COIT20258 Software Engineering
Assessment 1

Weighting: 20%
Submission Due: Week 4 Friday (8 August 2025; 11:55pm AEST)
Length: N/A

A. Assessment Task

Your task in this assessment is to analyse the given case study, apply the principles of requirement engineering by eliciting *functional and non-functional requirements*, and write a *user and system requirements specification document*. You will also choose appropriate modelling techniques to *model the system and use cases*, and *design the system architecture*.

B. Case Study

You are to develop a set of user stories that capture the user requirements for a Telehealth System (THS). Below is some basic background information of THS:

> *THS makes essential specialist healthcare services easier to access. When patients live in a rural or remote area, it can be difficult to access specialist healthcare services. Often, patients need to travel long distances to see specialists – which can also result in additional accommodation costs, adding to the stress of travelling when patients are unwell.*
>
> *THS helps patients living in rural and remote areas to access specialist services with greater ease and reduced waiting times. THS helps deliver healthcare services through phone or digital technologies. During a Telehealth consultation, patients and their healthcare professionals will speak to each other via phone or a video call – similar to FaceTime, for example. With THS, patients do not need to be in the same room as their healthcare professionals.*
>
> *As an example, THS provides the following services:*
>
> - *Medical consultation booking;*
> - *Medical consultations via audio or video conferencing;*
> - *Remote control and monitoring of vital signs (e.g., pulse rate, body temperature, respiration rate, and blood pressure); and*
> - *Self-care services.*

This project is to develop THS that needs to:

- Allow patients to make a Telehealth consultation booking with specialists.
- Perform "virtual" medical visits (i.e., online medical consultations).
- Perform *prescription refills* (i.e., patients order a new supply of medication when it is running low (or out of medication) without having to go through their prescribers).
- Send vital signs to remote specialists for monitoring and advice.
- Use mobile health apps to retrieve health information.

(Note: The above list of services of THS is not "complete". You may need to do further research to find out other typical services to be provided by THS.)

THS would need interfaces to other clinics and hospitals (e.g., in case a rural patient needs to have a surgery at a hospital).

You will be developing a software prototype of THS in three different stages.

Stage 1 (Assessment 1: individual):

You need to work *individually* towards conceptualizing the THS in relation to the domain specific aspects.

- You need to create a context model to ensure that a high-level overview of the context of the THS is understandable and convincing to the stakeholders.
- You need to capture, validate, and prioritize functional and non-functional requirements through use cases and use case diagrams. You need to describe all use cases and create use case diagrams.
- You need to specify user requirements and system requirements (including functional and non-functional requirements).
- You need to use sequence diagrams to show a specific flow of control and data to be found in the detailed design or implementation phases. Sequence diagrams that you will construct need to be organised towards analysing, understanding, verifying, and designing the behaviour, logic, requirements, and system architecture of THS.
- You need to illustrate the system architecture of THS using the MVC model.
- You need to include preliminary graphical user interface (GUI).
- You need to compile your works in a prescribed format as mentioned in Section C of this document below.

Stage 2 (Assessment 2: individual):

You need to work individually and build an initial prototype of THS which will be an MVC-driven JavaFX Scene builder-based GUI desktop application as detailed in Assessment 2. More details will be provided when Assessment 2 specification is made available on Moodle. While you will be working in Assessment 2 for THS, you need to *include and implement two creative features or functionalities* that are not explicitly mentioned in Assessment 2 specification.

Stage 3 (Assessment 3: group):

You need to work in a group of 2–4 students. You need to critically review and select one of the team members' THS, and the THS you select needs to be justified to be the best version. The THS you select needs to be improved/enhanced with more functionalities and better design. This enhanced prototype called THS-Enhanced will also be an MVC-driven JavaFX GUI based enhanced desktop application as detailed in Assessment 3 specification. More details will be provided when Assessment 3 specification is made available on Moodle. While you will be working in Assessment 3 for THS-Enhanced, you as a group need to *include and implement two creative features or functionalities* that are not explicitly mentioned in Assessment 3 specifications.

C. Report

You should submit a document file (.doc or .docx) containing the following details:

1. **Introduction:** This should include an introduction, system overview, system users, system usability and operational constraints.
2. **Context model.**
3. **Use cases.**
4. **Use case diagrams.**
5. **System requirements:** These include functional and non-functional requirements.
6. **User requirements:** These include the generic system requirements from a client's perspective such as the type of the system, user interface, availability, and response.
7. Sequence diagrams.
8. **System architecture (MVC model).**
9. **GUI design**.
10. **Conclusion:** Conclude your report highlighting the requirements identified and a reflection on the overall system usability and opportunity for extension.

D. Submission

Submit the document file (.doc or .docx) on Moodle via the Assessment 1 submission link.

E. Marking Criteria

Section	Criteria (Total: 20)	Marks Allocated
1	Introduction	2
2	Context model	2
3	Use cases	2
4	Use case diagrams	1.5
5	User requirements	1.5
6	System requirements: Functional requirements	1.5
7	System requirements: Non-functional requirements	1.5
8	Sequence diagrams	2
9	System architecture (MVC model)	2
10	GUI design	2
11	Conclusion	1
12	Well-presented report with student details, good document structure with sections, paragraphs, tables/figures, spelling, & grammar	1
	Late penalty (5% of total allocated marks per calendar day or part of a calendar day)	
	Plagiarism (penalty as per the plagiarism policy)	
	Total	20