CS564 – Programming Assignment 4

Instructor: Xinghui Zhao Due: 02/22/2019

1 Language Level Communication Protocol - Remote Procedure Call (20 pts)

In distributed computing a remote procedure call (RPC) is when a computer program causes a procedure (subroutine) to execute in another address space (commonly on another computer on a shared network), which is coded as if it were a normal (local) procedure call, without the programmer explicitly coding the details for the remote interaction.

In this assignment, you will rewrite your distributed system using a high level communication protocol, Remote Procedure Call (RPC), which enables one program to invoke a procedure/service on a remote computer without having to programming the network details (like TCP/UDP). We have discussed this in Lecture 6.

You can test your program in the same way that you did in Assignment 3 (making a client to send 100 requests in a loop). On the server side, you should maintain a log file, as you did in Assignment 3.

2 RPC libraries

Many programming languages provide separate libraries to support RPC, e.g., Java's RMI (discussed in class), rpclib (`http://rpclib.net`) in C++, and many more.

If you choose not to use any existing libraries, and instead implement a simplified version of RPC on your own, it is okay too. With sockets and object-oriented programming, it should be straightforward to implement this protocol on your own.

3 Submission

Submit the following files:

1. source files in zip or tar file (I cannot open rar files, so please don't use rar format)
2. a text file `TestRuns.txt` which contains several test runs (output from both the server side and the client side)
3. the log file from the server side

This assignment is due at 11:59pm on 2/22/2019.