What is an operating system?

1. A virtual machine!
   - offering a more comfortable and safer environment

2. A resource manager!
   - coordinating access to hardware resources

Operating systems deal with
- processors
- memory
- mass storage
- communication channels
- devices (timers, special purpose processors, peripheral hardware, ...)

Assign time-slices to each program and switch regularly

Tasks run-time RT-OS environment

Types of current operating systems

Parallel operating systems
- support for large number of processors
- operational at real-time
- capable of supporting real-time operating system
- support real-time operating systems

Distributed operating systems
- support for small local operating systems
- distributed services and distributed applications
- support for multiple operating systems
- architecture for distributed systems

Real-time operating systems
- fast response times?
- high security?
- quick response to external interrupts?
- high processor utilization?
- low-level programming interfaces
- high processor requirements?
Is there a standard set of features for operating systems?

- the term 'operating system' covers 4 kB microkernels, as well as > 1 GB installations of desktop general purpose operating systems.

- Is there a minimal set of features?

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- Is there an explicit operating system?

- use interrupt mechanism

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Summary

- Operating Systems
  - Concept
  - Categories
  - Architectures

- Processes
  - Definition
  - Relations to architectures
  - Scheduling