

# Computer Networks and Programming (ECE 5650)

## Project 2

Fall 2017

**Deadline: Tuesday, October 17 by 11:59 PM. No late submissions will be accepted.**

### Instructions:

- **Team Work:** you must work with one other student and **must submit only one copy with both your names.**
- **Need Help?** If you have questions, please contact the **GTA** (Hayder Hamandi) during his office hours (Mondays and Wednesdays 1:30 – 2:30 PM in ECE Open Lab: 3342 ENGG). You may also contact him by e-mail if you cannot make it to his office hours: [hayder@wayne.edu](mailto:hayder@wayne.edu).
- **General Programming Requirements:**
  - **Your program(s) must be in Python 2.7.x and must use socket programming for all networking activities.**
  - **Documentation:** Your program must be well documented and commented.

### **Policy on Cheating, Fabrication, and Plagiarism:**

Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct will result in at least failing the course. Therefore, avoid all appearance of improper behavior! Students who witness cheating should report the incident to the instructor as soon as possible.

## Assignment

In this project, you will enhance the Cloud Database server and client in Project 1 by providing the following functionalities in addition to all existing functionalities.

- **(30%)** The client and server must support the database file load operation. In this operation, the server populates the database from a file, which is received from the client. The syntax

of the operation is as follows: *load filename.txt*. This operation clears any previous database records.

- **(30%)** The client and server must support the database file download operation. In this operation, the client downloads the database from the server as a file. The syntax of the operation is as follows: *download filename.txt*.
- **(10%)** The server must support the record change operation. This operation changes the first name, last name, and phone number for the selected customer ID. The format for this operation: *change customerID newFirstName newLastName newPhoneNumber*.
- **(15%)** The server and client must perform error checking to make sure that the correct type and number of the operands for each supported operation are provided by the user, and if an error is detected, the server or client (depending on the operation) must provide a message explaining the error and asking the user to reenter the operation.
- **(15%)** The server must support both Verbose and Silent Modes - The default behavior of your server must be silent under normal operation. Add a “--verbose command-line” option to enable debugging output to be printed to the console. In the verbose mode, the server must provide detailed information about the actions of the server and the operations being executed.

You must again write the programs in **Python 2.7.x** using **low-level socket programming**, as discussed in the class. Your programs must be based on those in Project 1.

The new download and upload operations must be able to support **large database files**. Thus, the size of the file must be communicated to the other party (client or server) so that that party can keep receiving data until the entire file is received.

You must test the programs using **different database files with different sizes**, including large sizes. You must submit the complete server code along with the **thoughtful screenshots** of your client and server to prove the correctness of your programs. Be creative!

## Submission Requirements

- **You must submit all the following files (a total of three files):**
  - Python program for the server in .py extension.
  - Python program for the client in .py extension.
  - **Professional report in pdf format, including**

- a. team member names,
  - b. a copy of each source code,
  - c. testing procedure used to verify the correctness of the program(s),
  - d. description of the used database files (including their size),
  - e. and screenshots and their explanations.
- **File Naming:** the filenames must contain your last name(s): yourlastname1-yourlastname2-keyword.properExtension. The keyword describes the overall functionality of the program.
- **Required details in the beginning of the program(s):** The beginning of the python program must include the team names and must indicate whether your program is interpreted correctly and whether it produces the correct results. If it does not produce the correct results, you must provide the necessary details.
- Upload your file(s) using to this Assignment page. Make sure that you attach the files and hit the "Submit" button.
- Verify your submission by going to grading center and making sure that there is “!” in the entry for this assignment.

#### Assessed Penalties:

Situation	Penalty
Late submission	Not accepted
Plagiarism or disallowed collaboration	At minimum negative grade
Not using low socket programming for all networking aspects	Not accepted
Not using Python 2.7.x	Not accepted
Not using the provide skeleton codes	Not accepted
Failure to include the full report with <b>thoughtful screenshots</b> verifying the program(s) work correctly	Up to 10%
Failure to include all required information at the beginning of the program(s)	Up to 10%
Failure to have a well commented and documented program(s)	Up to 10%

**Good Luck!**