Software Requirements Specification for Software Engineering: subtitle describing software

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Contents

Revision History

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

1 Purpose of the Project

1.1 User Business

Insert your content here.

1.2 Goals of the Project

Insert your content here.

2 Stakeholders

2.1 Client

Insert your content here.

2.2 Customer

Insert your content here.

2.3 Other Stakeholders

Insert your content here.

2.4 Hands-On Users of the Project

Insert your content here.

2.5 Personas

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2.6 Priorities Assigned to Users

Insert your content here.

2.7 User Participation

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2.8 Maintenance Users and Service Technicians

Insert your content here.

3 Mandated Constraints

3.1 Solution Constraints

Insert your content here.

3.2 Implementation Environment of the Current System

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3.3 Partner or Collaborative Applications

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3.4 Off-the-Shelf Software

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3.5 Anticipated Workplace Environment

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3.6 Schedule Constraints

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3.7 Budget Constraints

Insert your content here.

3.8 Enterprise Constraints

Insert your content here.

4 Naming Conventions and Terminology

4.1 Glossary of All Terms, Including Acronyms, Used by Stakeholders involved in the Project

Insert your content here.

5 Relevant Facts And Assumptions

5.1 Relevant Facts

Insert your content here.

5.2 Business Rules

Insert your content here.

5.3 Assumptions

Insert your content here.

6 The Scope of the Work

6.1 The Current Situation

Insert your content here.

6.2 The Context of the Work

Insert your content here.

6.3 Work Partitioning

Insert your content here.

6.4 Specifying a Business Use Case (BUC)

Insert your content here.

7 Business Data Model and Data Dictionary

7.1 Business Data Model

Insert your content here.

7.2 Data Dictionary

Insert your content here.

8 The Scope of the Product

8.1 Product Boundary

Insert your content here.

8.2 Product Use Case Table

Insert your content here.

8.3 Individual Product Use Cases (PUC's)

Insert your content here.

9 Functional Requirements

9.1 Data Input Requirements

FR-1. The system shall allow the user to input new experiment data or parameters.

FR-2. The system shall store experiment data in the database with all associated parameters and values correctly labelled.

9.2 Data Migration and Organization Requirements

FR-3. The system shall read existing experiment data stored in .CSV files.

FR-4. The system shall migrate existing experiment data into the database.

FR-5. The system shall organize experiment data by timestamps and experiment ID for unique identification.

9.3 Data Search and Query Requirements

FR-6. The system shall allow the user to search for specific datasets based on different parameters.

FR-7. The system shall allow the user to query two or more parameters or datasets for comparison and analysis.

FR-8. The system shall display the results of a user's selected search or query in a format that is readable to the user.

9.4 Data Visualization Requirements

FR-9. The system shall generate visual graphs based on selected parameters and datasets.

FR-10. The system shall allow the user to customize the data visualization by adjusting axes, data ranges, labels, etc.

9.5 Data Analysis Requirements

FR-11. The system shall analyze patterns and trends in the experiment data based on the user's selected parameters.

FR-12. The system shall use machine learning algorithms to predict and interpolate the data.

9.6 Error Tracking Requirements

This section outlines functional requirements for one of the project's stretch goals.

FR-13. The system shall track and log errors in the experiment data.

9.7 User Access Management Requirements

This section outlines functional requirements for one of the project's stretch goals.

FR-14. The system shall allow the user to sign in with valid credentials.

9.8 Data Export Requirements

This section outlines functional requirements for one of the project's stretch goals.

FR-15. The system shall generate a report of queries in a session for the user to save or download.

10 Look and Feel Requirements

10.1 Appearance Requirements

Insert your content here.

10.2 Style Requirements

Insert your content here.

11 Usability and Humanity Requirements

11.1 Ease of Use Requirements

Insert your content here.

11.2 Personalization and Internationalization Requirements

Insert your content here.

11.3 Learning Requirements

Insert your content here.

11.4 Understandability and Politeness Requirements

Insert your content here.

11.5 Accessibility Requirements

Insert your content here.

12 Performance Requirements

12.1 Speed and Latency Requirements

1. The system shall store new data or parameters within 60 seconds of input.
2. The system shall retrieve data from the database within 50ms for typical search and queries.
3. The interaction between the interface and the user shall have a maximum response time of 2 seconds.
4. The system shall have a maximum latency of 2 seconds for typical search and queries.
5. The system shall generate a visualization of the data within 5 seconds.

12.2 Safety-Critical Requirements

The product does not have safety-critical requirements to consider.

12.3 Precision or Accuracy Requirements

1. All parameter values shall be accurate to four decimal places.
2. All timestamps of experiment data shall be accurate to milliseconds.
3. Values on visual data plots shall be accurate to four decimal places.

12.4 Robustness or Fault-Tolerance Requirements

1. The application shall not terminate but display an error message if it loses connection to the backend server.
2. The application shall provide basic functionality if it loses connection to the internet.

12.5 Capacity Requirements

1. The application shall allow for up to three simultaneous users.
2. The system shall store up to x amount of data.

12.6 Scalability or Extensibility Requirements

1. The system shall be able to process and store the existing data. The amount of data going into the system is expected to grow until the experiment study comes to an end.
2. The system shall be able to add additional parameters that did not previously exist in the database at the discretion of the user.

12.7 Longevity Requirements

1. The system shall operate for the duration of the experiment study.

13 Operational and Environmental Requirements

13.1 Expected Physical Environment

1. The system shall operate in a typical office environment with internet connectivity.
2. The system shall be compatible with a desktop and laptop environment.

13.2 Wider Environment Requirements

Insert your content here.

13.3 Requirements for Interfacing with Adjacent Systems

1. The system shall operate on the most recent versions of Google Chrome and Apple Safari.

13.4 Productization Requirements

1. The system shall be distributed as a web application.
2. The system shall have an easy onboarding process with user documentation.

13.5 Release Requirements

1. The first version of the system shall be released once project completion is reached.

14 Maintainability and Support Requirements

14.1 Maintenance Requirements

Insert your content here.

14.2 Supportability Requirements

Insert your content here.

14.3 Adaptability Requirements

Insert your content here.

15 Security Requirements

15.1 Access Requirements

Insert your content here.

15.2 Integrity Requirements

Insert your content here.

15.3 Privacy Requirements

Insert your content here.

15.4 Audit Requirements

Insert your content here.

15.5 Immunity Requirements

Insert your content here.

16 Cultural Requirements

16.1 Cultural Requirements

Insert your content here.

17 Compliance Requirements

17.1 Legal Requirements

Insert your content here.

17.2 Standards Compliance Requirements

Insert your content here.

18 Open Issues

Insert your content here.

19 Off-the-Shelf Solutions

19.1 Ready-Made Products

Insert your content here.

19.2 Reusable Components

Insert your content here.

19.3 Products That Can Be Copied

Insert your content here.

20 New Problems

20.1 Effects on the Current Environment

Insert your content here.

20.2 Effects on the Installed Systems

Insert your content here.

20.3 Potential User Problems

Insert your content here.

20.4 Limitations in the Anticipated Implementation Environment That May Inhibit the New Product

Insert your content here.

20.5 Follow-Up Problems

Insert your content here.

21 Tasks

21.1 Project Planning

Insert your content here.

21.2 Planning of the Development Phases

Insert your content here.

22 Migration to the New Product

22.1 Requirements for Migration to the New Product

Insert your content here.

22.2 Data That Has to be Modified or Translated for the New System

Insert your content here.

23 Costs

Insert your content here.

24 User Documentation and Training

24.1 User Documentation Requirements

Insert your content here.

24.2 Training Requirements

Insert your content here.

25 Waiting Room

Insert your content here.

26 Ideas for Solution

Insert your content here.

Appendix — Reflection

The information in this section will be used to evaluate the team members on the graduate attribute of Lifelong Learning. Please answer the following questions:

1. What knowledge and skills will the team collectively need to acquire to successfully complete this capstone project? Examples of possible knowledge to acquire include domain specific knowledge from the domain of your application, or software engineering knowledge, mechatronics knowledge or computer science knowledge. Skills may be related to technology, or writing, or presentation, or team management, etc. You should look to identify at least one item for each team member.

2. For each of the knowledge areas and skills identified in the previous question, what are at least two approaches to acquiring the knowledge or mastering the skill? Of the identified approaches, which will each team member pursue, and why did they make this choice?