

# CS 5523: Operating Systems

## Homework 5

**!!!! No late HW will be accepted !!!!!**

(Check BlackBoard Learn for due date and submission)

### Objectives

- Learn and practice client-server paradigm and peer-to-peer paradigm
- Implement a simple distributed system using RMI or RPC
- Practice system calls and library functions in socket API in C/C++ **OR** Java

### Description

Re-implement the same distributed system presented in hw04 but using Java RMI instead of sockets (RPC with C or C++ is OK too)

Run the rmiregistry and server program on hostA as follows:

```
hostA\> rmiregistry [port] &
hostA\> java server &
```

Run each clients on different hosts as follows:

```
anyhost\> java client -SH hostA -N name -L x y -S [M|F] -A age
```

---

**Grading:** This is a 200-point homework.

First write a 2-3 page **report (20 points)** to describe your design choices at the high level and particularly describe your remote objects and the services they provide...

Then implement your server and client programs and make sure client can register and be able to interact with the server to update its locations, get list of other users etc. (**100 points**)

Finally, enhance your client programs so that clients (peers) can send each other messages through remote objects. (This part will be **80 points**)

Do all your work under a directory **lastname\_hw5**, which should include your source codes, instructions to compile/execute, and some output files showing your test results etc...

Zip **lastname\_hw5** and submit **lastname\_hw5.zip** through BB Learn

---

### Submission

You must submit your work using Blackboard Learn and respect the following rules:

- 1) All assignments must be submitted as either a zip or tar archive file unless it is a single pdf file.
- 2) Assignments must include all source code.

- 3) Assignments must include an output.txt file which demonstrates the final test output run by the student.
- 4) If your assignment does not run/compile, the output.txt file should include an explanation of what was accomplished, what the error message was that prevented the student from finishing the assignment and what the student BELIEVES to be the underlying cause of the error.