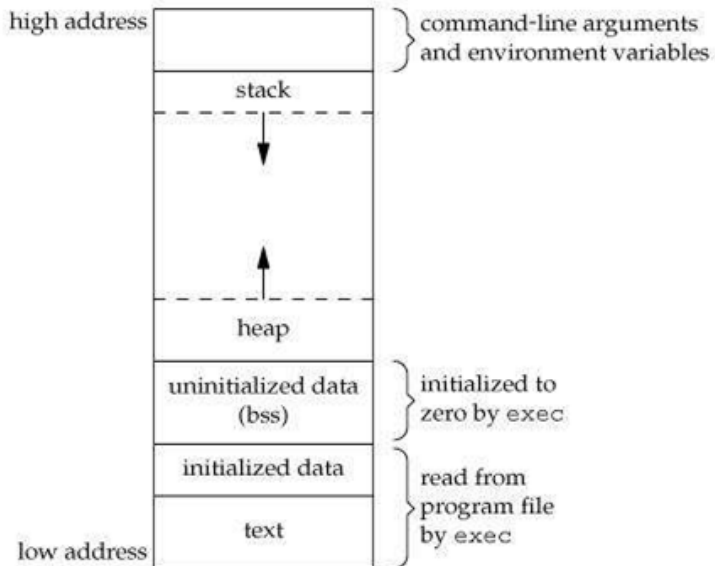


# Concurrent Processing

CSC 328 - Network Programming

# Process Memory



# Stack

- Stack Frames / Activation Records
  - Each function call allocates a stack frame for that function call
- Stack Pointer
- Stack Overflow

# Heap

- Dynamic Allocation
- When is memory allocated in the heap?
- How is heap memory accessed?

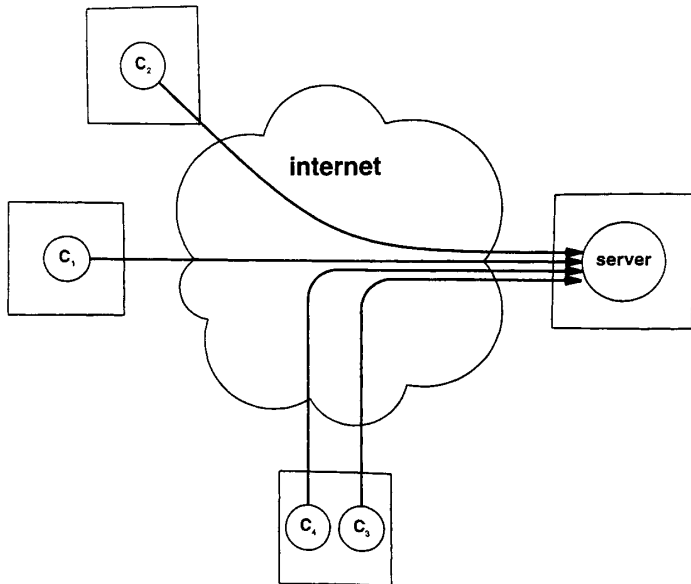
# Terminology

- Multiprocessing
- Multithreading
- Distributed Computing
- Multicore Processor
- Pipelining

# Concurrency versus Parallelism

- Concurrency is when two or more tasks can run in overlapping time periods.
- Parallelism is when tasks run at the same time.

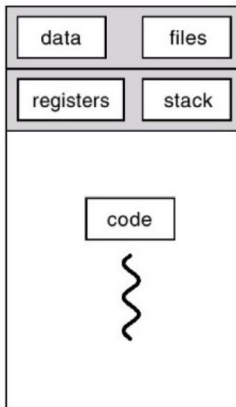
# Concurrency in Client/Server



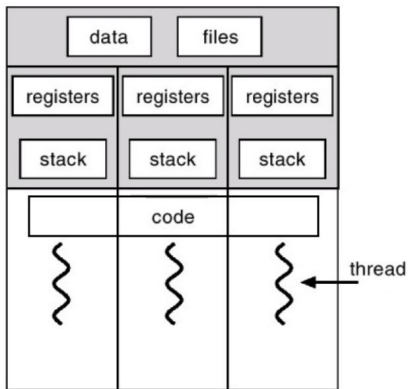
# Terminology

- Program
- Process
- Thread
- Local versus Global Variables

# Process



# Thread



threaded

# Processes versus Threads

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Process	Thread
heavy weight operations	lighter weight operations
has own memory space	share memory within the same process
IPC can be slow	inter-thread communication can be fast
context switching is expensive	context switching is less expensive

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