

Midterm #3 – Dec. 23rd

Write a (server) program which will search for **minimum** and **maximum** value on a matrix sent by a client over a socket connection.

Steps:

1. Open a **stream socket** and listen for connections
2. Receive $\langle X \rangle$ and $\langle Y \rangle$ dimensions, and then the matrix
3. Store the matrix in **shared memory** and **fork $\langle N \rangle$ clients** (where $\langle N \rangle$ is an initial parameter, specified on the command line)
4. Compute, **in parallel**, the minimum and maximum values and send them back to client
 - N.B. consider the case where $\langle N \rangle$ is greater than $\langle X \rangle$ or $\langle Y \rangle$

Setup (optional)

- Download & untar `Midterm3.tgz` from gdrive folder
- Compile & execute `MatGen.c` to create an `input.file`
- Start your server
- Execute `./run.me` (which should behave as a client)
 - Edit `PORT` and `HOST` as needed
- Check results :^)

Example

```
[giorgio@GRiK Dec23rd]$ ./MatGen 10 10
0.232470 0.587212 0.708865 0.962427 0.367218 0.251754 0.387947 0.009296 0.288845 0.848671
0.153767 0.936821 0.089557 0.454297 0.618944 0.233032 0.318751 0.096081 0.265564 0.700275
0.136168 0.555266 0.513765 0.637598 0.958698 0.805262 0.508918 0.179168 0.304801 0.283210
0.467714 0.537272 0.870422 0.176579 0.499698 0.237640 0.428333 0.887645 0.246936 0.717178
0.736316 0.400703 0.654000 0.825873 0.855000 0.272944 0.058905 0.173751 0.369025 0.324469
0.874026 0.505193 0.879735 0.387791 0.142791 0.838433 0.193053 0.651709 0.017601 0.497854
0.934920 0.485315 0.035126 0.805342 0.661894 0.534824 0.042982 0.090227 0.422469 0.289918
0.807405 0.158785 0.690621 0.461405 0.984657 0.545621 0.734348 0.043562 0.719372 0.103373
0.368031 0.593398 0.608565 0.247766 0.981188 0.751356 0.086199 0.174241 0.403065 0.103801
0.672095 0.337985 0.589116 0.707221 0.143326 0.251010 0.242045 0.186308 0.341236 0.664514

=====
Min: 0.009296
Max: 0.984657
=====
```

Expected results..

It works!

```
[giorgio@GRiK Dec23rd]$ ./Server 5
```

Five processes to search for min. & max.

```
[giorgio@GRiK Dec23rd]$ ./run.me
Min:0.009296
Max:0.984657
[giorgio@GRiK Dec23rd]$
```