CSCI 53700 – Fall 2018

Assignment Number 3

Due Date: November 15, 2018

This assignment is intended to emphasize the RPC principles. You are to develop a simple distributed computing environment consisting of multiple Clients and a Server. The system is to be implemented in C or C++ and using the *rpcgen* utility discussed in the class.

- Server: The Server will be multi-threaded and support the following functions:
  1. hostname – Returns the hostname on which the server is running.
  2. mergeSort – Accepts two integer lists and returns their merged list that is sorted.
  3. encryptedEcho – Returns an encrypted version (using any technique) of whatever a Client sends as an input. You will need to indicate your technique in the report.
  4. listFiles – Returns a list of all files in the current directory.
  5. addComplex – Accepts two complex numbers and returns their sum.
- Clients: There will be multiple clients and they will concurrently invoke various functions on the server.

  The Server and the Clients will be deployed on these following machines:

```
in-csci-rrpc01.cs.iupui.edu 10.234.136.55
in-csci-rrpc02.cs.iupui.edu 10.234.136.56
in-csci-rrpc03.cs.iupui.edu 10.234.136.57
in-csci-rrpc04.cs.iupui.edu 10.234.136.58
in-csci-rrpc05.cs.iupui.edu 10.234.136.59
in-csci-rrpc06.cs.iupui.edu 10.234.136.60
```

Please employ good software engineering principles in your design and implementation. Provide adequate documentation of your programs. Create a *makefile* for your program. All files (source files, sample input/output files, and makefile) should be submitted via the *submitd* command on tesla.cs.iupui.edu in a zipped folder with the following format (LastNameA3.zip) - e.g., RajeA3.zip. Also turn-in a hardcopy of your report, before the beginning of the class on the due date, that briefly discusses your design and its pros and cons.