

**School of Electrical Engineering & Computing**  
**SENG2130-Systems Analysis and Design**

**Due 1<sup>st</sup> June, 2018**

**Assignment 2: Requirements Modelling (35%)**

**Pearly Gates Cemetery and Crematorium**

You will continue working with the Pearly Gates Cemetery and Crematorium Management System (see below for a reminder) and extend your requirements model to a **design specification**.

You do not need to implement the system. However, your design specification should be detailed enough so that it can be used as the basis for an implementation.

You will design detailed Class diagrams and Sequence diagrams. As with the requirements modelling in assignment 1, there are no limits to how far the design and analysis might go. However, complexity, coverage and correctness of the elements will be taken into account in the assessment of the submitted work.

## **Introduction**

Pearly Gates is a large, suburban cemetery situated peacefully on the side of a grassy hill and nestled among a grove of trees. There are no major roads nearby and, because we are large, domestic noise is kept to a minimum making Pearly Gates an ideal and tranquil place to remember and pay respects to those who have gone on before you.

Our services include burials and cremations for adults, infants and now pets in our special fauna interment section.

### **Burial:**

- Lawn Cemetery :- Our budget service offers a plot along with the option of a plaque (if no plaque is ordered, a simple cross is placed) and care packages (see below).
- Monument :- Monuments are not in the lawn cemetery but are situated in the memorial gardens. Our on-site stonemasons can guide you through many choices available or design something unique to your specifications.
- Mausoleum :- We are not currently offering places in the mausoleum due to space restrictions. There are plans to build a necropolis in the near future and places will be offered on completion.
- Green :- The deceased is buried in a biodegradable bag allowing the deceased to return to the earth from which they came. Burial can be off-site (special permit required) or in our green section (the corpse copse) where a small tree or shrub of your choice may be planted over the burial site.

### **Cremation:**

- The crematorium is located adjacent to the chapel so that service may be held directly before cremation itself.
- Cremation may be held privately for those who prefer to hold a memorial service off site.
- Ashes may be removed from site or interred on site in a niche wall with plaque, buried in a memorial garden with plaque or simply scattered in the memorial garden.

#### **Coffins and Urns:**

- A range of coffins is available from the biodegradable bag or basket used in green burials through oak or walnut coffins with brass handles and plates and upholstered if open viewing is required.
- A range of urns is available from the disposable box if the ashes are to be scattered through to metal or ceramic urns for display in niche wall or private home.

#### **Service:**

- Our staff are experienced in working with the major religions to organise services. We are also able to manage a non-denominational service in conjunction with your wishes.
- On site services may be held at graveside or in the chapel.

#### **Prices:**

Prices for burial or cremation, both adult and child, as well as services are available on request.

#### **Flowers:**

We have an extensive greenhouse and are able to provide most flowers and arrangements even out of season. Be aware that orders of exotic blooms may require extra time for delivery.

#### **Perpetual Care:**

With our perpetual care package, you can be sure that your loved ones final resting place will always be looked after and be presentable. Prices available on request.

For lawn cemetery, we keep lawn and edges trimmed, remove weeds and any rubbish from around site and maintain the plaque should it subside or be damaged.

For monuments, we remove weeds and any rubbish from site, repair any subsidence and maintain the headstone and any accessories (flower pots, candle burners, photo frames, etc) that may be present.

For on-site green burials, we maintain the corpse copse and provide any care required to a memorial tree or shrub that has been planted.

#### **Simplicity:**

In such a time of grief, it is difficult to account for all details of funerals and interment. We are experienced in dealing with all local funeral directors and will work with them to help you at this sad time.

### **Objective of the system**

The main objective of the system is to develop a new on-line management system.

1. Currently all work is channelled through the main office meaning that grave diggers, florists, stonemasons, ground staff and cleaners must contact the office for the day's work and must be contactable if there are changes.
2. Grave side services must be scheduled as they require grave to be dug, slings (coffin lowering device), marquis for mourners and parking spaces be available. Cremations must also be scheduled as there is only one crematorium.
3. Before scheduling a service, staff need to make sure that machinery needed is available (not double booked or undergoing maintenance). Currently there is no simple way of doing this apart from ringing the work-shed and asking.
4. Staff liaising with funeral directors need real time information of availability of graves, crematorium, chapel or services. Currently they must contact main office for this information.

An on-line system, with employees having their own devices, would solve each of these issues.

## Tasks

(Assume for now that the customer interacts only with the manager and is not considered as an actor).

The system definition above will be used for all two assignments for this course. For this assignment, you will proceed to the analysis and development stages of the system. Your system should be consistent with the requirements gathered in Assignment 1 and should expand the model from that submission. Specially, you should now populate the class diagram by including attributes and operations, design appropriate sequence diagrams, formulate a testing strategy and prototype a user interface for the use case involving information concerning equine health and well-being.

If you need to make any significant changes to the model as outlined in Assignment 1 make sure these are noted. Also note any reasonable assumptions you feel are necessary.

The main deliverable of this assignment is a report to be submitted via Blackboard (**by 1<sup>st</sup> June midnight**) **AND as a hard copy to EA building assignment boxes by Monday 4<sup>th</sup> June**. Both the electronic copy and the hard copy must include a completed cover sheet. The names of all group members should be on the cover sheet.

## Deliverables:

- 1) Updated use cases on which you are basing your design models (**5 marks**)
- 2) Detailed class diagrams (**30 marks**) that include:
  - a. All classes to be implemented (including the interface objects and any controller objects)
  - b. All private and public attributes for each class
  - c. All private and public methods (operations), including the input parameters and return types for each class
- 3) Sequence diagrams explaining how each use case is realized (**35 marks**).
- 4) Analysis report of another group's work: Your group will investigate and document the mapping between requirements and design and coverage of the original domain description. You will be given other group's work randomly. The length of the report is between 2 and 3 pages.  
Note. You are to approach the documentation review in a professional and ethical manner. (**20 marks**)
- 5) Implementation strategy including Architecture of the system (**5 marks**).
- 6) Design a user interface for ONE of your use cases (**5 marks**).