School of Electrical Engineering & Computing
SENG2130-Systems analysis and design

Assignment 1 Part B: Requirements Modelling (30%)

Due: 11:59pm Friday 28th May (Week 12)

File Name: TeamName_labDay_labRoom_labTime

File Type: Compressed Folder

Plush Meadows Management System

Introduction

Plush Meadows is an establishment devoted to the management, care and utility of horses. The stables has its own team of horses which can be hired for riding by groups or individuals for short-term (½ day), medium-term (1 day) or longer (generally 2 – 3 days). Plush Meadows caters for inexperienced riders (beginner) as well as those with some practice (intermediate) and riders with good experience (experts). The horses are also graded as those suitable for the beginners, intermediates and expert riders (say, placid, energetic and strong). All horses are for recreational riding and are not used for racing, gymkhanas, show jumping or polo. In the interest of animal well-being, horses are not hired out more than 4 days (or equivalent) in a seven-day period. While not cart horses, some older, docile horses are sometimes hitched to a dray or sulky to give rides to younger children. These vehicles are always under the care of an employee.

Plush Meadows has a full complement of grooms, strappers, ostlers and stable hands. In addition, it is large enough to have its own full-time farrier with forge and pays half time for veterinary services with a local practice which allows for a qualified vet to be present for 3.5 hours a day, 7 days a week. The vet generally sees horses four times a year unless there has been a problem and the animal require ongoing treatment. Employees leave an entry in the vet's diary (which stays on the premises) if they notice a problem with one of the horses. These records are important as it is not always the same vet visiting the premises.

Horse owners who stable their own mounts at Plush Meadows may choose basic service (accommodation and food only), special service (accommodation and food plus regular exercise and grooming) or deluxe service (special service plus full inspection and report from the vet every quarter).

Currently, people wishing to hire horses for short or medium term contact the manager with details such as date and time (morning or afternoon), number of riders, if there are children, experience level of the rider/s and any relevant medical details of riders (allergies, epilepsy, vertigo, etc). The manager enters the hire details and the system provides a list of suitable horses for the group (which may be a single rider). This last step requires checking with the horse log to make sure a horse is not being overworked or undergoing treatment. If the customer wishes to hire rides for young children, the manager selects a suitable horse and employee for the cart from the options provided by the system. The manager then provides a quote for the hire. All hires may also be cancelled or changed by the customer at any time.

Since long term hires often means taking the horses off property, only qualified riders (holding a certificate of horsemanship) are eligible for these bookings.Any rider found guilty of maltreatment of an animal will never be allowed to hire again.

People wishing to stable their own mounts on the premises must also contact the manager to arrange level of service, length of contract (set time or ongoing) and other accommodation details. The manager arranges for a stall, grooms, strappers and vet visits (as required by the contract).

Payments for riding sessions are at a standard rate based on duration. A group discount of 20% is given for groups of 6 or more. Payment may be made by credit card, EFTPOS or cash. In addition, the Plush Meadows sells gift cards for any amount (it is printed on the card) which may be redeemed during any transaction.

Strappers are responsible for exercising horses as well as seeing to minor medical matters such as administering treatment prescribed by the vet. Grooms also exercise the horses and are also responsible for everyday care and maintenance (brushing down, taking for swim, etc). Both strappers and grooms maintain a log of how often a horse has received attention. Ostlers take care of the riding equipment, saddles, bridles, bits and straps as well as equipment for riders such as hard hats and crops. Any maintenance or replacement of this equipment is kept by the farrier in a separate system and is beyond the current scope. Stable workers keep a record of how often a stall is serviced and the service provided (change water, replace straw, fix woodwork etc).

Objective of the system

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

1. The manager needs all information at their fingertips in order to make booking decisions.
2. Safety is an important aspect of this business.
3. The owner of the stables requires financial reports monthly.
4. The employees often refer to the horses by stable names (nicknames) which may not be familiar to the manager or the vet.

As a start it is envisioned that the system would be on-line and each employee would have their own hand held device.

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 the two assignments for this course. For this assignment, you will elicit and document the requirements for the on-line management system. You should identify system processes and user requirements. In this assignment you will gather and document system requirements, business rules and construct initial model of the system in UML. Specially, you develop use case diagrams, activity diagrams and map out a class diagram for the domain.

There are no limits to how far the requirements and analysis might go. However, complexity, coverage and correctness of the elements will be taken into account in the assessment of the submitted work.

The main deliverable of this assignment is a report and Gantt Chart to be submitted via Blackboard,

Note, your academic may also ask for a hard copy of the report and for your team to show your Gantt and your MS Teams analytics report file in class.

For the report, you need to submit a Word or PDF document and a Gantt file in *one compressed file* containing the following:

1. **Report cover sheet containing the**
    a. Default is 5 Team members (first and last name and student numbers)
    b. Lab Day
    c. Lab Room,
    d. Lab Time and
    e. Lab academic (first name only)
2. **Introduction to the report (2.5 Marks)**
    a. What is in this version of the report
    b. What is the objective of this report?
3. **Business Rules (5 Marks)**
    a. Refine business rules which you have already identified in Assignment 1 Part A. You may add on/ update your business rules as you discover more detailed requirements as you perform iterative modeling.
    b. Explain how each business rule is captured by your team design. This is an important part of testing your design. Remember a business rule may not be captured by your proposed system design. So that rule would be captured at an organisational level (Organisational Mapping).
    c. So is a business rule captured by an interface, by class data or a method etc (System Mapping).
    d. Use the following table format for this process

Business Rule	**System Mapping**	**Organisational Mapping**
B1: Customer contact details	Data collected in the customer class and the interface, user notified of an error	
B2: Horses moved between paddocks (time Frame)		Not noted in system, horse is moved, by stable hand

4. **Class Diagram (30 Marks)**
    a. All classes to be implemented (including the **Boundary** classes, **Controller** classes and **Entity** classes).
    b. All attributes for each class. You may include access modifiers i.e. private, public and protected if you could identify them (optional).
    c. All operations/ methods, you may include access modifiers i.e. private, public and protected if you are able to identify them (optional), You may also include input parameters and return types for each class if you are able to identify them (optional).
5. **Use Case Mapping to Sequence Diagram (30 Marks)**
    Use Case Driven development (Section 5-6):
    a. Each team member will revise and note the changes to their **Use Case description** from assignment Part A (unless otherwise assigned by your academic) cannot use the logon use case.
    b. Each team member will **create a subset of the class diagram** (section 4) that maps to the required data for the Use Case description.
    c. Each team member will **create a sequence diagram** (for the Use Case) that shows the Boundary, Controller and Entity classes from your class diagram in section 5b.
    d. Give a short description for each diagram to briefly explain the interactions among the models to perform the use case.

e. During this process you may have to make changes to your class diagram in section 4.

6. **User Interface (15 Marks)**
    a. Each team member will develop a user **interface** **(i.e. screen design)** using your use case description, subset of the class diagram and sequence diagram (section 5) as the basis of your interface (The logon interface is not to be modeled).
    b. Each interface will require a description, mapping back to the use case. This will be a few sentences explaining how it fulfils the use case requirements (functionality).
    c. You may wish to use the tool from Justinmind.com for the user interface design development.
7. **Deployment (5 Marks)**
    a. What is your team proposing for deployment strategy?
    b. Will you use a direct or a parallel or phased deployment?
    c. Why is your team using this strategy?
    d. Have a look at the 14-2-Deployment.mp4 video link.
8. **Team Management (10 Marks)**
    a. Meeting notes for at least 5 meetings and MS teams analytics report (screen shot)
    b. Gantt Chart
        i. your team will continue to refine your existing chart and show who has done what and the percentage completed for each task
        ii. This part of your assessment will be utilised if there is any issue with team management of production and team submission. Makes sure you keep copies of your individual work
9. **Conclusion (2.5 Marks)**
    a. What was completed
    b. What was not completed and why
10. **Reference list**

Total 100 marks Final mark out of 30.