I declare that this is all my own work.

SIGNATURE:

# **SWEN102**

Introduction to Software Modelling

Midterm Test

 $21 \ {\rm August} \ 2009$ 

# Answer All Questions

Please Write Neatly

Time Allowed: 50 Minutes

Marks Overall: 50

# Numeric Calculators Allowed. Non-Electronic Translation Dictionaries Allowed.

	Topic	Marks
1.	Use Cases	25 marks
2.	Domain Analysis	25 marks

#### 1. Use Cases [25 Marks]

(a) **[3 Marks]** Perform a *textual analysis* on the following description, to find candidate use cases. Carefully and neatly underline key verb phrases in the text in the box.

ATB provides online banking via a secure website. The system implements a range of services. Customers can, for example, check the current balance on any of their accounts or transfer money between accounts.

When opening an account, customers provide a password. This is entered twice to prevent mistakes. The password is needed to access the system. When transferring money between their own accounts users click on the accounts in question, and enter the amount. One cannot transfer a negative amount of money.

To pay bills (e.g. electricity bill), customers first set up a Payment Payee (e.g. Meridian Energy) by providing the company details and their account number. Once setup, they can make payments to that payee in the same way as transferring money.

Bank staff monitor money transfers. When large sums are transferred, they are automatically notified. Staff may investigate this by looking up information on the customer, such as their transfer history. Typically, they are checking whether there are previous transfers of a similar amount. If the staff member becomes suspicious, they may call the account holder and check with them personally. (b) [3 marks] Give names for the three candidate use cases you consider most important.

ii. iii.

i.

(c) [4 marks] Draw essential use case cards for two important and interesting use cases in this system.

(e) [3 marks] The customer is an actor in this system. List the main characteristics of this actor.

(f) [6 marks] For each of the following statements, write one or two sentences justifying why it is important.

i. "The system must be secure"

ii. "The system must be correct"

iii. "The system must be available"

#### 2. Domain Analysis [25 Marks]

(a) [12 marks] Consider the object diagram on this left-hand page. Draw a *well-designed* class diagram that is consistent with this object diagram.



(words used: Square, on, Wall, x, y, right, Ghost, facing, left, eaten, no, Pacman, power, down, Pill)



(b) **[3 marks]** Perform a *textual analysis* on the following description of a *mapping system* to find candidate classes. You should carefully and neatly underline key noun phrases in the text in the box.

A geographical region is an area of a map which is either: a water area (for seas and oceans); an urban area (for towns and cities); or, a general land area. Regions may contain other regions (e.g. the North Island is a region of New Zealand containing Wellington).

Each region has a name and records its population. Urban areas can be identified as the capital of their country. Land areas may contain certain objects, such as roads, railway tracks, buildings and rivers etc

(c) [3 marks] Give names for the three candidate classes you consider most important.

ii.

i.

iii.

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