

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

Assignment 1 Part A: Requirements Modelling (20%)

Due: 11:59pm Wednesday 31st March (Week 6)

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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 five 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 69797 - Certificate III in 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 4 or more. Payment may be made by credit or debit 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 to show your Gantt 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 academics (first name only)
2. Introduction to the report (5 Marks)
 - a. What is in the report
 - b. What is the objective of this report?
3. Business rules (15 Marks)
 - a. List the rules that are relevant to this scenario
 - b. This will include what you have read above and the following
 - c. Legislation (eg Workplace Safety and Health Act)
 - d. <http://www.horsesafetyaustralia.com.au/regulations/>
 - e. <https://www.safeworkaustralia.gov.au/system/files/documents/1702/horse-guide-v1.pdf>
 - f. Privacy aspects.
4. Use Case Diagram (25 Marks)
 - a. List of all use cases with a short explanation eg a sentence or two.
 - b. Use Case Diagram with a short description
 - c. Full Description of (number of team members) Use Cases (these will be selected by your academic)
 - d. Each team member will complete one full use case description with their name assigned to it as a caption
5. Activity Diagrams (15 Marks)
 - a. Create activity diagrams (number of team members) selected Use Cases in section 4c,
 - b. Each diagram must include
 - c. swimlanes,
 - d. starting and end node and
 - e. a short description for each diagram
 - f. Each team member will complete one activity diagram with their name assigned to it as a caption
6. Domain Class Diagram (15 Marks)
 - a. This will include
 - b. Class name (singular name only)
 - c. Simple attributes (data) for each class
 - d. No methods (operations)
 - e. Min and maximum associations
 - i. Eg Car has (1..5) Wheel
 - ii. Wheel belongs to (1..1) Car
7. Team Management (20marks)
 - a. Meeting notes for at least 4 meetings and MS teams activity report
 - b. Gantt Chart : This will start from week 2 and show who has done what and the percentage completed for each task
8. Conclusion (5 Marks)
 - a. What was completed
 - b. What was not completed and why
9. Reference list

Total marks: 100