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Computer Systems B

COMS20012

Introduction to Operating Systems and Security

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Some definitions

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What is scheduling

- The act of selecting a process/thread to run
- **Abstraction:** threads (see last week)
- **Mechanism:** context switching (see last week)
- **Policy:** scheduling (this week)

Goal of scheduling

- Preserve the illusion that a process has sole access to the hardware
- Processes should be oblivious to scheduling
- Each process (in the absence of internal thread) act as it was a sequential process with full control of the hardware
- Two flavors of resource
  - **Preemptable:** can take the resource away
    - Need a scheduling policy: How long do you get the resource? In what order do you grant the resource?
    - e.g., memory
  - **Non-preemptable:** cannot take the resource away
    - Need an allocation policy: Who get the resource?
    - e.g., printer

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Metrics for a scheduling policy

- **Throughput:** efficiency of resource utilization
  - Keep the CPU, disk etc. busy
- **Latency:** minimize response time
- **Fairness:** distribute resource equitably
  - What does that mean?

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  - What does that mean?
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    - Faculty members get more resources?
    - Final year students get more resources?
    - Everyone get the same number of resources?
    - You have more work to do so you get more resources?

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Thank you

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