ECS414U/A - Object Oriented Programming
Week 4 lab session (5 marks)

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15 February 2022

Rules & instructions: This assignment is individual work. You must complete it by yourself. You can discuss it with your demonstrator and other students, and you are in fact encouraged to do so. However, you must not share your solution with other students, so that they can submit it as their own, or request that others share their solution with you. This would result in disciplinary action.

You are given a program consisting of the following files: `BankingApp.java`, `Account.java`, `Client.java`, `StandardClient.java`, `User.java` and `Resettable.java`, as well as some tests. The program is incomplete and some parts do not compile yet. You must modify the source code to satisfy the list of requirements below. When you compile and run the program, a series of tests will be run (you will need to uncomment some of the test invocations, as specified in `BankingApp.java`). When you think that your code is ready, you must submit the following files to your demonstrator for them to run the tests:

- `Account.java`
- `StandardClient.java`

You will get marks for each passed test (a test is passed if and only if it outputs `Test OK`). Your demonstrator and the module staff may ask you questions about your code, if something is unclear. In that case, only once the answers to these questions are clear, you will get marks for the corresponding test. If any issues are encountered, you can keep working on the code and try again for the duration of the lab session. After the session ends, you will have additional time to submit your code to QM+.

Important! Requirements to get the marks:

- **It is mandatory to attend the lab session in order to get the marks.** You must report to your demonstrator on MS Teams (even if you attend in person).
- You must submit your files (see above) to QM+ before 23:59 Sunday, 27 February. This applies to everyone, even those of you who completed the assignment and showed it to your demonstrator in the lab. The activity to submit your code is *Week 4 lab submission*. If you

didn't have time to get your code evaluated by your demonstrator during the lab, it will be assessed after the submission deadline.

Advice: Try to follow good coding practices and the principles of OOP mentioned in the lectures. Even though a passed test may get you the marks, there are many ways to write code, and some are arguably better than others. Try to discuss your approach with your demonstrator and fellow students, and try to understand whether there is something you could have done better. When you get the solutions, compare them to your code. The more effort you put into writing good code, and the better you understand the concepts involved in these exercises, the better your chances will be of doing well in the assessed tests and mini-project.

Note: If you change your code but the compiler seems to ignore it, try removing all `.class` files. It is recommended that you compile into a different directory, e.g. `javac -d build BankingApp.java`, and then run your program there.

Inspect the provided code and make sure you understand its contents as you do the exercise. This time, looking at the content of the tests will be necessary in some cases, in order to figure out what you need to do.

List of requirements:

R1 (1 mark) Override the inherited method `toString()` in class `Account`. The returned string must be in the following format: `Balance: <balance>`.

R2 (2 marks) Modify the class `StandardClient` to pass Test 2. You must inspect the contents of `Test2.java` to know what you need to do.

R3 (2 marks) Modify the class `StandardClient` further, so that it implements the `Resettable` interface. The method `reset` must reset the account of the corresponding client, by setting it to a new empty Account object.