

ELEC5620 Project (Semester 2 / 2017)

Personal Health Assistance Software Application

Requirements Documentation, Architecture Design, System Modelling and Proof-of-Concept Implementation

Scenario

The Australian Department of Health has a special commitment to ensure high quality health care for all its people. ABC Company is a potential software provider of the Department of Health, who needs a Personal Health Assistance (PHA) software application that will support its people to monitor and manage their health status and improve their health condition. You are hired by the company as a software architect to manage the PHA software application project. You are required to have a proper requirements document for the project, meet with the customer, design the system architecture, develop system models, implement prototype, etc.

Note:

Please select one of the following PHA software applications for your project: **1) Personal Health Tracker; 2) Healthcare Assistant; and 3) Emergency Health Service**. With the support of Asthma Australia, the University of Sydney recently launched a new mobile application to support young people to improve their quality of life through managing their Asthma. This mobile application could be good reference for this project. The advantages and disadvantages for developing a high-end software application could be further discussed.

Stage 1. Requirements Documentation, Architecture Design and System Modeling (Marks: 35)

Identity and document the whole requirement, features, design and modeling process. A document should be submitted via Blackboard, which should include:

1. A formal requirements document which contains (10 Marks):
 - a. A clear classification of the agreement, mandatory capabilities and optional features
 - b. User requirement diagram and Feature diagram.
 - c. A description of the use cases for the principal features, including sequence diagrams detailing out how users and processes interact with system.
2. A first cut at the architecture of the software system, specified as a model. This should comprise at least the following elements (20 Marks):
 - a. A description of the proposed system structure and its life-cycle processes; that is, the set of high-level components, their interconnections and interdependencies, class diagram, etc.
 - b. A description of the behaviours of the key components including activity diagram, state machines and sequence diagrams (in executable forms which will be demonstrated in class). Brief description of the support components should be provided.
 - c. Relationship between the key and components should be provided to show support for future development work.
 - d. The assumption made during the design.
3. Using responsibility assignment matrix, contribution of each group member should be specified clearly in the document.

An in-class presentation (group-based) will be delivered (5 Marks). Slides should covers:

1. The proposed requirements and their classifications (to facilitate finalization of the requirements).
2. The proposed requirements, design, including the rationale for the design choices made (including discarded choices).
3. Basis for change assessment and acceptance determination.

After the presentation, every group should demonstrate the model execution.

Highlights:

- Use scheduled lab time to do your work (of course, you can also do this at other times).
- Meet with the stakeholder (Mr. Sadiq Sani) during tutorials to discuss requirements and raise issues.
- Submit your work (the document) before 23.59pm, 8 Oct. 2017. Delay penalty applied, i.e. 10% per day.
- Be prepared to present in the lab on in Week 11 and Week 12.

Stage 2. Prototype Implementation (Marks: 15)

In this stage, a proof-of-concept prototype should be implemented based on the architecture design. The prototype will be demonstrated to the stakeholders. For every group, members should work together to practise the Agile software development model, which will be discussed in the lectures. The prototype should be:

1. Developed based on the requirements and design in Stage 1 and implement all the modes (7 Marks)
2. Deployed the prototype with cloud computing services. (5 Marks).
3. Experience Agile software development model. (3 Marks)

Assessment

Group-based prototype demonstration will be in the lab/tutorial sessions on in week 13. Each member in a group will be asked questions about the prototype and his/her contributions.