

# Software Engineering 2 Coursework 1

This document describes the group coursework for the Software Engineering 2 unit. In this coursework you will be allocated to a group and together develop a command line interface for a disrupter bank. This coursework is worth 20% of your total mark for this unit.

## 1 Overview of Group Project

NewBank is an idea for a new disrupter bank where customers can interact with their accounts via a simple command-line interface. The originator of this idea has produced some basic client-server code as well as a protocol for sending commands and receiving responses from the NewBank server. The originator of the idea has asked your group to further develop their base code - specifically, implementing the protocol. However, the originator is also keen for input and your team can alter or add to the protocol to improve interaction with the NewBank server as well as to add new services. For example, the originator is keen for NewBank customers to be able to offer micro-loans to other NewBank customers in a micro-loan marketplace.

You and a team of developers have taken up this challenge. Your team have access to the originators basic client-server code as well as the protocol for sending commands and receiving responses from the NewBank server. The originator has said that your group can add to, remove and/or alter any part of this basic code as well as the proposed protocol. Their only requirement is that customers have to interact via a command-line interface and that any changes/additions to the protocol are fully documented.

## 2 Team Roles

Your team have decided to take an agile development approach to development. Your team have also agreed to test out how SCRUM can work in an asynchronous team (as each of the developers works part-time on this project and are not in the same physical location). The team has three roles,

1. **Scrum Master** - Organises the development goals for the sprint, reviews code committed to the GitHub repository, troubleshoots development queries.

2. **Product Owner** - Ensures that the customer is represented, helps prioritise development goals for the the sprint, answers queries from developers relating to the customer (e.g. the sequence of commands to transfer money or the look and feel of the command line interface).
3. **Scrum Team** - Decides on their development goals based on the prioritised list and backlog, develops code, ask questions of the scrum master and customer advocate when needed to clarify implementation decisions.

Your team have also decided to rotate roles after each sprint.

### 3 How to Tackle the Project

The goals of this project are,

1. To implement the functionality in the NewBank client and server code as initially described in the protocol
2. Further develop this protocol as new features are added
3. Develop a command line interface for customers of NewBank to interact with their accounts
4. Develop new services for NewBank e.g. a micro-loan service

***NOTE: For this coursework you are not marked on the quality or success of the code you implement. Rather the emphasis of this part of the coursework is on collaboration and contribution. Therefore, you will be marked based on your participation in the group project (see Marking Criteria below).***

#### 3.1 Source Code and Documentation

The originator of this idea has produced some basic client-server code as well as a protocol for sending commands and receiving responses from the NewBank server. The originator has sent you this code and protocol document as a zip file.

Your team has noticed that the originator has not documented their code very well. However, the originator has left a comment in the file *NewBank.java* which indicates where the protocol functionality should be implemented and provides an example for the command *SHOWMYACCOUNTS*.

## 3.2 Suggested Week Activities

### 3.2.1 Week 1: Group Allocation and Introduction

You have been allocated to a group of up to 5 people. You should introduce yourself to your group and between you decide on who will be the Scrum Master, Product Owner and Scrum Team for next week.

If you are unfamiliar with agile development and the roles in SCRUM, this week's Software Engineering Discovery section also covers Agile and team roles in SCRUM.

Once you have decided the roles from this week, it is suggested that,

- The Scrum Master should create a new source code repository using Git (refer to the Resources Page for links to user guides for Git and link GitHub) and add each group member as a contributor.
- The Product Owner should also set up a Trello page (refer to the Resources Page for links to user guides for Trello) and again add each group member.
- Each member of the group should familiarise themselves with the source code (i.e. check out the source code from the Git repository and understand the logic of the NewBank client-server code). Remember to ask questions of your team members as well as the originator if the code is unclear (post on the General Q&A forum).
- Each member should propose requirements for the NewBank software including additions/removals/changes to the protocol

### 3.2.2 Week 2: Sprint 1

You and your group should be familiar with the source code and protocol, as well as have an initial list of requirements. You will now undertake a development sprint. To do this, follow the steps below.

- The Scrum Master should, on the Trello page for your group, add a new document which sets out the development goals for the week based on the list of requirements generated in Week 1. This document should also include a backlog i.e. the rest of the requirements.
- The Product Owner might suggest changes to this list.
- The Scrum Team should select the requirement(s) they wish to work on (remember to communicate this to your group e.g. place a name next to the requirement.)
- The Scrum Teams can pick up requirements from the backlog (in consultation with the Scrum Master) if they complete the above before the sprint ends.

- The Product Owner fields enquiries from Developers for clarifications of the requirements.
- The Product Owner can post questions for the originator on the General Q&A. The originator endeavours to offer a response within 2 working days.

A suggested schedule for the sprint might look like this:

- Monday - Scrum Master sets out the development goals of the week based on the prioritized list of requirements
- Monday - Product Owner suggests any changes to this list
- Tuesday - Product Owner suggests any changes to this list
- Wednesday to Friday - Scrum Team implement requirements
- Wednesday to Friday - Product Owner fields enquiries
- Wednesday to Friday - Scrum Master reviews committed code and troubleshoots problems

### **3.2.3 Week 3 to 6: Sprint 2 to 5**

This week you should hold a virtual scrum and define your next sprint. You will also select who will be your Scrum Master and Product Owner for the next sprint. To do this, follow the steps below:

- The out-going Scrum Master should add a document on the Trello page that contains the following questions for everyone to answer: What have I done this week?. What problems have I encountered? Have I solved them and how?
- All group members are encouraged to contribute to any discussion around the second question above.
- A new Scrum Master and Product Owner are selected.
- The New Scrum Master helps the group to set the development goals of the week based on the current backlog)
- The New Product Owner might suggest changes to this list.
- The Scrum Team should select the requirement(s) they wish to work on (remember to communicate this to your group e.g. place a name next to the requirement.)
- The Scrum Teams can pick up requirements from the backlog (in consultation with the Scrum Master) if they complete the above before the sprint ends.

- The Product Owner fields enquiries from Developers for clarifications of the requirements.
- The Product Owner can post questions for the originator on the General Q&A. The originator endeavours to offer a response within 2 working days.

A suggested schedule for the sprint might look like this:

- Monday - Out-going Scrum Master adds new document to Trello with questions.
- Monday - Group answers these questions.
- Tuesday - Group discusses issues raised and selects a new Scrum Master and Product Owner.
- Wednesday - New Scrum Master helps the group to set the development goals of the week based on the current backlog.
- Wednesday - Scrum Team select (a) requirement(s) they wish to work on
- Wednesday to Friday - Scrum Team implement requirements
- Wednesday to Friday - Product Owner fields enquiries
- Wednesday to Friday - Scrum Master reviews committed code and troubleshoots problems

**NOTE: After week 6 you will submit this Graded Assignment. The Scrum Master should submit a text file of the link to your group's GitHub and Trello sites.**

## 4 Resources

### 4.1 Git and Bath Git Hub

You can download Git at <https://git-scm.com/downloads>. There are also good reference material, including video tutorials, at <https://git-scm.com/doc>.

The University of Bath has its own GitHub Enterprise Version Control System at <https://github.bath.ac.uk/>. You will have access to this with your university account.

There are online manuals at <https://guides.github.com/> that help you get up and running quickly - in particular see <https://guides.github.com/activities/hello-world/>.

## 4.2 Collaborative Project Management Tools

Trello is a popular collaborative project management site <http://trello.com>. We recommend you use Trello (or something similar) to help organise the group project development as well as your sprints.

## 4.3 Java SDK and Integrated Development Environment (IDE)

For the group project you will be writing Java code on your own computer. If you have not done so already you may wish download an IDE such as Eclipse or IntelliJ. Follow these instructions to download and install latest Java JDK and Eclipse/IntelliJ.

- <https://wiki.eclipse.org/Eclipse/Installation>
  - [https://wiki.eclipse.org/Eclipse/Installation#JRE.2FJDK\\_Sources](https://wiki.eclipse.org/Eclipse/Installation#JRE.2FJDK_Sources)
  - [https://wiki.eclipse.org/Eclipse/Installation#Download\\_Eclipse](https://wiki.eclipse.org/Eclipse/Installation#Download_Eclipse)
- <https://www.jetbrains.com/idea/>
  - <https://www.jetbrains.com/help/idea/sdk.html>

You can of course write code in a text editor such as Notepad++ on a Windows PC or TextWrangler or BBEdit on macOS. If you write your code in a text editor then you will only need to download the Java JDK to compile and run Java code on the command line of your computer.

## 5 Submission Guidelines

1. Submit your assignment on the date indicated on the submission page, by 12:00 midday (UK time). Remember: it may take several minutes to upload your file so leave yourself plenty of time. Late assignments will be penalised.
2. The Scrum Master should submit a text file containing the URL of the GitHub repository and Trello page of their group.
3. Save your assignment using the following naming convention: UnitTitle\_AssignmentTitle
4. Your feedback and grade will be made available in the Grades page 15 working days after the assignment due date. Your assignment grade is provisional, subject to approval by the Faculty Board of Studies following the Board of Examiners meeting, where your overall unit result will be confirmed.

## 6 Marking Criteria

You are **not** marked on the quality or success of the code you implement. Rather the emphasis of this part of the coursework is on collaboration and contribution. Therefore, you will be marked based on your participation in the group project as assessed by the contributions from GitHub (commits) and Trello (contribution to documents and planning appropriate to the role you play in a given week). Therefore, as a group it is important to ensure that any and all work done on the project is documented in these two places.

100	The student makes full and equitable participation in the group project
50	The student participates in the group project but there are large unexplained gaps in contribution, roles are not fulfilled (e.g. does not undertake the scrum master role when allocated to do so) and/or no attempt at contributions to code
0	The student makes no contribution to the project.