**Computer Systems. Week 7.**

**Concurrency and Threads**

We want to maximise the use of the computer systems.

We might have multiple users that are working independently, and they are using the same system. The OS needs to make sure that it protects the memory from the interference from other processes. Also the OS interleaved execution of each process to maximise resource utilization

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So, the problem is that these processes do not always work independently:

* They can compete for access to resources:
  + Devices, files, data, etc. that are local (or remote)
* They can cooperate — through messages, shared memory, files, etc.
* Applications are distributed:
  + So, potentially, millions of people are reading and updating information at the same time
  + SNS, bank accounts, online shopping.

Synchronization matters! (example of the bank transfer on slide #6).