

# CS 321 – Software Engineering

Fall 2019

## Project Deliverable 1 – Requirements and Use Cases

**Due date: September 28, 2019, 11:55 pm**

F.P. Brooks notes in his paper “No Silver Bullet: The Essence and Accidents of Software Engineering,” that “the hardest single part of building a software system is deciding precisely what to build. No other part of the conceptual work is as difficult as establishing the detailed technical requirements, including all the interfaces to people, to machines, and to other software systems. No other part of the work so cripples the resulting system if done wrong. No other part is more difficult to rectify later.” The purpose of this assignment is to help you gain significant insights into the Requirements Engineering process.

For this assignment, you will submit a document specifying the requirements and use cases for the system that your team has chosen to implement.

### **Deliverable:**

#### **1. System Overview [5 points]**

Provide a high-level overview of the system. This is the product vision and should be stated in the users’ vernacular. *(Example: Imagine that you have built a mobile app and wish to publish it on the App store. What would you include in the app’s description that would attract users to try/buy it?)*

#### **2. Rationale for building the system [10 points]**

Outline the problem, the motivation for building such a product, and your solution approach. Also, if there are other alternatives to your product in the market, discuss the unique characteristics of your solution and the shortcomings of the existing products.

#### **3. Methodology used [8 points]**

Describe the process by which you gathered, analyzed, and validated the requirements for the system under consideration. Briefly discuss the criteria used for evaluating the requirements. *(How did you come up with the requirements? Did you study other similar products, brainstorm requirements, etc.? How did you evaluate the requirements? Are they valid, adequate, feasible, etc.?)*

#### **4. Functional Requirements [20 points]**

Provide a prioritized and approximately estimated list of functional requirements for the system. Describe each requirement briefly and state the rationale for including that requirement. Also, discuss the prioritization and estimation schemes used. *(For each requirement, provide a short descriptive name followed by a brief description of that requirement. Include the rationale for formulating that requirement, if applicable. For each requirement, ensure that you include its priority and approximate estimate for developing that functionality. Your estimates should include time for testing the system. Describe how you determined priorities and estimates).*

Record dependencies, if any, among the requirements. Also, if certain features are specific to a set of users, document that.

## 5. Non-functional requirements [15 points]

Identify the non-functional requirements for the system. Include the measurement criteria for each of the non-functional requirements. Record any constraints that these requirements may place on the system to be built. *(Think of the properties that your end product must possess. You can focus on 2-4 non-functional requirements for your project. Consider how you would measure these requirements. Constraints such as development timeframe, cost, specific programming languages/tools used, should not be included in your list of non-functional requirements).*

## 6. Use case descriptions [12 points]

Identify four use cases and develop a use case description for each by applying the use case template. Each use case description must include a description of the main sequence of interactions between the actor(s) and the system, as well as description of the alternative sequences. *(A use case description template is available on Piazza under the Resources -> General Resources section).*

## 7. Contributions

Include information about the following:

- Who managed the work for this deliverable?
- Individual Contributions *(Briefly describe how the work was allocated and list who worked on the different aspects of the deliverable).*

## Submission Instructions

The assignment should be submitted as a PDF file before the due date – September 28, 2019 at 11:55 pm. Make sure the name of the file includes the assignment number and the last names of all the team members, e.g., CS321- P1- <LastName1>-< LastName2>-< LastName3>-< LastName4>