

## ASSIGNMENT#1 – Developing Client/Server Application

**Due Date:** TBD.

**Purpose:** The purpose of this assignment is to develop Client/Server application using Java networking technology

**References:** Read the course's text and the ppt slides. This material provides the necessary information that you need to complete the exercises. Review examples and exercise solutions for week 1-3. The following examples will help you.

3 templates  
for reference

- MyMultiServer and MyClient (in socket package of 303-Week03- [multi-threaded applications](#) SocketExamples)
- ATM Case Study (in atm package of 303-Week03-Examples project) [desktop application](#)
- Client/Server with Swing (in SimpleServer package of 303-Week03-Examples project)

MUST be  
multi-threaded

This assignment must be completed as a team and size of team should be 3-4 students.

In this assignment, you will create a Client/Server application that uses Networking. The Client application will simulate an ATM machine. Use a simple SWING application to implement the client. Allow the user to *withdraw* or *deposit* an amount of money to its account. Client application would allow the user to enter customer ID, password, amount and operation (either deposit or withdraw)

MIN features:  
check balance  
withdraw  
deposit

separate UI for  
each function

On the server side, create the *Account* DTO that declares the **withdrawal** and **deposit** operations. Create the *BankDatabase* class that keeps customer data in memory. You can use ArrayList to implement this.

Server application will receive customer ID, password/pin, amount and operation (either deposit or withdraw), find customer, update account amount and respond back to client with updated balance.

Client application will receive updated balance from the server and display it.

**Mark Distribution:**

- Functionality (as per requirements) - 55%
- Design (OO design, code reuse, etc.) - 20%
- Usability (user friendly, screen flow, appearance, etc.) - 15%
- Following coding standards (e.g. proper commenting, following naming conventions) - 10%
  - variable names start with a lowercase character
  - classes start with an uppercase character
  - packages use only lowercase characters
  - methods start with a lowercase character

**Total – 100 points****Notes:**

- Total mark is 100.
- You can use JDK/JRE 8.x, Eclipse (alternatively IntelliJ, NetBeans, JDeveloper) while working on the assignment. If you don't have any of these installed on your computer, I suggest that you install them first.
- You can follow the documents that are on the eCentennial to install and setup. The documents are located under Content -> Course Materials -> How to Documents.
- Any assignment that is submitted after due date will be punished with 10 points per day. It will be marked as zero after 2 days.
- If you don't want to implement SWING, you can use JavaFX or no GUI implementation. If there is no GUI, your mark will be cut by 20%.
- This is group assignment. You can discuss it with other group members and classmates but no more than one group should submit the same solution. If it is done so, both teams will be punished with zero.
- Your solution should be saved as ZIP and sent to the Dropbox of eCentennial electronically.
- Your ZIP file must include java source files.

**IMPORTANT SUBMISSION INSTRUCTIONS:**

Name your Eclipse project with your group number and the assignment number, like in Group99\_Assignment1.

You will lose marks if your project name conflicts with another group.

Submit your assignment to **dropbox** in a **zip file** that is named according to the following rule:

**Group<number>\_COMP303Assignment1.zip**

Example: **Group99\_COMP303Assignment1.zip**

**Assignment files not named as per above rules, containing spaces etc. will not be marked.**

**Your ZIP file must include WAR file, instructions doc and a README.txt file.**

Provide instructions on how to compile/run/test your code.

Add a README.txt file in the zip file above describing what you have used and how you designed your solution.

README.txt file should also include name and numbers of group members. It should also include who played what role at what capacity.

Good luck to all of you.

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