International Information Technologies University

Java Standard Edition: Object-Oriented Programming

Final Project Requirements:

Your goal is to develop secured interactive desktop application, to improve your knowledge gained during this semester. You will use your object-oriented programming skills, dividing your system into modules and implement Database Management System (JDBC + MYSQL).

Technical Requirement:

1. Java SE 8,9,10,11
2. MySQL Database + JDBC Library
3. GUI Technologies : Swing Library or Java FX
4. Networking + Thread (required)

Description:

Your final project must be a desktop application, where we have at least one user, who will manage with data. It may be something like:

ATM Application (User will enter card number and pin code)

Chat Application (2 users will write messages to each other)

Library System (Admin will add books, user will reserve it)

Supermarket managing system (Admin will add items, cashier will sell it by entering unique code)

Restaurant application (Admin will add foods, waiter will reserve them)

DL – ERP System for managing with students and teachers (Admin will register teachers, students courses, teacher will assign mark for a student, student can see own marks and GPA)

Of course, you can develop any project, if you have your own idea. The most important thing is to use following requirements and technologies:

1. OOP. Classes and Objects (10%)
    a. You will use classes for each user type and data type

2. OOP. Polymorphism and Inheritance (10%)
    a. You will inherit from classes and use polymorphism

3. OOP. Abstractions and Interfaces (5%)
    a. Overriding abstract method is very important

4. Collections. You have to use collections (5%)
    a. ArrayList, List, Set, HashMap or something else

5. Object Serialization or File reading and writing (10%)
    a. Here you will store your configuration data (database name, host name, own ip address or port)

6. Threads (10%)
    a. You will use threads to multiply your processes

7. Socket programming (15%)
    a. Use networking for exchanging data

8. JDBC + MySQL database (15%)
    a. You will store your data in MySQL Database

9. GUI – Graphical User Interface (20%)
    a. Use Swing Library or Java FX

Project architecture:

You <u>must</u> divide your system into two parts. Client and Server. They will interact with each other by networking.

Your server will be directly connected into database, and will be available every time, 24/7.

If you want to add or retrieve data from database, your client will connect into server will send an object message by network.

For example, you have an admin application. Admin will not directly insert a row into database. Admin will connect into server (admin will be also a client) and send object message with row data. Server will handle them and add into database directly. Use threads to multiply your processes (server will be able to work with multiple clients) as shown in figure. It is very important to improve efficiency of your application.