DECS ASSIGNMENT 4

My system has 8 cores so I used first four cores for the server and the other four for the load generator.

The server is run using:
make
taskset -c 0-3 ./server 8080

Configuration for Load Generator

I ran the load generator on the last four cores of CPU for 10 iterations using a bash script with the following specifications and stored the readings in a csv file :

Think Time = 0.1 seconds
Test Duration = 60 seconds
User count = 200 – 2000

Compiling Load Generator:
gcc -g -lpthread load_gen.c -o load_gen

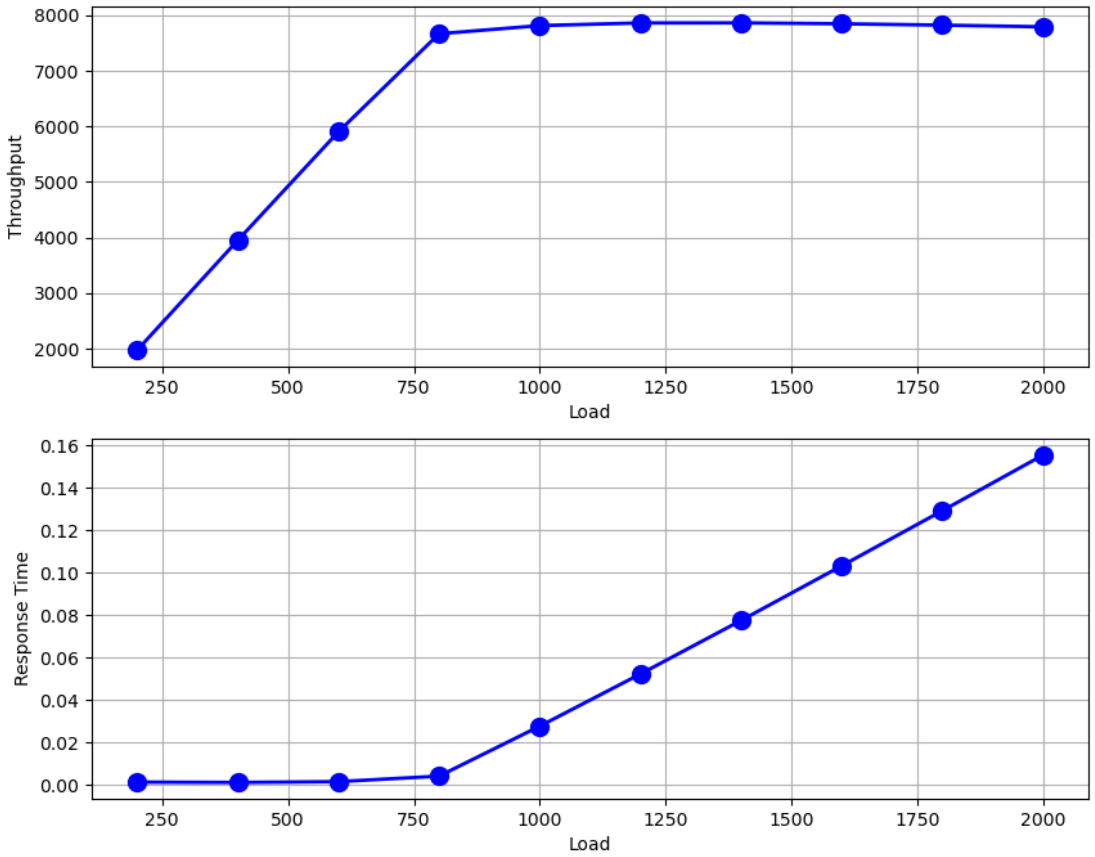
Load generator can be run using for any :
taskset -c 4-7 ./load_gen localhost 8080 200 0.1 60

Data is collected using script:
bash ./script.sh

Load Generator appends data to the results.csv file:

Load Throughput RT
200 1972.308594 0.001278
400 3949.532227 0.001121
600 5902.009277 0.001507
800 7666.565430 0.004085
1000 7813.225586 0.027640
1200 7860.804199 0.052230
1400 7862.765625 0.077485
1600 7845.836426 0.103232
1800 7821.805176 0.129217
2000 7791.523438 0.155442

The data of results.csv is then plotted using plot.py which uses pyplot:
python3 plot.py



Throughput vs Load Graph

The throughput first increases linearly with the load from 200 to ~7500 after which the line the throughput becomes stable and doesn't increase further.

The reason being the server not having enough processing power and thus couldn't serve more requests.

Reponse Time vs Load Graph

The response time stays constant very close to ~0 initially for load 200 – 600 after which the response time increases exponentially from 600 – 2000 as it became difficult for CPU to respond to the requests quickly.