

Deliverable #1 Template : Software Requirement Specification (SRS)

SE 3A04: Software Design II – Large System Design

Tutorial Number: T0x

Group Number: Gx

Group Members:

- Group Member Name (as listed in Avenue)
- You do not need to use student #s or macid (keep those private).

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.

1 Introduction

- Provide an overview of the document/SRS.

1.1 Purpose

- Specify the purpose of the SRS.
- Specify the intended audience for the SRS.

1.2 Scope

- Identify the software product(s) to be produced, and name each (e.g., Host DBMS, Report Generator, etc.)
- Explain what the software product(s) will do (and, if necessary, also state what they will not do).
- Describe the application of the software being specified, including relevant benefits, objectives, and goals.

1.3 Definitions, Acronyms, and Abbreviations

- Provide the definitions of all terms, acronyms, and abbreviations required to properly interpret the SRS.
- This should be in alphabetical order.

1.4 References

- Provide a complete list of all documents referenced elsewhere in the SRS.
- Identify each document by title, report number (if applicable), date, and publishing organization.
- Specify the sources from which the references can be obtained.
- Order this list in some sensible manner (alphabetical by author, or something else that makes more sense).

1.5 Overview

- Describe what the remainder of the document/SRS contains.
(e.g. "Section 2 discusses...Section 3...")

2 Overall Product Description

- This section 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

- Put the product into perspective with other related products, i.e., context
- If the product is independent and totally self-contained, it should be stated here
- If the SRS defines a product that is a component of a larger system, then this subsection should relate the requirements of that larger system to the functionality of the software being developed. Identify interfaces between that larger system and the software to be developed.
- A block diagram showing the major components of the larger system, interconnections, and external interfaces can be helpful

2.2 Product Functions

- 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.
- 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
- Present the functions in a list format - each item should be one function, with a brief description of it
- 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

- Describe those general characteristics of the intended users of the product including educational level, experience, and technical expertise
- Since there will be many users, you may wish to divide into different user types or personas

2.4 Constraints

- Provide a general description of any constraints that will limit the developer's options

2.5 Assumptions and Dependencies

- List any assumptions you made in interpreting what the software being developed is aiming to achieve
- List any other assumptions you made that, if it fails to hold, could require you to change the requirements
 - **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

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

3 Use Case Diagram

- Provide the use case diagram for the system being developed.
- You do not need to provide the textual description of any of the use cases here (these will be specified under "Highlights of Functional Requirements").

4 Highlights of Functional Requirements

- Specify all use cases (or other scenarios triggered by other events), organized by Business Event.
- For each Business Event, show the scenario from every Viewpoint. You should have the same set of Viewpoints across all Business Events. If a Viewpoint doesn't participate, write N/A so we know you considered it still. You can choose how to present this - keep in mind it should be easy to follow.
- At the end, combine them all into a Global Scenario.
- Your focus should be on what the system needs to do, not how to do it. Specify it in enough detail that it clearly specifies what needs to be accomplished, but not so detailed that you start programming or making design decisions.
- Keep the length of each use case (Global Scenario) manageable. If it's getting too long, split into sub-cases.
- You are *not* specifying a complete and consistent set of functional requirements here. (i.e. you are providing them in the form of use cases/global scenarios, not a refined list). For the purpose of this project, you do not need to reduce them to a list; the global scenarios format is all you need.
- Red text below is just to highlight where you need to insert a scenario - don't actually write it all in red.

Main Business Events:

The business events considered include:

- BE1 Request a deal valuation based on drop down menu input
- BE2 Request a deal valuation based on image and required text input
- BE3 Request a deal valuation with text description
- BE4 Request a depreciation curve for a previous car deal report
- BE5 Request a deal valuation based on text, drop down, and image input
- BE6 Request a car recommendation based on text information provided
- BE7 Request comparison between two or more car deals
- BE8 Account creation
- BE9 Account login

Viewpoints:

The viewpoints considered include:

- VP1 Users
- VP2 Customer Support (DealCheck)

- VP3 Marketing (DealCheck)
- VP4 Car Manufacturers
- VP5 Car Dealerships

Interpretation: Specify any liberties you took in interpreting business events, if necessary.

BE1. Business Event Name #1

VP1. Viewpoint Name #1
Insert Scenario Here

VP2. Viewpoint Name #2
Insert Scenario Here

Global Scenario:
Insert Scenario Here

BE2. Business Event Name #2

VP1. Viewpoint Name #1
Insert Scenario Here

VP2. Viewpoint Name #2
Insert Scenario Here

Global Scenario:
Insert Scenario Here

BE3. Business Event Name #2

VP1. Viewpoint Name #1
Insert Scenario Here

VP2. Viewpoint Name #2
Insert Scenario Here

Global Scenario:
Insert Scenario Here

BE4. Business Event Name #2

VP1. Viewpoint Name #1
Insert Scenario Here

VP2. Viewpoint Name #2
Insert Scenario Here

Global Scenario:
Insert Scenario Here

BE5. Request a deal valuation based on text, drop down, and image input #5

Precondition: User does not have an ongoing request within the system. Additionally, the user has completed the input form fully. This means that an image, text description, and drop-down text-based inputs have been provided.

VP1. User #1
Main Success Scenario
1. User opens DealCheck application

2. User logs in to account
3. User selects “Check New Vehicle”
4. User enters relevant drop-down information (make, model, year, location)
5. User uploads image of vehicle
6. User provides textual description of any issues with the vehicle as well as any additional relevant information not requested via the drop-downs.
7. User presses the ‘Submit’ button
8. System consults with the generative AI model, a points-based algorithm, and a database of historical data.
9. System compiles results from 3 sources into one, comprehensive valuation of the vehicle.
10. System returns results to the user.
11. User saves the query by pressing ‘Save information’.

Secondary Scenario

- 3i. User does not fill out drop-down inputs.
 - 3i.1 User neglects to fill out all drop-down inputs.
 - 3i.2 Query failed.
- 5i. User provides insufficient textual description.
 - 5i.1 System does not attempt to find common phrases inside the textual description nor prompt a large language model with it.
 - 5i.2 System notifies the user that textual input was insufficient.
- 6i. System loses internet connection upon form submission.
 - 6i.1 System is unable to perform the request and must stop.
 - 6i.2 System fails.
- 7i. System is unable to reach the generative AI model.
 - 7i.1 System queries the points-based algorithm and the database.
 - 7i.2 System notifies the user that the AI model was unavailable, therefore the image was not analyzed.
- 7ii. System is unable to interpret the image submitted by the user.
 - 7ii.1 System instead queries the points-based algorithm and the database.
 - 7ii.2 System fails image analysis.

VP2. Customer Support (DealCheck) #2

- 6i. System should provide an error page to indicate loss of internet connection.
- 7i. System provides notification to users that the AI agent was unable to be contacted and recommends trying at another time.
- 7ii. System should provide users with guidelines for proper image submission.

VP3. Marketing (DealCheck) #3

- 9i. System should provide suggestions of similar vehicles that have historically better prices.

VP4. Car Manufacturers #4

NA

VP5. Car dealership staff #5

NA

Global Scenario:

Precondition: User does not have an ongoing request within the system. Additionally, the user has completed the input form fully. This means that an image, text description, and drop-down text-based inputs have been provided.

Main Success Scenario

1. User opens DealCheck application
2. User logs in to account
3. User selects “Check New Vehicle”
4. User enters relevant drop-down information (make, model, year, location)
5. User uploads image of vehicle
6. User provides textual description of any issues with the vehicle as well as any additional relevant information not requested via the drop-downs.
7. User presses the ‘Submit’ button
8. System consults with the generative AI model, a points-based algorithm, and a database of historical data.
9. System compiles results from 3 sources into one, comprehensive valuation of the vehicle.
10. System returns results to the user.
11. User saves the query by pressing ‘Save information’.

Secondary Scenario

- 3i. User does not fill out drop-down inputs.
 - 3i.1 User neglects to fill out all drop-down inputs.
 - 3i.2 Query failed.
- 5i. User provides insufficient textual description.
 - 5i.1 System does not attempt to find common phrases inside the textual description nor prompt a large language model with it.
 - 5i.2 System notifies the user that textual input was insufficient.
- 6i. System loses internet connection upon form submission.
 - 6i.1 System is unable to perform the request and must stop.
 - 6i.2 System fails.
- 7i. System is unable to reach the generative AI model.
 - 7i.1 System queries the points-based algorithm and the database.
 - 7i.2 System notifies the user that the AI model was unavailable, therefore the image was not analyzed. System recommends attempting the AI analysis at another time due to the LLM being unavailable.
- 7ii. System is unable to interpret the image submitted by the user.
 - 7ii.1 System instead queries the points-based algorithm and the database.
 - 7ii.2 System notifies the user that the image was not able to be interpreted, and prompts the user with the guidelines for proper image submission (e.g. entire vehicle is within the photo)

BE6. Business Event Name #2

VP1. Viewpoint Name #1

Insert Scenario Here

VP2. Viewpoint Name #2

Insert Scenario Here

Global Scenario:

Insert Scenario Here

BE7. Business Event Name #2

VP1. Viewpoint Name #1

Insert Scenario Here

VP2. Viewpoint Name #2

Insert Scenario Here

Global Scenario:

Insert Scenario Here

BE8. Login #8

Precondition: User has an existing account with the DealCheck application. User is not currently logged in or authenticated to the DealCheck application.

VP1. User #1

Main Success Scenario

1. User opens DealCheck application
2. User presses the “Login” button.
3. User enters username.
4. User enters password.
5. User submits the form.
6. System authenticates the user.
7. System admits the user to the application.

Secondary Scenario

- 3i. User forgets username
 - 3i.1 System prompts the user to input their email they signed up with.
 - 3i.2 System sends email to the user containing a username reset link.
 - 3i.3 User resets username and re-attempts login.
- 4i. User forgets password.
 - 4i.1 System prompts the user to input their email they signed up with.
 - 4i.2 System sends email to the user containing a password reset link.
 - 4i.3 User resets password and re-attempts login.
- 6i. System loses internet connection upon form submission.
 - 6i.1 System is unable to perform the request and must stop.
 - 6i.2 System fails.

VP2. Customer Support (DealCheck) #2

- 4i. System should prompt the user to create a secure password when resetting their password.

VP3. Marketing (DealCheck) #3

- 7i. The system should alert user of new features once they have logged in to inform them of anything that may have changed.

VP4. Car Manufacturers #4

NA

VP5. Car dealership staff #5

NA

Global Scenario:

Precondition: User has an existing account with the DealCheck application. User is not currently logged in or authenticated to the DealCheck application.

Main Success Scenario

1. User opens DealCheck application
2. User presses the “Login” button.
3. User enters username.
4. User enters password.
5. User submits the form.
6. System authenticates the user.
7. System admits the user to the application.
8. System notifies user regarding new features of the application if they exist.

Secondary Scenario

- 3i. User forgets username
 - 3i.1 System prompts the user to input their email they signed up with.
 - 3i.2 System sends email to the user containing a username reset link.
 - 3i.3 User resets username and re-attempts login.
- 4i. User forgets password.
 - 4i.1 System prompts the user to input their email they signed up with.
 - 4i.2 System sends email to the user containing a password reset link.
 - 4i.3 System prompts user to create a secure password.
 - 4i.4 User resets password and re-attempts login.
- 6i. System loses internet connection upon form submission.
 - 6i.1 System is unable to perform the request and must stop.
 - 6i.2 System fails.

5 Non-Functional Requirements

5.1 Look and Feel Requirements

5.1.1 Appearance Requirements

LF-A1.

5.1.2 Style Requirements

LF-S1.

5.2 Usability and Humanity Requirements

5.2.1 Ease of Use Requirements

UH-EOU1.

5.2.2 Personalization and Internationalization Requirements

UH-PI1.

5.2.3 Learning Requirements

UH-L1.

5.2.4 Understandability and Politeness Requirements

UH-UP1.

5.2.5 Accessibility Requirements

UH-A1.

5.3 Performance Requirements

5.3.1 Speed and Latency Requirements

PR-SL1.

5.3.2 Safety-Critical Requirements

PR-SC1.

5.3.3 Precision or Accuracy Requirements

PR-PA1.

5.3.4 Reliability and Availability Requirements

PR-RA1.

5.3.5 Robustness or Fault-Tolerance Requirements

PR-RFT1.

5.3.6 Capacity Requirements

PR-C1.

5.3.7 Scalability or Extensibility Requirements

PR-SE1.

5.3.8 Longevity Requirements

PR-L1.

5.4 Operational and Environmental Requirements

5.4.1 Expected Physical Environment

OE-EPE1.

5.4.2 Requirements for Interfacing with Adjacent Systems

OE-IA1.

5.4.3 Productization Requirements

OE-P1.

5.4.4 Release Requirements

OE-R1.

5.5 Maintainability and Support Requirements

5.5.1 Maintenance Requirements

MS-M1.

5.5.2 Supportability Requirements

MS-S1.

5.5.3 Adaptability Requirements

MS-A1.

5.6 Security Requirements

5.6.1 Access Requirements

SR-AC1.

5.6.2 Integrity Requirements

SR-INT1.

5.6.3 Privacy Requirements

SR-P1.

5.6.4 Audit Requirements

SR-AU1.

5.6.5 Immunity Requirements

SR-IM1.

5.7 Cultural and Political Requirements

5.7.1 Cultural Requirements

CP-C1.

5.7.2 Political Requirements

CP-P1.

5.8 Legal Requirements

5.8.1 Compliance Requirements

- LR-COMP1. Any information collected from a user of the application must be kept protected at all times. This requirement is even more elevated when considering the storage of personal information and other highly-sensitive data. Rationale: (Pipeda-1, Accountability)
- LR-COMP2. The application shall not collect any unneeded information from users, and there shall be a strict set of data collected that will be communicated with the user. Rationale: (Pipeda-2, Purpose Identification)
- LR-COMP3. The application shall provide users with a comprehensive list of all personal data the application holds. Rationale: (Pipeda-2, Purpose Identification)

- LR-COMP4. The application shall request that the user agree to the data policy of the application prior to any use of the application. Rationale: (Pipeda-3, Valid, Informed Consent)
- LR-COMP5. The application shall have a standard for disposal of personal information after a given period of time. Additionally, the application shall limit disclosure of user data to any necessary third parties. Finally, the application shall not disclose data to any non-authorized third parties. Rationale: (Pipeda-5, Limit disclosure, use, retention)
- LR-COMP6. All personal data with an associated sensitivity risk (e.g. passwords) shall be stored in an encrypted fashion to limit any risk of loss or theft. Rationale: (Pipeda-7, Use appropriate safeguards)
- LR-COMP7. The privacy policy of the application shall be explained in clear language and not be of extreme length. There shall be a concise list of all data and connections to other services the application requires that will be provided to all users upon account creation. Rationale: (Pipeda-8, Be open)

5.8.2 Standards Requirements

- LR-STD1. The application should meet the color contrast, image and media alternatives, and other relevant accessibility requirements as set out by the W3C. [SOURCE]
- LR-STD2. The application shall conform with the screen reader guidelines set out by Google in their Android instructions in order for accessibility for visually impaired users.
- LR-STD3. The application shall follow standard navigation practices for mobile apps - such as a standard back arrow - as outlined by Google in their Android development instructions. This will ensure users are able to easily use the application.
- LR-STD4. The application shall conform to Google's standards for notifications. This includes managing notification priority, ensuring notifications are not used for advertisements, and grouping similar notifications together.

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.