

SP Project Report

Client Server Model

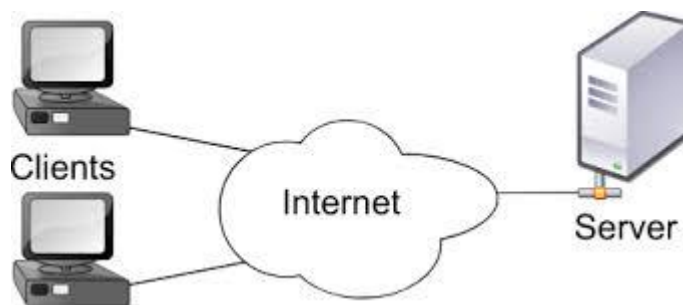
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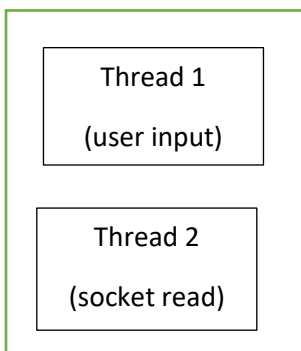
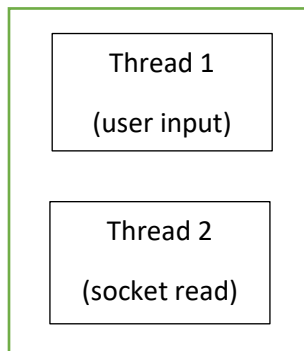
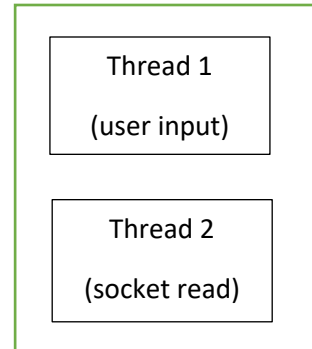
Introduction:

This report describes how a multi-client and server model was built (architecture) on a Linux environment with C/C++. It also includes a detailed description, a manual page and the system's limitation.

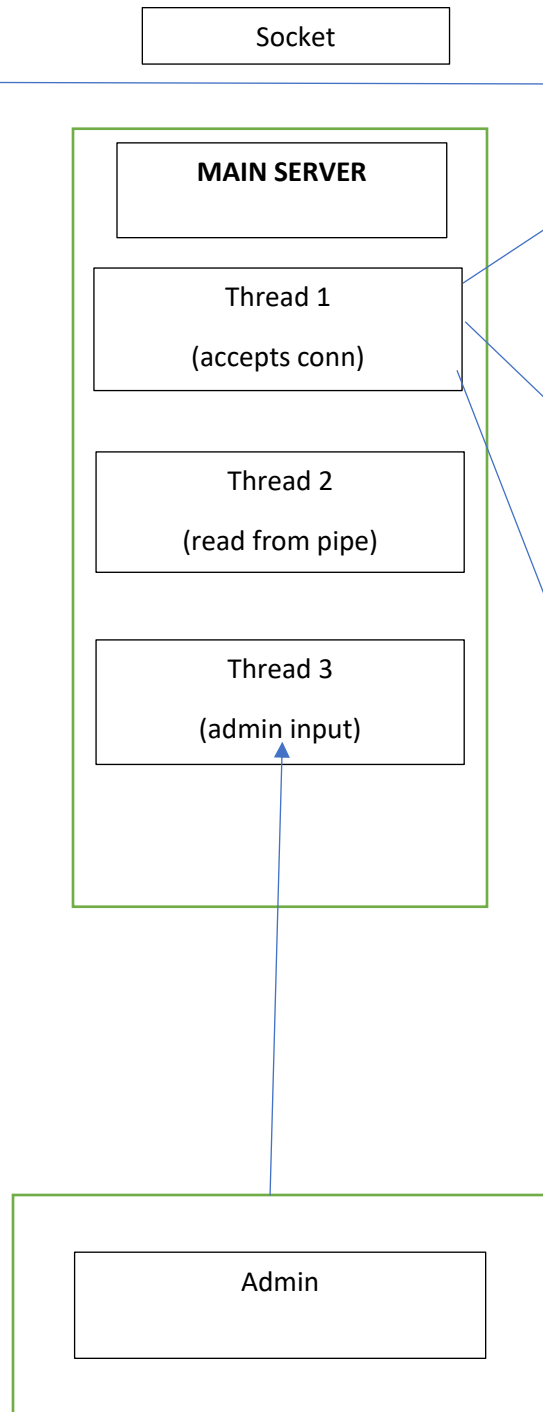
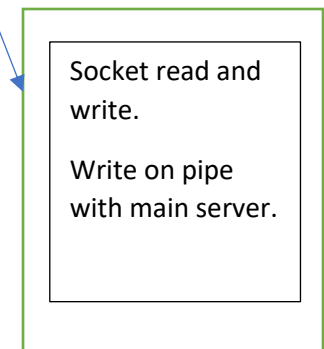
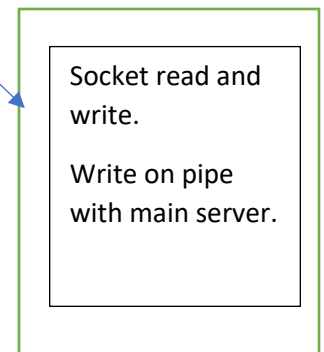
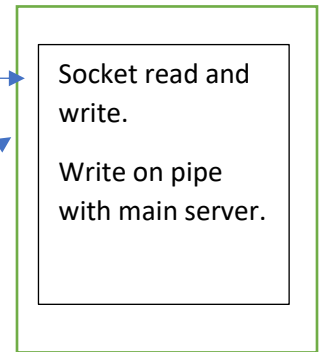


ARCHITECTURE

CLIENTS



MANAGERS



Architecture Explained:

Client Model: (Multithreaded process)

- Thread 1 takes input from the user and the server processes it and sends the answer/reply to the client.
- Thread 2 takes commands from the server through socket and processes it.

Server Model: (Multithreaded Process)

- Thread 1 accepts incoming connection from a client and then uses fork to create a client manager to handle a client's commands and requests. This allows the server to connect with multiple clients.
- Thread 2 is used for communication with the main server and client handlers, particularly for maintaining clients list through pipes created between them.
- Thread 3 takes input and commands from the server administrator.

Manual Page

Client Side:

- add [number list]
- mul [number list]
- sub [number list]
- div [number list]
- run [process name] – opens a particular program on server.
- list – displays all processes of with relevant details.
- close [pid] – terminates program
- exit – kills all processes opened by client
- disconnect – terminates client and ends connection with server.

Server Side:

- list – shows all clients connected and relevant attributes.
- count – displays number of clients.
- remove [ip] – disconnects a particular client and kills all its processes.
- printall [msg] – broadcasts a message to all clients connected.
- print [ip] [msg] – sends a message to particular client.
- exit – terminates server and disconnects all clients.

Limitations:

- Commands are case sensitive.
- Limited size of data can be passed through both client and server.
(max = 60000 bytes).
- Computes only 10,000 numbers for arithmetic operations.
- Giving characters or alphabets in place of numbers will produce unexpected results.
- Print ip msg command has some bugs.