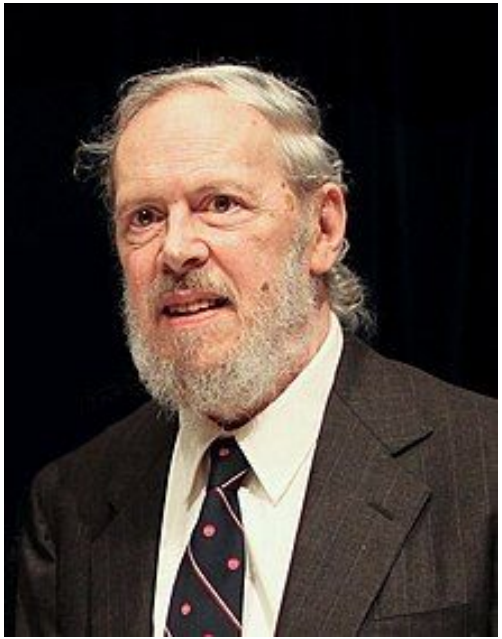
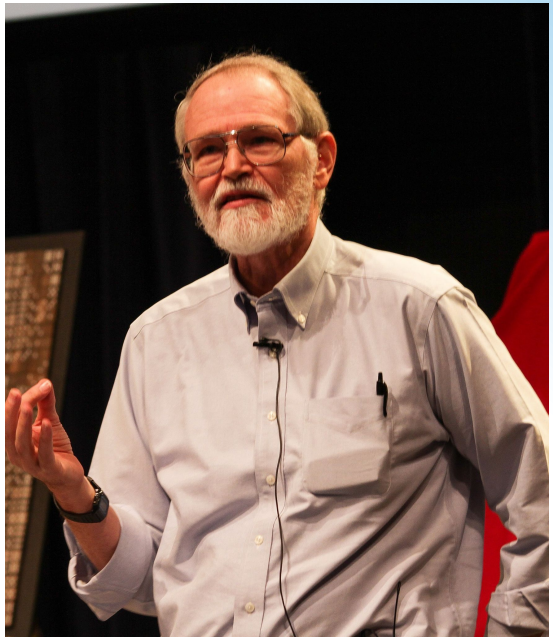
UNIX creators



Ken Thompson



Dennis Ritchie



Brian Kernighan

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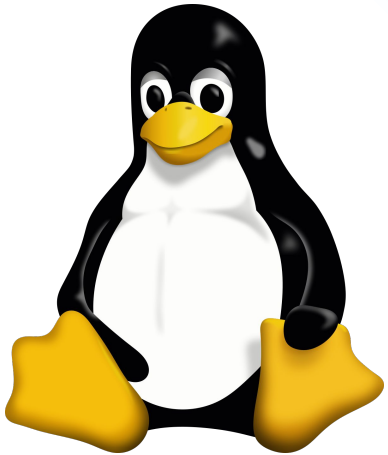
Unix-like operating systems

macOS



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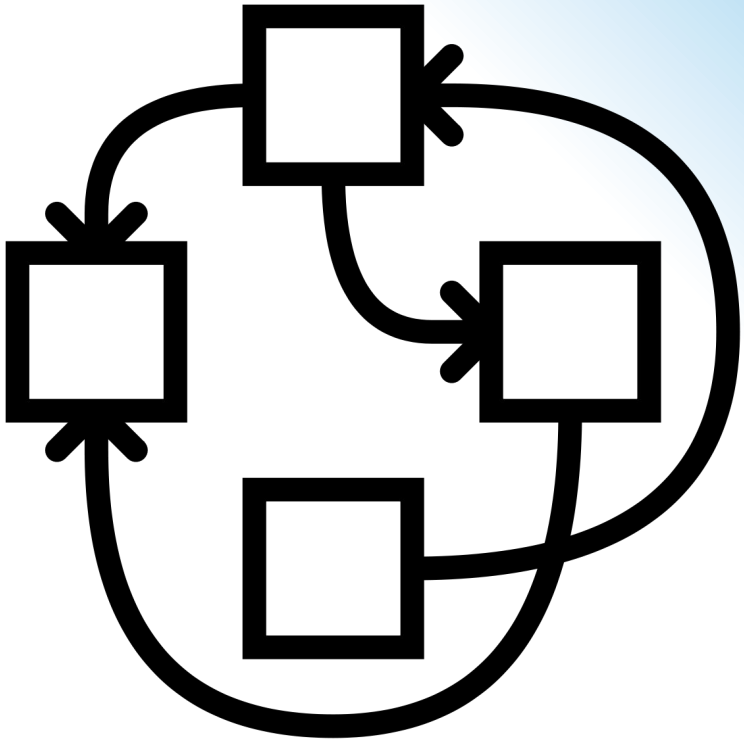
GNU's Not Unix!



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Unix philosophy

- Write programs that do one thing and do it well.
- Write programs to work together.
- Write programs to handle text streams, because that is a universal interface.

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Unix philosophy

- Small is beautiful.
- Make each program do one thing well.
- Build a prototype as soon as possible.
- Choose portability over efficiency.
- Store data in flat text files.
- Use software leverage to your advantage.
- Use shell scripts to increase leverage and portability.
- Avoid captive user interfaces.
- Make every program a filter.

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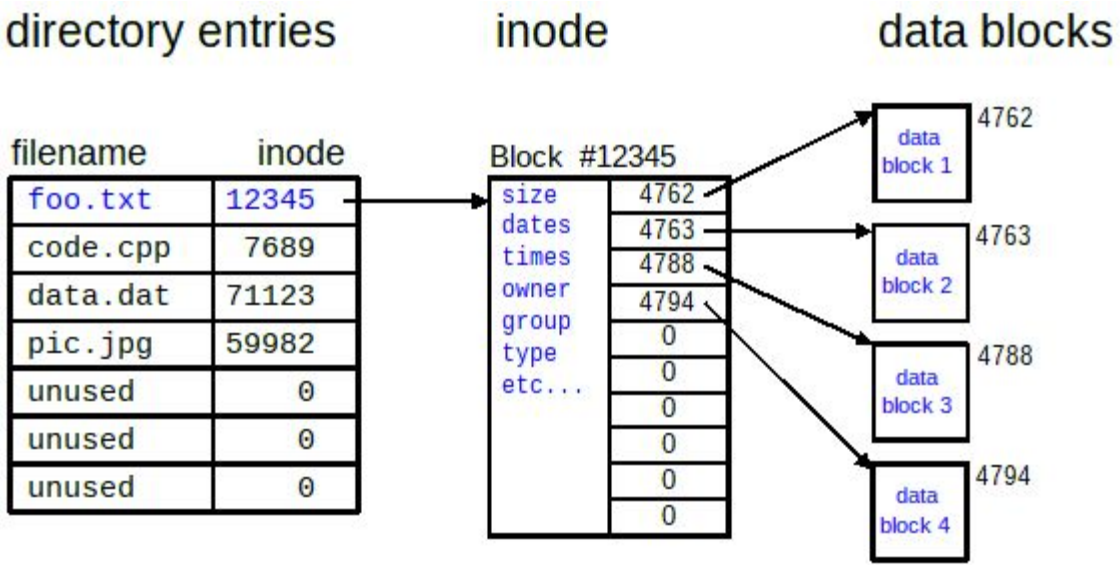
Inodes



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File descriptors, file table and inode table in Unix