Computer Systems: Lecture 1

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- Topics

  1. Fundamentals
     - Languages: assembly and C
  2. Processor Virtualization
     - Processes
  3. Computer Architecture
     - CPU, architecture
     - Memory, memory virtualization
  4. Concurrency
     - Threads, processes, locks, synchronization
     - Parallel computing
  5. Persistence
     - File systems
     - File storage
  6. Others
     - Debugging
     - Instrumentation
     - Testing

- Onion Model of Computing

  1. Hardware

2. Operating System

3. Applications

- Operating System

  - Control program between hardware and user programs
  - Provides reasonable and fair access to hardware resources for all programs (resource management)

- Linux

  - Family of free, open-source operating systems
  - All flavors of Linux are based on the Linux kernel