

# Network Programming-- Suggested Term Project Specifications

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# Term Projects

- Basically open for all possibilities
  - Apply techniques learned in the course
- Suggested topics
  - Chatroom
  - Proxy server
  - Multithreaded web server

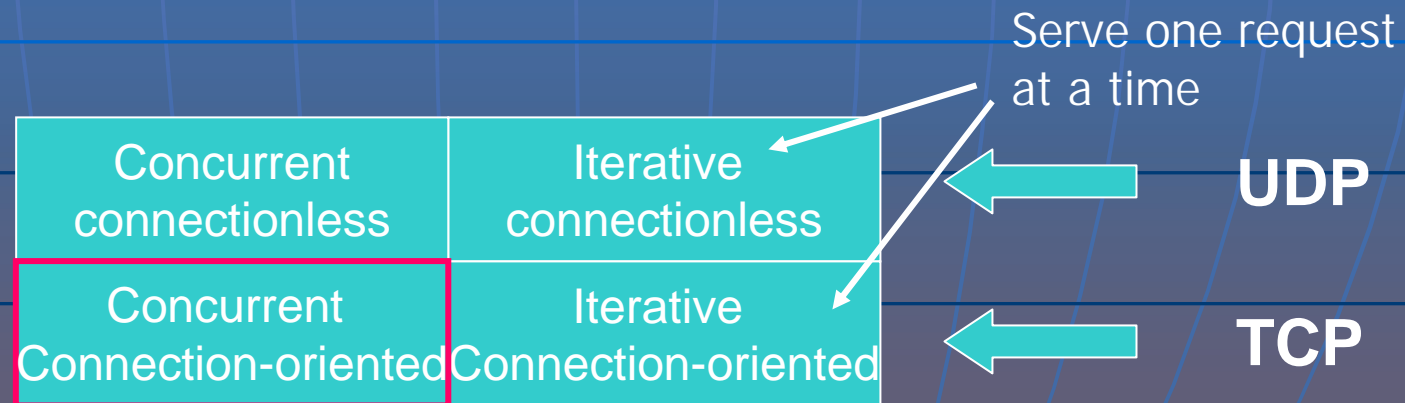
# Choice1: Chatroom

- Purpose

- Chatroom supporting multiple themes/sessions
- Use client-server techniques
- Can be dynamically established or terminated

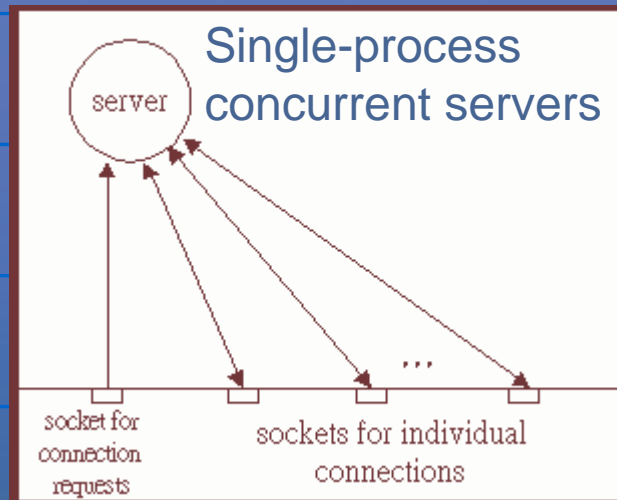
# Programming Background

- Four client-server models
  - Iterative connectionless
  - Iterative connection-oriented
  - Concurrent connectionless
  - **Concurrent connection-oriented**

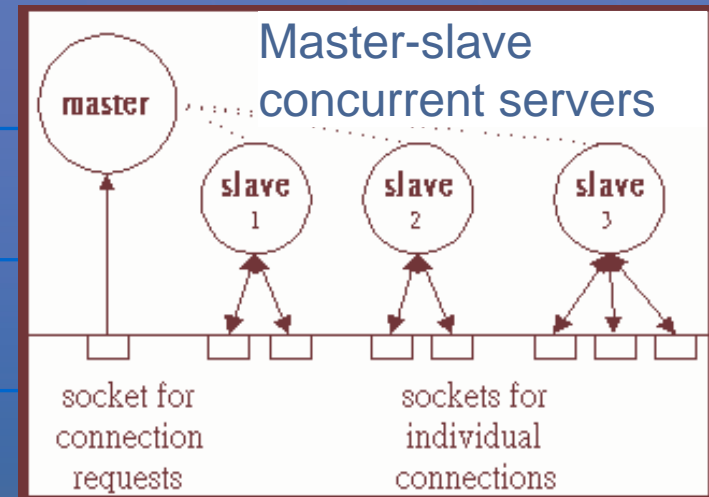


# Concurrent Connection-Oriented Methods

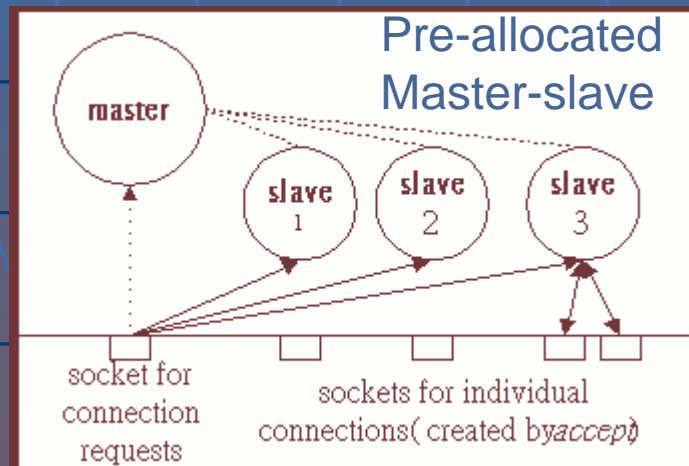
(1)



(2)



(3)



(4) Multi-threading

- Different from fork (the dashed lines in (1) ~ (3)) in that:
  - Share memory (variables)
  - No inter-process comm.
  - Lock/un-lock manipulations

# Functionalities

- Basic
  - Lookup all chatrooms for their topics and participants
  - Chatroom manager decides whether to admit a new participant
  - Ex: /room, /command, /create, etc
- Advanced
  - 浸水桶 (ignore msg from a certain user)
  - Conversation recording
- More functions please refer to the detailed spec.

# Choice 2: Web Proxy Server

- Purpose
  - Develop a multi-threaded web proxy supporting a set of functionalities
- Background



# Functionalities

- Caching is not needed
- Support
  - GET, HEAD commands
  - If-Modified-Since conditional request
    - Ex: If-Modified-Since: Sat, 29 Oct 1994 19:43:31 GMT
- Implement following HTTP codes
  - 304: Not Modified
  - 501: Not Implemented
- Other functions you wants

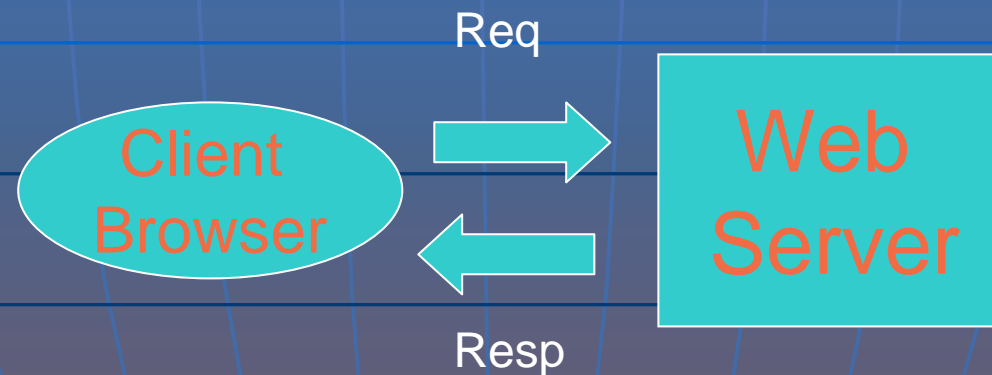


# Choice 3: Multithreaded Web Server

- Purpose

- Develop a multithreaded web server capable of processing a set of HTTP requests

- Background



Messages are in *ASCII* format

# Functionalities

- Concurrency
  - Multithreaded
- Based on HTTP/1.1
  - MIME (Multipurpose Internet Mail Extensions)
  - CGI program support
    - Perl, C, etc
  - Status codes
    - Basic: 200 (OK), 403 (Forbidden), 404 (Not Found),
    - Implement as many as you can

# Other Notes

- Detailed specification shall be released within two weeks
  - Testing
  - Problem discussions
  - Report format