

# CS744 Design and Engineering of Computing Systems

## Assignment 04

Nov 06,2022

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### Server Code:

First compile and run the server code:

To compile the server:

```
g++ simple_server.cpp -o server
```

to run the server:

```
./server 5002
```

here 5002 is port number

now open chrome browser and got to this address you can see an basic HTML Page (Optional)

<http://localhost:5002/>

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### Load Generation Code:

Now to run load\_gen.c (For single experiment)

compile: gcc load\_gen.c -o load

(run using: ./load\_gen localhost <server port> <number of concurrent users> <think time (in s)> <test duration (in s)> ) (Optional)

To generate a load for multiple experiments I wrote a bash script which will run load\_gen for multiple times for different sets of inputs.

The result of all experiments will be stored in dataresult.csv

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### Graph Plotting:

To plot the graph I wrote a python code in print\_graph.py file.

Once you have generated result for experiments, run this file with following command to generate a graph

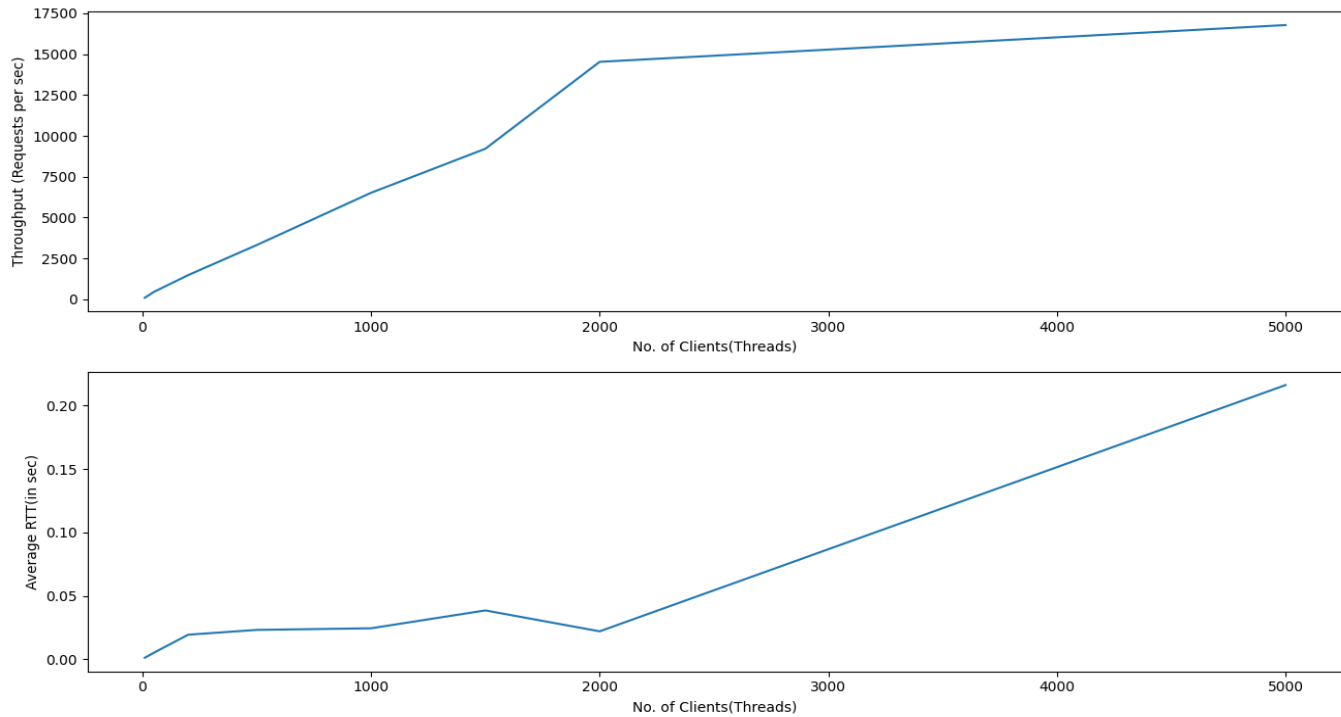
```
python3 print_graph.py
```

a graph will be printed.

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## Graph Printed:

1. Graph1 Throughput vs No. of Clients
2. Graph2 Average RTT vs No. of Clients



## Dataresult.csv Content:

```
TOSCV,NOC,TH,ARTT
FINAL_OUTPUT,10,98,0.001180
FINAL_OUTPUT,50,460,0.005182
FINAL_OUTPUT,200,1485,0.019379
FINAL_OUTPUT,500,3324,0.023178
FINAL_OUTPUT,1000,6519,0.024454
FINAL_OUTPUT,1500,9211,0.038522
FINAL_OUTPUT,2000,14525,0.022052
FINAL_OUTPUT,5000,16773,0.216130
FINAL_OUTPUT,10,88,0.012245
FINAL_OUTPUT,50,402,0.023525
FINAL_OUTPUT,1000,5109,0.083671
FINAL_OUTPUT,2000,11183,0.076060
FINAL_OUTPUT,5000,13798,0.255298
```

Here NOC is No. of Clients, TH Throughput, ARTT Average RTT

## Valgrind Memory Checks Report:

```
==129524== by 0x10CBB3: threadwork(void*) (in /home/omkarkadam/Desktop/DECS Assignments,
==129524== by 0x4B49B42: start_thread (pthread_create.c:442)
==129524== by 0x4BDABB3: clone (clone.S:100)
==129524==
^CERROR on accept==129524==
==129524== HEAP SUMMARY:
==129524==    in use at exit: 0 bytes in 0 blocks
==129524==   total heap usage: 113 allocs, 113 frees, 101,349 bytes allocated
==129524==
==129524== All heap blocks were freed -- no leaks are possible
==129524==
==129524== Use --track-origins=yes to see where uninitialised values come from
==129524== For lists of detected and suppressed errors, rerun with: -s
==129524== ERROR SUMMARY: 5 errors from 2 contexts (suppressed: 0 from 0)
○ omkarkadam@omkarkadam:~/Desktop/DECS Assignments/Assignment04/Question03$
```

Run following command in terminal to check the memory leaks problems

```
valgrind --leak-check=full ./server 8000
```

and this should output following with all memory leaks equals to zero for example::

All heap blocks were freed -- no leaks are possible  
Possibly lost=0  
Definitely lost=0  
etc.

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