2813ICT Software Engineering Fundamentals
Griffith University

Prof. Vlad Estivill-Castro

Trimester 2, 2019
Assignment 01
Project Requirement Analysis and Specification
Net worth 30%
Check Learning@GU for deadline

Rationale

The purpose of this assignment is to demonstrate your ability to initiate a software project with proper document of the business goal of the project. You also need to do requirement analysis and specification so this document can be used as an input for software design.

Groups

You may work in a team of two students or you can do the assignment by yourself. If you work as a group, each student must involve in the answering or checking the answer of each question. By default, each student receives the same marks. If the working load is not evenly distributed, please discuss with your tutor to find a suitable mark distribution.

Task

In this assignment, you work as different roles.

Firstly, you work as a customer try to propose a software project. You need to describe your project in a way so other people can understand this project and also be able to appreciate the business value of this project.

Secondly, you need to work like a good project manager to present the requirements of the proposed system in a clear and complete way.

Thirdly, you will work as a requirement analyst to analyse and model those requirements by using different modelling techniques.

Submission

Use the digital/electronic submission box at Learning@GU and submit **only PDF documents**.

PART: A Set up a project

Question 1: Name of the proposed software project. You should find an informative and also attractive name for your software project. (2 points)

Question 2: System version document. Provide a system vision document that outlines the problem description, system capabilities, and the expected business benefits (minimum 300 words): (6 points)

Question 3: Cost Benefit Analysis. Provide expected development cost of the project and expected benefit of the project. You need to estimate how big the development required team would be, how long the development may last. You also need to estimate the maintenance cost. Then you need to estimate the possible income from this project. You also need to explain how you could make those estimations. (minimum 300 words): (6 points)

Question 4: Perform a Risk and Feasibility Analysis. You need to do a risk and feasibility analysis. You should cover risks from market, management, resource and technological aspects. For each identified, you should address how to handle and reduce them so they won't threat the success of this project. (6 points)

Total Marks for Part PART: A: 20

PART: B Present the requirements

Question 5: Identify different stakeholders and their concerns for the system (minimum 300 words). (6 points)

Question 6: Discover and Understand the Requirements. Define the functional and non-functional requirements for the system using the FURPS framework[1] en.wikipedia.org/wiki/FURPS (minimum 300 words). (6 points)

[1] https://en.wikipedia.org/wiki/FURPS

Question 7: Describe major requirements of the system in a Use Case diagram. And describe one use case in scenario. (10 points)

Total Marks for Part PART: B: 22

PART: C Requirement modelling

Question 8: Select a subset of your **functional** requirements (from five to eight requirements). This subset of requirements should be related to each other and cohesively represent a module or sub-system (they should have minimal interaction with other subsystems). They could be the requirements of a subsystem of your software system. List the requirements. Each requirement should have a unique requirement ID and described as pre-condition, event, post-condition (and constraint style) if possible. (6 points)

Question 9: Model each of the functional requirements from previous function in a *Requirement Behaviour Tree* (RBT). (14 points)

Question 10: Integrate the RBTs from previous question into an *Integrated Behaviour Tree* (IBT). (8 points)

Question 11: Model the set of requirement in a *Component Behaviour Tree* (CBT). (8 points)

Question 12: Model the set of requirement in a *Component Interaction Network* (CIN). (6 points)

Question 13: Model the requirements in a domain class diagram. The class diagram should demonstrate the use of *is-a*, *is-part-of* and use relation types *Component Interaction Network* (CIN). (16 points)

Total Marks for Part PART: C: 58

TOTAL MARKS: 100