CS 3300: Object Oriented Programming using Java

Spring 2016

Class Project, Phase I

Released: February 12th, 2016

Background:

Over the course of this semester, we will experiment different object oriented concepts, and we will cover some additional topics such as, data persistence, network programming, multithreading and data structures. The term project is a great opportunity for everyone to have hands-on practice on all/most of the topics that will be discussed in lectures. To achieve this, each group of students working together on the project, will have to come up with a real-life system to implement as a software package. Each group will be required to gather as much information about the system requirements and needed functionality by interviewing people working from within a similar system. It is up to the students to pick the system they would like to implement and seek the right people who can help provide the needed information.

Listing of few ideas to guide the groups:

- Library software system
- Appointments scheduling system in a physician practice
- Real estate management system
- Airport network flight scheduler
- Automated college timetable generator
- Hotel reservation and management system
- Etc..

What do you need to do?

Task1: Groups formation:

Successfully completing the later phases of this project will require that a considerable amount of time and energy be spent gathering system requirements, exploring and analyzing system design issues, implementing/testing your system, and documenting the system. To minimize the burden

that this places on each of you and to develop your collaborative engagement skills, all phases of the project |including this one will be carried out in groups of 2 - 3 students. As a group your grades will depend on one another's commitment to your joint work. All group members will have to report on the individual contribution on each stage of the project as this will account for 30% of the final project grade.

Task2: Picking a system:

Finding the need for a software tool is a good practice on your side. You need to hunt for a real life system that requires some sort of automation and start gathering as much information needed from the right entities that can help. It is most likely that whoever you will get in contact with, will have an already existing and working software product, it is totally fine to understand the functionalities of their product and inquire about any missing functionalities or drawbacks in the already existing system, and cover them up in your own design. Phase I of the course project is designed to get you thinking about the project at a high level, you have the intellectual freedom to consider many different possibilities for how such a system should work. Put good thought about the system you will pick, and make sure you have the right contacts, because once you pick a system, you cannot change it later through the semester.

Task3: Meet with the right people:

Once you settle on a project idea, and you find the right people to contact, you will have to setup a date/time to go meet them. Be very well prepared with all sorts of questions you would like to ask when you get there. Write all your questions down and document all the answers you are getting back, because this will be your systems' requirements specification. If you need a written permission to meet with entities and gather information about their system, please let me know and I can provide you with a letter describing the nature of this project and its usefulness to your educational experience.

Task4: Fill up the SRS template:

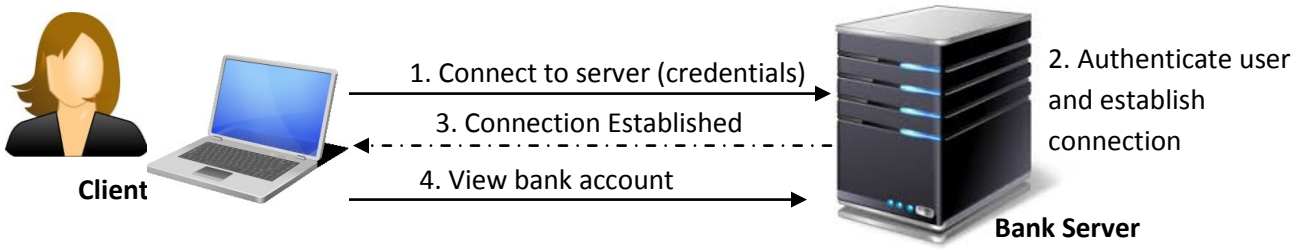
You will find the SRS (Software Requirements Specification) template in the blackboard under the Project directory. You are allowed to make some educated assumptions on parts of the system that you will not be implementing but yet you need to provide information about it in the document (for example: the hardware specifications of the system). In the SRS you will define

the functionalities your system is expected to perform, accordingly, your system design and implementation should ensure that these functionalities are met the way you specified them. A portion of the project grading will be on how well you specified the system functionalities and how your system adhered at the end to these functionalities.

Note: It is each group's responsibility to make sure the functionalities they are implementing in the system are sufficient for production within the semester course work. If you specify way too much, you might not be able to implement them all which will result in lower grades. On the other hand, the functionalities need to be sufficient to have a complete running system. These decisions that you will be making is part of the design process, as a software designer, you need to be able to identify the time framework that is needed to implement each functionality. The total time for this project from day one to the submission day, should be somewhere within 9 – 10 weeks.

General Project Requirements:

There are some general requirements that you need to consider when picking the system you will work on. Your system needs to fit within these general requirements in order to ensure that all the projects will get the chance to experiment with the same ideas. At a high level, your system will be implemented as a client/server model. That is, a single back-end server will be running a server application that is in charge of storing and managing all the system data and performing all data analysis and processing. Users within the system can use the client application to connect to the server to submit and run the different system functionalities. All users must be authenticated first by the server machine before executing any commands. The following diagram illustrates an example for the banking application.



Note that this is not a database programming course, therefore you should not be designing your system as a database, all your data should be instantiated using instances of Classes/objects loaded into equivalent data structures and serialized/stored as binary files on the disk storage system.

Deliverables and corresponding deadlines of phase I:

1- The first thing you need to do is send me an email with the following data to the following email address (iskanderm@uhd.edu) – do not use the blackboard messaging system:
   a- Your names (with corresponding emails)
   b- The project or system you will work on
   c- A brief description (2 – 3 paragraphs) of the system you picked and how it will be used to solve a real-life problem. (Some of your thoughts might change after you interview people affiliated with similar system, but that is totally fine at this stage).
   d- The names of the entities/people you will meet with to gather the systems' requirements.

Due Date: Thursday February 18th, 2016

Action: You should receive a confirmation email back from me within 24 hours of the submission. I should either give you the green light to go ahead and start working on this phase of the project, or will request that you meet with me to clarify things.

2- The final deliverable of this phase will be the SRS documentation. You need to submit your document in the specified blackboard submission directory AND print out a copy and hand it to me on the due date. Each group should report the individual effort of each one in the team by listing down which task/subtasks each group member completed.

Due Date: Monday February 29th, 2016 (turin), Tuesday March 1st, 2016 (hand print out in class)

Action: Your document will be graded based on the completeness of it in terms of the detailed listing of all the system features and functionalities and the adhering of your system to the general requirements listed above. You will get a copy of your document back with any comments from my side.