DT228/1 Program Design Assignment – Weighting 30%

Section 1: Programming in Scratch - weighting 10%

This assignment gives you an opportunity to practice computational thinking with a simple programming language and tool called Scratch.

Your Scratch Project

- You will create a project of your own in design in Scratch. Possibility includes but is not limited to an interactive game.
- You can look at the Examples folder in Scratch or at projects online for inspiration. While you can use them for ideas, you may NOT start with an existing project.
- You will include a README1 file (PDF) that explains how to interact with your project, and that lists any sources of images, sounds, and so on. (That is to say that you can take images from the web to use with your sprites, but you must give credit.)

Technical Requirements

- You must have at least four sprites in total, not including any sprites used to give instructions.
- Each sprite must have about 15 blocks or more on average. Some can have more and some less; you are aiming for at least 100 blocks or so in total.
- You must use at least one kind of loop other than “forever” somewhere in the project.
- You must use an “if” block at least once.
- You must have some form of user interaction.
- You must draw at least one of your own sprites (the rest can be sprites that come with Scratch or images from the web).
- You must incorporate at least one sound.
- You must make use of at least one variable.

Section 2: Flowcharts Design - Weighting 20%

Design a flowchart to express the following

A game that randomly chooses a word from a list of 20 words stored in an array of word, give the user 10 lives to start the game with, then ask the user to input a letter, if the letter is not part of the word they lose a life, if the letter is a part of the word, then show the letter in its position in the word. Keep asking for letters until the user runs out of lives or the entire word is guessed correctly. Note that user cannot input the same letter twice; each time a letter is picked reshow the lives left, also display all the characters they guessed previous at each guess. At the end of the game ask if they want to play again. The words "litter, beanbag, opening, settlement" should be part of your 20 words list. The following example screens can be used as a guide for your design.

```
Lives: 10
Word: _ _ _ _ _ _ _
Guess a Letter:
```

```
Lives: 8
Word: _ _ _G_ _ _
Letters guessed so far: A, G
Guess a Letter:
```

```
Lives: 1
Word: P_OG_AM
Letters guessed so far: A, G, P, E, I, O, M, U, N
Guess a Letter:
```

```
Lives: 0
Word: P_OG_AM
Sorry you lost
The word was: PROGRAM
Play again Y/N:
```

Requirements

- You must use DIA Diagram Editor to draw your flowchart.
- You need to make sure appropriate **error checking, user interaction, swimming lanes** are used.
- You will include a README2 file (PDF) that explains how your system works.

Assignment Submission:

This assignment is given on the Monday, the 14th of October with a due date of 12:00 Friday the 15th of November 2013. You need to submit all your assignment related files as a zip file named: **DT228-1-FirstnameSurname.zip** through webcourses, you zip file should include: README1.pdf, README2.pdf, ScratchGame, Flowchart.dia, and any other files you want to be marked.

Late submission will be marked out of 50% by given a valid reason, otherwise 0 will be graded.

Your assignment will be graded by the lab assistant during the Program Design labs on Tuesday the 19th and 26th of November 2013.

Attention:

Please note this is an individual assignment. Do your own work. Any student suspected of copying or plagiarising another piece of work will be given a 0 mark.