Deliverable #1 Template

SE 3A04: Software Design II – Large System Design

1 Introduction

This section of the SRS should provide an overview of the entire SRS.

1.1 Purpose

a) Delineate the purpose of the SRS

b) Specify the intended audience for the SRS

1.2 Scope

a) Identify the software product(s) to be produced by name (e.g., Host DBMS, Report Generator, etc.)

b) Explain what the software product(s) will, and, if necessary, will not do

c) Describe the application of the software being specified, including relevant benefits, objectives, and goals

d) Be consistent with similar statements in higher-level specifications (e.g., the system requirements specification), if they exist

1.3 Definitions, Acronyms, and Abbreviations

a) Provide the definitions of all terms, acronyms, and abbreviations required to properly interpret the SRS

1.4 References

a) Provide a complete list of all documents referenced elsewhere in the SRS

b) Identify each document by title, report number (if applicable), date, and publishing organization

c) Specify the sources from which the references can be obtained

1.5 Overview

a) Describe what the rest of the SRS contains

b) Explain how the SRS is organized

2 Overall Description

This section of the SRS should describe the general factors that affect the product and its requirements. It does not state specific requirements; it provides a background for those requirements and makes them easier to understand.

2.1 Product Perspective

a) Put the product into perspective with other related products, i.e., context

b) If the product is independent and totally self-contained, it should be stated here

c) If the SRS defines a product that is a component of a larger system, as frequently occurs, then this subsection should relate the requirements of that larger system to functionality of the software and should identify interfaces between that system and the software

d) A block diagram showing the major components of the larger system, interconnections, and external interfaces can be helpful

2.2 Product Functions

a) Provide a summary of the major functions that the software will perform.

- **Example**: An SRS for an accounting program may use this part to address customer account maintenance, customer statement, and invoice preparation without mentioning the vast amount of detail that each of those functions requires.

b) Functions should be organized in a way that makes the list of functions understandable to the customer or to anyone else reading the document for the first time

c) Textual or graphical methods can be used to show the different functions and their relationships

- Such a diagram is not intended to show a design of a product, but simply shows the logical relationships among variables

2.3 User Characteristics

a) Describe those general characteristics of the intended users of the product including educational level, experience, and technical expertise

b) Do not state specific requirements, but rather provide the reasons why certain specific requirements are later specified

2.4 Constraints

a) Provide a general description of any other items that will limit the developer's options

2.5 Assumptions and Dependencies

a) List each of the factors that affect the requirements stated in the SRS

b) These factors are not design constraints on the software but are, rather, any changes to them that can affect the requirements in the SRS

- **Example**: An assumption may be that a specific operating system will be available on the hardware designated for the software product. If, in fact, the operating system is not available, the SRS would then have to change accordingly.

2.6 Apportioning of Requirements

a) Identify requirements that may be delayed until future versions of the system

3 Use Case Diagram

This section should provide a use case diagram for your application.

a) Each use case appearing in the diagram should be accompanied by a text description.

4 Functional Requirements

BE1. Customer creates new user profile

VP1.1 Customers

S1 System asks for customer's information (full name, email or phone number, username, password, riding/ social preferences)

E1 Customer must input their information in all mandatory fields (full name, email or phone number, username, password) and optional fields (riding/ social preferences) if they choose

E1.1 Username, email, and phone number must be unique

S2 System asks customer to verify email or phone number

E2 Customer verifies email or phone number

S3 System registers customer profile as user in system

VP1.2 Taxi company

S1 System sends new user data to taxi company

E1 Taxi company logs data in their database

VP1.3 Taxi drivers

N/A

VP1.4 Investors

S1 Every new 1000 sign-ups, system sends notification to investors

VP1.5 Legal

S1 System securely stores user data to comply with GDPR privacy

Global Scenario for BE1

S1 System asks for customer's information (username, password, email or phone number, riding/social preferences)

E1 Customer must input their information in all mandatory fields (full name, username, email, password, phone number) and optional fields (riding/social preferences) if they choose

E1.1 Username, email, and phone number must be unique

S2 System asks customer to verify email or phone number

E2 Customer verifies email or phone number

S3 System registers customer profile as user in system

S3.1 System sends new user data to taxi company

E3.1 Taxi company logs data in their database

S3.2 Every new 1000 sign-ups, system sends notification to investors

S3.3 System securely stores user data to comply with GDPR privacy

BE2. User edits their profile

VP2.1 Customers

S1 System asks customer to authenticate themselves

E1 Customer completes authentication process

S2 System displays all fields (full name, username, email, phone number, riding/social preferences) of user profile

E2.1 Customer edits desired fields

E2.2 Customer saves edits, given that all mandatory fields are filled

S3 System updates user profile

VP2.2 Taxi company

S1 System sends updated user data to taxi company

E1 Taxi company logs updated information in their database

VP2.3 Taxi drivers

N/A

VP2.4 Investors

N/A

VP2.5 Legal

S1 System securely stores user data to comply with GDPR privacy

Global Scenario for BE2

S1 System asks customer to authenticate themselves

E1 Customer completes authentication process

S2 System displays all fields (full name, username, email, phone number, riding/social preferences) of user profile

E2.1 Customer edits desired fields

E2.2 Customer saves edits, given that all mandatory fields are filled

S3 System updates user profile

S3.1 System sends updated user data to taxi company

E3.1 Taxi company logs updated information in their database

S3.2 System securely stores user data to comply with GDPR privacy

BE3. Taxi carpool is requested

VP3.1 Customers

S1 System asks customers to input their destination

E1 Customer inputs destination

S2 System allows customers to sort carpools by search criteria (nearest cab, highest rating, friends first, number of people in carpool)

E2 Customer selects taxi to send their carpool request to

S3.1 Customers are returned to selection phase (i.e. after inputting destination) if request is denied, branch to S2

S3.2 Customers notified if request is accepted

E3 Customers can track location of designated cab

VP3.2 Taxi company

S1 System notifies taxi company of new carpool

E1 Taxi company computes estimated payment split (i.e. based on their fares)

VP3.3 Taxi drivers

N/A

VP3.4 Investors

N/A

VP3.5 Legal

N/A

Global Scenario for BE3

S1 System asks customers to input their destination

E1 Customer inputs destination

S2 System notifies taxi company of new carpool

E2 Taxi company computes estimated payment split (i.e. based on their fares)

S3 System allows customers to sort carpools by search criteria (nearest cab, highest rating, friends first, number of people in carpool)

E3 Customer selects taxi to send their carpool request to

S3.1 Customers are returned to selection phase (i.e. after inputting destination) if request is denied, branch to S2

S3.2 Customers notified if request is accepted

E4 Customers can track location of designated cab

BE4. Taxi carpool is offered

VP4.1 Customers

S1 System asks customers to scan QR code

E1 Customer scans QR code

S2 System asks customer to input destination, taxi ID, maximum number of customers to share with, and ride preferences

E2 Customer inputs destination, taxi ID, maximum number of customers to share with, and ride preferences

S3 Dispatcher returns potential match, displaying updated estimated fare, distance, time, and optimality measure

E3.1 Customer accepts match

E3.2 Customer rejects match, return to S3

E3.3 Customer aborts offer mode

S4 System matches users

VP4.2 Taxi company

S1 New offer sent to dispatcher

E1 Dispatcher stores offer in pool of live offers

VP4.3 Taxi drivers

S1 Driver is given pick-up location and directions (i.e. detour) for new customer in carpool

E1 Driver follows directions of detour to pick-up carpooler

S2 Once detour is complete and carpooler is in the taxi, system displays original destination with updated directions

VP4.4 Investors

N/A

VP4.5 Legal

N/A

Global Scenario for BE4

S1 New offer sent to dispatcher

E1 Dispatcher stores offer in pool of live offers

S2 System asks customers to scan QR code

E2 Customer scans QR code

S3 System asks customer to input destination, taxi ID, maximum number of customers to share with, and ride preferences

E3 Customer inputs destination, taxi ID, maximum number of customers to share with, and ride preferences

S4 Dispatcher returns potential match, displaying updated estimated fare, distance, time, and optimality measure

E4.1 Customer accepts match

S4.1.1 Driver is given pick-up location and directions (i.e. detour) for new customer in carpool

E4.1.1 Driver follows directions of detour to pick-up carpooler

S4.1.2 Once detour is complete and carpooler is in the taxi, system displays original destination with updated directions

E4.2 Customer rejects match, return to S3

E4.3 Customer aborts offer mode

S5 System matches users

BE5. Taxi carpool arrives at destination

VP5.1 Customers

S1 System displays fare to each customer

E1 Customer pay taxi driver

S2 Once payment approved, system prompts customer to rate, out of 5 stars, the other customers they shared a ride with, with an option to leave a review

E2 Customers input rating and optional review

S3 System stores rating and review in customers' profile

VP5.2 Taxi company

E1 Drivers obtain payment from customers

E2 Driver inputs that payment is complete

VP5.3 Taxi drivers

E1 Driver obtains payment from customers

E2 Driver inputs into system that payment is complete

S2 System logs end of carpool

VP5.4 Investors

S1 Every new 10 000 completed carpools, system sends notification to investors

VP5.5 Legal

N/A

Global Scenario for BE5

S1 System displays fare to each customer

E1 Customer pay taxi driver

E1.1 Drivers obtain payment from customers

E1.2 Driver input that payment is complete

S2 Once payment approved, system prompts customer to rate, out of 5 stars, the other customers they shared a ride with, with an option to leave a review

E2 Customers input rating and optional review

S3 System stores rating and review in customers' profile

S4 System logs end of carpool

E4.1 Every new 10 000 completed carpools, system sends notification to investors

BE6. User activates emergency button

VP6.1 Customers

S1 System runs procedure to ensure activation of emergency button is not accidental

E1.1 Customer exits emergency mode

S1.1 App is returned to normal home screen, end of business event
E1.2 Customer responds to procedure, confirming that it is intentional
S2 Customer connected to 911 dispatcher
E3 Customer completes call with 911 dispatcher
S3 App remains in emergency mode, emergency call button easily accessible
E4 Customer inputs that emergency has been dealt with
S4 App is returned to normal home screen

VP6.2 Taxi company

S1 System shows that emergency activated in new taxi
E1 Taxi company monitors emergency-activated taxis

VP6.3 Taxi drivers

E1.1 Taxi driver activates emergency mode
S1.1 System connects taxi driver to 911 dispatcher
E2.1 Call with 911 dispatcher complete
S2.1 System remains in emergency mode
E3.1 Driver notifies system that emergency is taken care of, branch to S3
E1.2 Customer notifies system of emergency
S1.2 System is in emergency mode, driver can still see directions.
E2.2 Emergency is taken care of, branch to S3
S3 System returns to normal mode

VP6.4 Investors

N/A

VP6.5 Legal

S1 System notifies local emergency services of emergency call
E1 Emergency services connect app caller to emergency dispatcher
S2 System sends taxi tracking information to emergency dispatcher

Global Scenario for BE6

S1 System runs procedure to ensure activation of emergency button is not accidental
E1.1 Customer exits emergency mode
S1.1 App is returned to normal home screen, end of business event
E1.2 Customer responds to procedure, confirming that it is intentional
S2 Customer connected to 911 dispatcher
S2.1 System notifies local emergency services of emergency call
S2.2 System shows that emergency activated in new taxi
E2.2 Taxi company monitors emergency-activated taxis
E3 Customer completes call with 911 dispatcher
S3 App remains in emergency mode, emergency call button easily accessible
E4 Customer inputs that emergency has been dealt with
S4 App is returned to normal home screen
S5 Taxi driver activates emergency mode
S5.1 System connects taxi driver to 911 dispatcher
E5.1 Call with 911 dispatcher complete
S5.2 System remains in emergency mode
E5.2 Driver notifies system that emergency is taken care of, branch to S3
E1.2 Customer notifies system of emergency

S1.2 System is in emergency mode, driver can still see directions.
E2.2 Emergency is taken care of, branch to S3
S3 System returns to normal mode

BE7. Carpoolers activate prompts

VP7.1 Customers
S1 Carpool has started
E1 Customers indicate that they want to enter prompts mode
S2 Random prompt is generated
E2.1 Customers interact between each other based on prompt
E2.2 Customers select new prompt, branch to S2
E2.3 Customers exit prompt mode, branch to S3
S3 System returns to home screen

VP7.2 Taxi company
N/A

VP7.3 Taxi drivers
E1 Driver begins commute once new customer is seated in taxi
S1 System registers that carpool has started

VP7.4 Investors
N/A

VP7.5 Legal
N/A

Global Scenario for BE7
S1 Carpool has started
E1 Driver begins commute once new customer is seated in taxi
S2 System registers that carpool has started
E2 Customers indicate that they want to enter prompts mode
S3 Random prompt is generated
E3.1 Customers interact between each other based on prompt
E3.2 Customers select new prompt, branch to S2
E3.3 Customers exit prompt mode, branch to S3
S4 System returns to home screen

5 Non-Functional Requirements

5.1 Look and Feel Requirements

5.1.1 Appearance Requirements

LF1.

5.1.2 Style Requirements

LF1.

5.2 Usability and Humanity Requirements

5.2.1 Ease of Use Requirements

UH1.

5.2.2 Personalization and Internationalization Requirements

UH1.

5.2.3 Learning Requirements

UH1.

5.2.4 Understandability and Politeness Requirements

UH1.

5.2.5 Accessibility Requirements

UH1.

5.3 Performance Requirements

5.3.1 Speed and Latency Requirements

PR1.

5.3.2 Safety-Critical Requirements

PR1.

5.3.3 Precision or Accuracy Requirements

PR1.

5.3.4 Reliability and Availability Requirements

PR1.

5.3.5 Robustness or Fault-Tolerance Requirements

PR1.

5.3.6 Capacity Requirements

PR1.

5.3.7 Scalability or Extensibility Requirements

PR1.

5.3.8 Longevity Requirements

PR1.

5.4 Operational and Environmental Requirements

5.4.1 Expected Physical Environment

OE1.

5.4.2 Requirements for Interfacing with Adjacent Systems

OE1.

5.4.3 Productization Requirements

OE1.

5.4.4 Release Requirements

OE1.

5.5 Maintainability and Support Requirements

5.5.1 Maintenance Requirements

MS1.

5.5.2 Supportability Requirements

MS1.

5.5.3 Adaptability Requirements

MS1.

5.6 Security Requirements

5.6.1 Access Requirements

SR1.

5.6.2 Integrity Requirements

SR1.

5.6.3 Privacy Requirements

SR1.

5.6.4 Audit Requirements

SR1.

5.6.5 Immunity Requirements

SR1.

5.7 Cultural and Political Requirements

5.7.1 Cultural Requirements

CP1.

5.7.2 Political Requirements

CP1.

5.8 Legal Requirements

5.8.1 Compliance Requirements

LR1.

5.8.2 Standards Requirements

LR1.

A Division of Labour

Include a Division of Labour sheet which indicates the contributions of each team member. This sheet must be signed by all team members.

IMPORTANT NOTES

- Be sure to include all sections of the template in your document regardless whether you have something to write for each or not
  - If you do not have anything to write in a section, indicate this by the *N/A*, *void*, *none*, etc.
- Uniquely number each of your requirements for easy identification and cross-referencing
- Highlight terms that are defined in Section 1.3 (**Definitions, Acronyms, and Abbreviations**) with **bold**, *italic* or underline
- For Deliverable 1, please highlight, in some fashion, all (you may have more than one) creative and innovative features. Your creative and innovative features will generally be described in Section 2.2 (**Product Functions**), but it will depend on the type of creative or innovative features you are including.