

Iterative Socket Server

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# **Introduction**

# **Project Purpose:**

*To create:*

* A single-threaded/iterative server that listens to a port & accepts requests from a client server, to then operate to return the requested information to the client
* A multithreaded client that requests information from the server & creates a user-specified number of requests (threads).

# **Project Goals:**

## ***Server Program:***

* Listen to client requests at a specific port
* serially handle clients
* Perform the following operations:
  + - Determine the date and time on the server,
    - Find how long the server has been running since last boot-up
    - Determine the current memory usage on the server
    - List the network connections on the server
    - Create a list of the users currently connected to the server
    - Create a list of the programs that are currently running on the server
* Collect and send the values obtained from performing the operations above to the client

## ***Client Program:***

* Prompt the user for the IP address of the server to connect to
* Prompt the user for the port to connect to
* Prompt the user to select one of the operations (mentioned in the server portion)
* Ask the user to select how many requests to send to the server
* Output the client & the corresponding response (output requested by that client)

## ***Testing & Analysis:***

* Run/Test the programs and collect the following data for each operation:
  + - Total time to run all requests
    - The number of requests/client threads (corresponding to the other data collected)
    - The average time taken to run a single request
    - The average change in time taken to run a single request based on the number of requests

# **Paper – What to Expect:**

* Client-Server Setup & configuration: the design & operations of the client and server programs
* Testing & data collection: collecting the previously specified data from running the programs
* Data Analysis: Analyzing the collected data to determine the effects of increasing the number of clients on the turnaround time for individual clients and on the Average turnaround time in general, as well as determining the primary cause(s) of the effects on the individual client turnaround time and average turnaround time.