INFS600 Data and Process Modelling, Semester 1, 2018

Individual Assignment

Object-oriented Analysis and Modelling

Iteration	Content	% Grade	Due
Part 1	Requirements Analysis & Use Case Modelling • *Questions 1 & 2*	40% of assignment	Friday April 13th. 4:00pm
Part 2	Class Analysis & Modelling • *Questions 3 & 4* Behavioural Analysis & Modelling • *Question 5*	60% of assignment	Sunday 27th May, 11:59pm
Assignment total contribution to final grade:35%			

1. Introduction to Assignment Requirements

This assignment is designed to provide students with practical exposure to software requirements engineering activities including the development of relevant data and process models using UML.

This is an individual assignment. It provides an opportunity for students to apply to a larger case study the principles discussed in class and practiced in exercises.

The case study, described in detail, is provided on Blackboard in the Assessments/Current Assessments folder. Students may ask for additional clarification of the case study in class times that are set aside for that purpose or using the AUTonline discussion forum set up for the assignment. All questions and all responses will be visible to everyone enrolled in the course. Questions may be posted anonymously. Questions for the "client" must be posted by **Friday 30th March at 4pm** and will be answered by a developer who provided the initial scenario for the case study based on their experience with real world ticketing systems.

The questions are set out in in Section 2. Section 3 describes the submission details and dates. And a marking guideline is provided in Section 4.

Expectations

The assignment includes 5 questions. Questions 1 and 2 will be delivered as Part 1 and students will receive feedback on their submission both from an academic perspective and from the stakeholders' view of how well their goals have been captured.

Part 2 is comprised of Questions 3, 4, and 5. It is expected that all submissions will be presented professionally using the tools and templates outlined below and must be the individual work of the submitter. Any quotes or ideas from the work of others must be correctly referenced using APA 6th (http://aut.ac.nz.libguides.com/APA6th)

Tools & Templates

You are to use the specified **CASE tool**, **Visual Paradigm CE 14.2** for this Assignment. An introduction to this tool will be provided in class. You must also use the *Use Case Template* document provided on Blackboard to develop your fully dressed use case.

Late Policy

Late assignments will not be accepted.

Plagiarism

Plagiarism means borrowing from the work of another without indicating by referencing (and by quotation marks where exact phrases are borrowed) that the ideas expressed are not one's own. Students may use the ideas and information of other authors, but this use must be acknowledged. It is not acceptable to submit an assignment that is simply paraphrasing of extracts from other authors: the work submitted must include some intellectual contribution of the student.

Unauthorised Collaboration

Unauthorised collaboration means joint effort between students or students and others, in preparing material submitted for assessment, except where this has been pre-approved by the paper programme. Students are encouraged to discuss matters covered in classes, but the expression of ideas and arguments must be the student's own work.

2. Questions

Part 1 (40 marks)

Question 1 Identify Stakeholders & Elicit Requirements [24 marks]

a) Identify each actor involved in the AIK9 Limited Clinic System (*4 marks*)

b) Develop a set of key functional user requirements using semi-formal grammar for each actor identified in a) (*20 marks*):

Question 2 Identify Interactions between Users and the Clinic System [16 marks]

a) Using the Visual Paradigm CE 14.2 CASE tool, create a new model and name it '(Your full name) INFS600 Assignment'. Develop **a use case diagram** for the AIK9 clinic system. Make sure that the use cases cover the requirements that have been identified in Question 1. (6 marks)

- Identify all association relationships between actors and use cases.
- Show any <<include>> relationships, if any, between use cases.
- Show any actor inheritance relationships, if any
- Describe any assumptions you have made in a text note in the diagram.

b) Using the use case template provided, produce **a fully dressed use case** for the "*an owner shall be able to create a new support case*" use case using the details provided in the Case Study. (10 marks)

Hints:

Make sure that you supply sufficient details of data and cover all the interactions required to fully illustrate the actions required to fully specify the requirement.

Remember to ensure that the scenario you are modelling is complete to do this you may need to consider other use cases involved in the use case. For example, an owner commenting on a case requires them to view their personal queue and select the case they wish to comment on before the comment interaction can occur.

Ensure that your use case template is completed. Leave no fields empty, if for example there are no preconditions enter *Nil* in the appropriate field.

Part 2 (60 marks)

In this part you should develop a model for the Clinic System. Do not create a new project for each question. You should develop a single project that contains the diagrams specified in Questions 3-5.

Question 3 - Model System Interactivity [14 marks]

Develop **an activity diagram** in your Visual Paradigm model for the scenario below that details a customer adding a comment to an "open" case.

Scenario:

Sharon runs the HCI lab at a private technical training college in Perth. The lab owns a single AIK9-C dog, which was the first to be shipped internationally. The dog's highly flammable lithium batteries had to be removed for shipment, and it has not charged properly since then. Sharon recently installed a replacement battery shipped from AIK9 Ltd. in Auckland, and the dog now charges successfully. She wants to let the clinic staff know that the problem has been fixed.

Sharon accesses the clinic system through the AIK9 website, and sees a list of cases. She only has one support case for the dog, which is currently "open". She selects that case, and checks to see there are no new notes from the vet. There are not. She chooses to add a new comment, and fills out a "short description":

Battery A-OK!

She then enters a longer comment in the "long description":

Cheers Xin, new battery worked great. All 9 batteries charging fine now. Attached a photo showing the serial number of the old one like you asked. Thanks again! =D

She attaches one photo to the comment, and submits it to the system. The system stores the new comment (including the attachment) and instructs the AIK9 website to notify Xin, the vet responsible for the case. The website sends an email to Xin, notifying her that there is a new comment on the case.

Question 4 - Domain Model [20 marks]

Develop **a domain model** for the AIK9 Clinic System. Create **a class diagram** in your Visual Paradigm model to show all the classes. For each class identify the important/unobvious attributes. Show all relationships between your classes and indicate their multiplicities. Be sure to consider whether using inheritance will help you to generalise any classes.

Question 5 Behavioural Models [26 marks]

a) Create **a system sequence diagram** (in your Visual Paradigm Model) that illustrates the process of a Vet (not a Senior Vet) transferring a case from their personal queue to another vet's queue. (12 marks)

b) Develop **a state machine diagram** that illustrates the states and transitions for a support case object that is an instantiation of the Case class. (14 marks)

3. Submission Instructions

Each part of the assignment should be submitted using the link provided on Blackboard.

Multiple submissions are allowed. The last submission you make before the assignment deadline will be the one that we mark.

When you submit, it is wise to record the submission number that Blackboard assigns.

Please note that in order to gain a grade for the questions that require you to develop a diagram in visual paradigm marks will only be given if you submit the Visual Paradigm project as specified. No project – no marks.

Part 1 Submission (Questions 1&2): Due Friday April 13th at 16:00 (4:00pm)

Detailed instructions will be provided in class and on Blackboard.

Please submit **one** zip file which contains:

- **A PDF file** containing the answers to all questions. For Question 2 a) include an image of the diagram captured from your Visual Paradigm model. Questions must be presented in order and clearly labelled.
- **The Visual Paradigm project** for Question 2 a)

Please ensure that each of these files (the PDF, VP & zip file) are named clearly with your full name & ID number.

Part 2 Submission (Questions 3, 4, & 5): Due Sunday 27th May, 11:59pm.

Please submit one zip file which contains:

- **A PDF file** containing your answers to all questions as an image captured from your Visual Paradigm model. Questions should be presented in order and clearly labelled.
- **A single Visual Paradigm project** containing diagrams for all questions.

Please ensure that each of these files (the PDF, VP & zip file) are named clearly with your full name & ID number.

4. Marking Guideline

Question	Marking Criteria	Max Mark
1	a) Identifies each actor	4
	b) Provides a set of key functional user requirements using an appropriate semi-formal grammar for *each* actor. • Written from the perspective of the user • Meets criteria for quality user requirements (e.g. testable, concise, non-ambiguous, singular)	20

2	a) Use case diagram provided • Covers the requirements identified in 1b. • Identifies all association relationships between the actors and the use cases • Shows <<include>> relationships, if any • Shows any actor inheritance relationships, if appropriate • Details any assumptions, if any, made in a comment	6
	b) A fully dressed use case is provided for the specified use case • Correct template is used • All parts of the use case are present and correct • Supplies sufficient details of data required to complete an action • Covers all the actions required to fully specify the requirement • Has appropriate alternate flows • Alternate flows are linked to the main flow by appropriate numbering of the actions.	10
3	Visual Paradigm Activity Diagram provided, using case tool and correct • Matches scenario • Has reasonable actions, transitions and decisions. • Has abstracted actors and activities from the specific scenario • Uses correct UML notation • Has swim lanes	14
4	Visual Paradigm Class Diagram provided using case tool. • Shows important attributes • Includes appropriate classes • Includes all relationships (associations) • Includes names and 'reading' direction for relationships, except where they are obvious (e.g. not needed for *has* or *is a* relationships) • Includes multiplicities for the identified relationships • Includes any useful inheritance	20
5	a) Visual Paradigm Sequence Diagram using case tool provided and is correct	12
	b) Visual Paradigm State Machine Diagram provided: • Uses correct UML notation • All states are present including initial and final states • Has correct transitions and all are present • Uses guards where appropriate	14