

SYSC-3120 – Assignment 1

Submit one document with your answers to the THREE questions below on cuLearn.

Description of a Web Banking System

The Bank of Convenience wishes to extend its existing array of banking services already offered to customers at the branch or ATMs (basic branch banking, inter-bank transfers, automatically scheduled deductions, etc.) to support web-banking whereby its customers may pay bills from their bank accounts over the Internet. A customer is able to set up (and remove) connections between their existing accounts and the utilities for which they must pay bills (cable, phone, property taxes). Once established, the customer is able to make payments to the utility. Payments may either be done immediately, or can be scheduled for automatic payment at some future date. If scheduled, the customer may cancel it at any time before the payment date.

Bill payments to utilities are only possible if the utilities themselves provide some support. A utility must be registered with the bank and provide a portal server that will provide information about account numbers as well as the banking information for that utility.

Security is of course necessary. When a customer opens an account at a bank branch, a username and password will be setup for the customer's web account. The customer will login in each time, before any access to their accounts. Security also requires the tracking of transactions, with customers provided confirmation numbers for all bill payments.

The purpose of this assignment—its use cases, use case descriptions, and use case diagram—is to only specify the added functionalities related to the bill payments.

Question 1 [9 marks] **Glossary**

The system description is deliberately imprecise and casual in its nature. In particular, the word “account” is overused and overloaded. Explain the problem with this word and then resolve the problem by adding suitable entry(ies) to the glossary below.

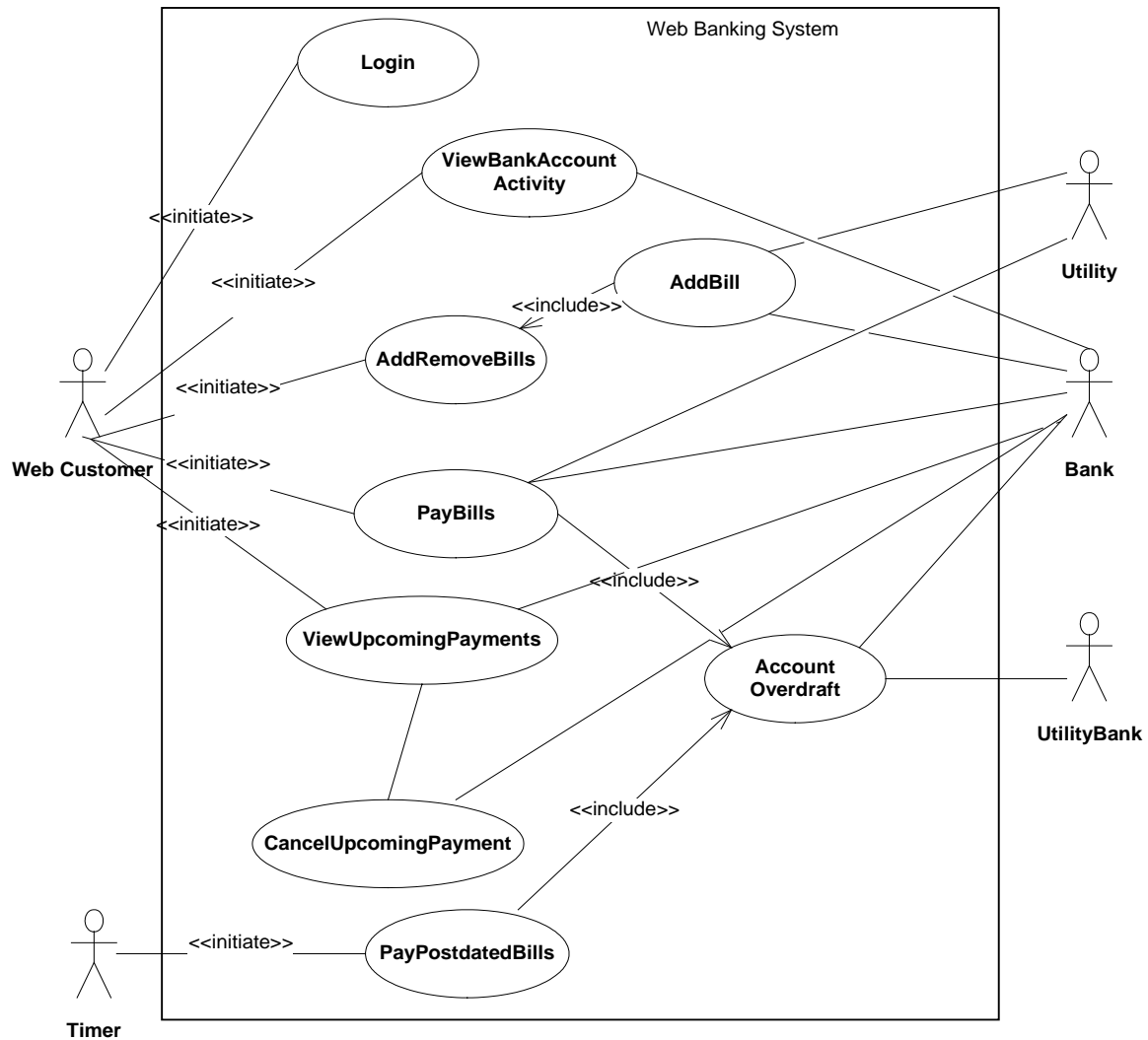
Glossary Entries

- **Bank:** Represents the existing banking system for the financial institution with which the web-banking system will interact to access its suite of existing financial services (monthly reports, bank transfers, automatic deductions) via the Internet.
- **Customer:** Is a person who has money in the bank and requires services to access that money. Each customer is uniquely identified by a customer (eg.card) number.

... Add your own

Question 2 [26 marks] Functional Requirements

A partial and possibly incorrect use-case diagram is presented below along with a set of related questions. Descriptions for two of the use-cases are provided and used in Question 4 below, but may also help you in this question.



- [3 marks] The relationship between View Upcoming Payments and Cancel Upcoming Payments is left unspecified : no label and no direction. Using heuristics discussed in class for extend and include relationships, make arguments both for using <<extends>> and <<include>>. Then make a decision for one or the other.
- [2 marks] ViewBankAccountActivity is a use-case that allows the Web Customer to view the past activity on his/her bank accounts. The Web Customer can either browse recent transactions, starting from the most recent and moving backwards, or can

generate and view the monthly reports, in which case the Web Customer must request the desired month to view.

Is this use-case within the proper scope of the Web Banking System? What does it have to do with paying bills over the Internet? Provide a reasonable justification to include this use-case within this system’s scope, or exclude it from the system’s scope.

- c) [5 marks] Complete and fix any errors on the use-case diagram to match the system description and correctly use the UML use case diagram notation.
- d) [8 marks] Complete the use-case descriptions given below. In your document, you shall (re)write the whole table, following the template (and constraints on the use of natural language) discussed in class.

| | |
|-------------------------------|--|
| <i>Use Case Name</i> | AddRemoveBills |
| <i>Participating Actor(s)</i> | Initiated by _____ Communicates with _____ |
| <i>Entry Condition</i> | The Web Customer is logged on and selects the “Add/Remove” option. |
| <i>Flow of Events</i> | 1. The system displays the Add/Remove Page containing the list of all registered bills and the two options: Add or remove. ... To be completed. n. The Web Customer terminates (leaves) the add/remove page. |
| <i>Exit Condition</i> | The system displays the Account Summary Page |
| <i>Exceptions</i> | |

| | |
|-------------------------------|---|
| <i>Use Case Name</i> | AddBill |
| <i>Participating Actor(s)</i> | Initiated by _____ Communicates with _____ |
| <i>Entry Condition</i> | The Web Customer wants to add a bill. |
| <i>Flow of Events</i> | 1. The system requests the name of the utility for which the Web Customer wishes to pay bills. ... |
| <i>Exit Condition</i> | The Bank contains the new bill. |
| <i>Exceptions</i> | |

- e) [8 marks] Using the use-case description template (and constraints on the use of natural language) discussed in class, provide a use-case description for use cases ViewUpcomingPayments and CancelUpcomingPayments.

Question 3 [6 marks] **Nonfunctional Requirements**

- a) [2 marks] Below are examples of nonfunctional requirements. Specify which of those requirements are verifiable and which are not (justify your answers):
- The system must be usable.
 - The system must provide visual feedback to the user within one second of issuing a command
 - The availability of the system must be above 95 percent.
 - The user interface of the new system should be similar enough to the old system that users familiar with the old system can be easily trained to use the new system.
- b) [4 marks] For the Web Banking system, provide two verifiable non-functional requirements, each one from a different category of your choice.