Network Programming

Concurrent Processing

Note: **This class lecture will be recorded!**
If you do not consent to this recording, please do not ask questions via your video, audio or public chat; send your question to the instructor using the private chat.
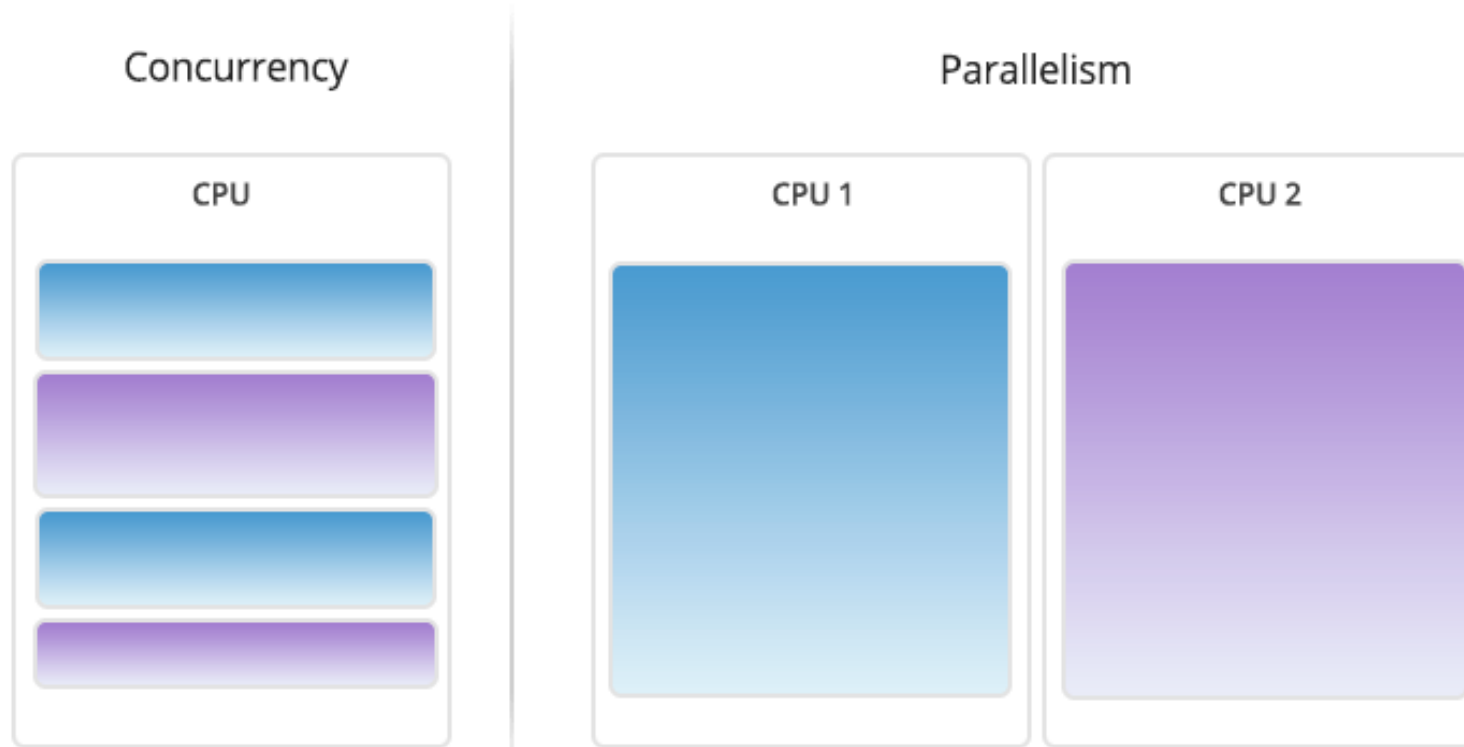
Lisa Frye, Instructor

frye@Kutztown.edu
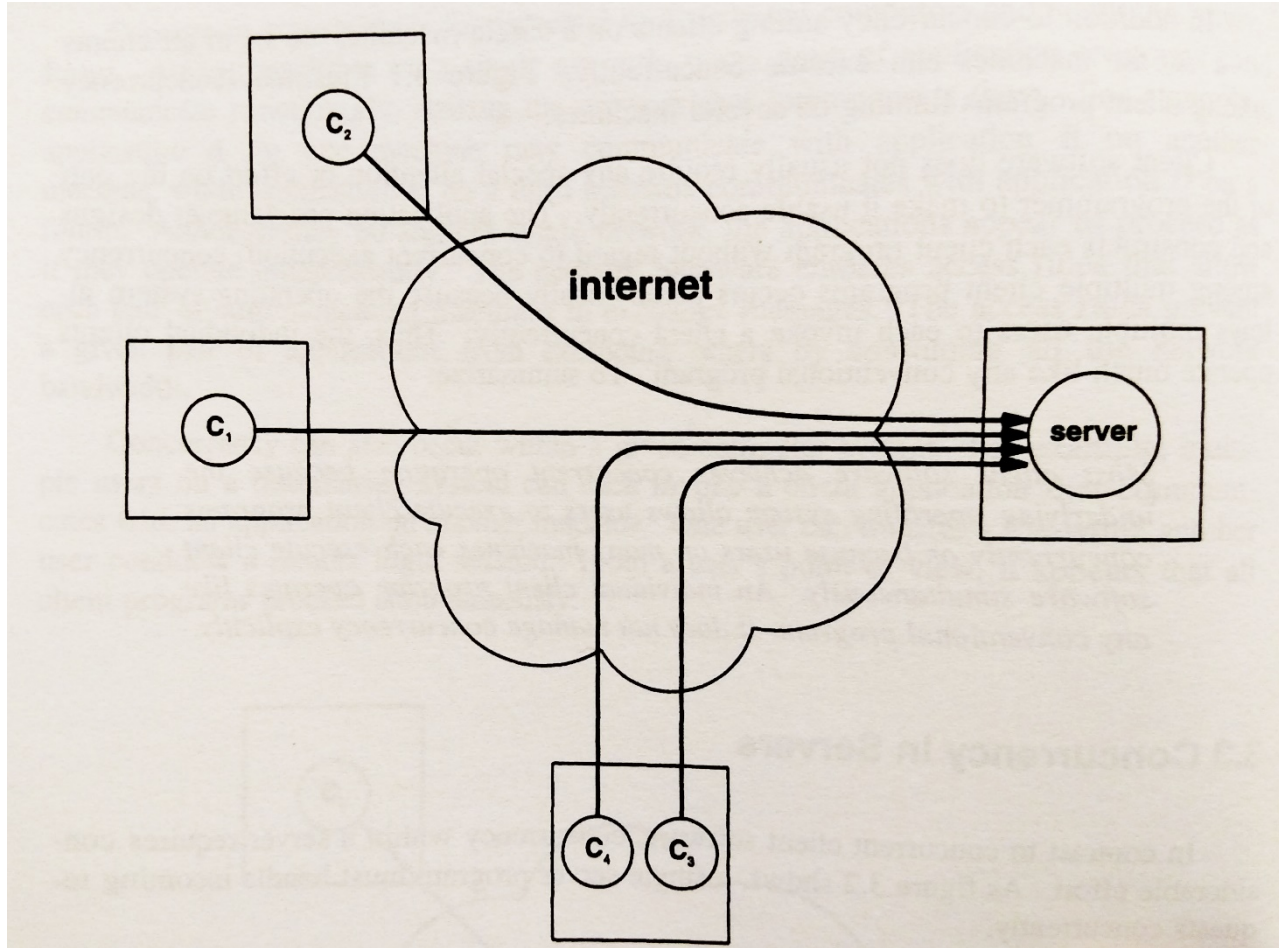
Kutztown University

Terminology

- ▶ **Define Concurrency**
  - ▶ Concurrency control

- ▶ **Define Parallelism**

- ▶ **Timeslicing**

Concurrency vs. Parellelism

From: https://www.backblaze.com/blog/whats-the-diff-programs-processes-and-threads/
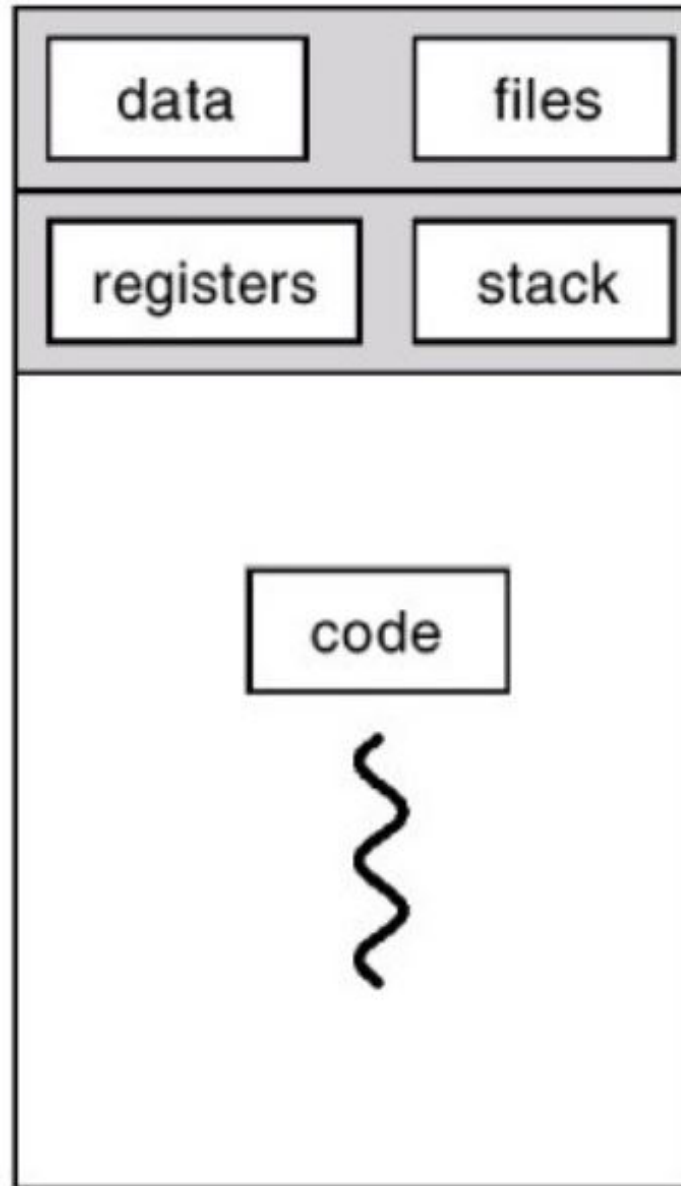
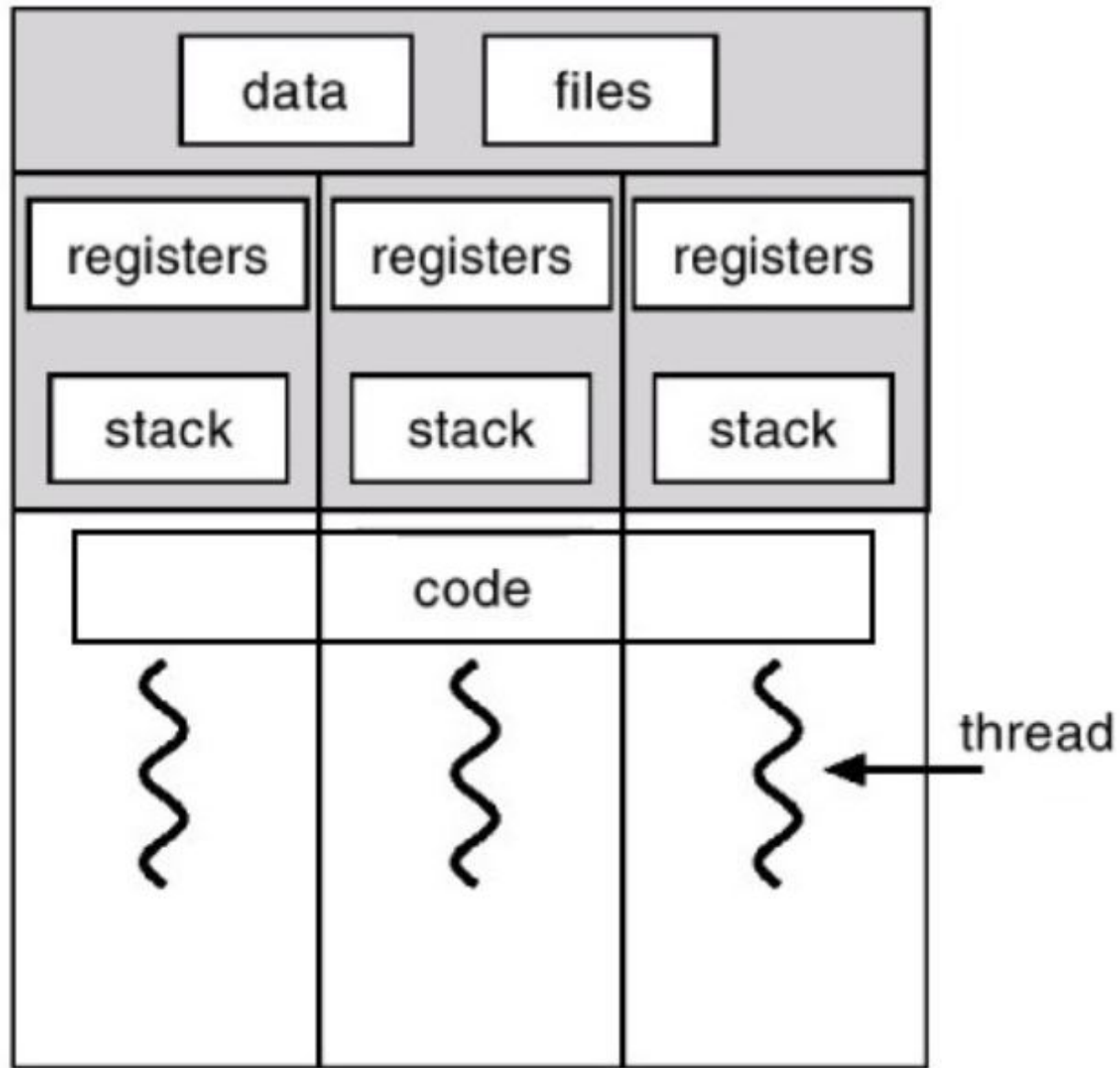# Concurrency in Client/Server

Terminology

- Program

- Process
  - Instruction Pointer (IP)

- Thread

- Local vs. Global Variables

Process

Thread

threaded

Processes vs. Threads

Process	Thread
Processes are heavyweight operations	Threads are lighter weight operations
Each process has its own memory space	Threads use the memory of the process they belong to
Inter-process communication is slow as processes have different memory addresses	Inter-thread communication can be faster than inter-process communication because threads of the same process share memory with the process they belong to
Context switching between processes is more expensive	Context switching between threads of the same process is less expensive
Processes don't share memory with other processes	Threads share memory with other threads of the same process

Context Switch

▶ Define

▶ Process vs. Thread