

# Software Requirements Specification for Software Engineering: subtitle describing software

Team #22, TeleHealth Insights

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## 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**

*Insert your content here.*

## **2.6 Priorities Assigned to Users**

*Insert your content here.*

## **2.7 User Participation**

*Insert your content here.*

## **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**

*Insert your content here.*

## **3.3 Partner or Collaborative Applications**

*Insert your content here.*

## **3.4 Off-the-Shelf Software**

*Insert your content here.*

## **3.5 Anticipated Workplace Environment**

*Insert your content here.*

## **3.6 Schedule Constraints**

*Insert your content here.*

## **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 Authentication**

**FR-A1:** The system shall allow a user to choose between a Parent or Clinician account prior to logging in.

**Rationale:** Users must be associated with the correct permissions determined by their role, which includes the level of information they have access to.

**Fit criterion:** Users must be able to directly select their account type prior to logging in.

**FR-A2:** The system shall allow a user to create a parent account with a unique username which does not exist in the database.

**Rationale:** Users must be able to create a unique account for parents to login for the assessment.

**Fit criterion:** Users cannot create accounts with usernames that already exist in the database.

**FR-A3:** The system shall allow a user with admin privilege to create a clinician account with a unique username which does not exist in the database.

**Rationale:** Admin-Users must be able to create a unique account for clinicians to login to view assessment results. Clinicians need to be approved by Admin-Users to have a clinician account.

**Fit criterion:** Users cannot create clinician accounts, without admin access, with usernames that already exist in the database.

**FR-A4:** The system shall allow a user with a unique username to login with their corresponding password.

**Rationale:** Users must be able to login to their account to restrict others from accessing their assessment or assessment results.

**Fit criterion:** Users must be able to provide the corresponding password to their unique username to login and successfully enter the system.

**FR-A5:** The system shall allow a user to logout.

**Rationale:** Users must be able to logout of their account to restrict others from accessing their information.

**Fit criterion:** Users must be able to logout and successfully exit the system.

## 9.2 System Setup

**FR-SS1:** The system shall allow a user to view information about the assessment.

**Rationale:** Users must be informed about relevant assessment information prior to starting the hardware checks.

**Fit criterion:** Users must be able to view information about the assessment upon logging in.

**FR-SS2:** The system shall allow a user to perform an audio hardware check.

**Rationale:** Users must be able to perform an audio equipment check to ensure their input and output audio devices are functioning.

**Fit criterion:** Users must be able to verify their audio devices are functioning with the system.

**FR-SS3:** The system shall allow a user to perform a video hardware check.

**Rationale:** Users must be able to perform a video equipment check to ensure their video capturing device is functioning.

**Fit criterion:** Users must be able to verify their video capturing device is functioning with the system.

**FR-SS4:** The system shall provide a tutorial for a user to learn the assessment process.

**Rationale:** Users must be able to walkthrough a tutorial to understand how to properly complete the assessment.

**Fit criterion:** Users must be brought to the tutorial upon completing the audio and video hardware checks.

**FR-SS5:** The system shall allow a user to start an assessment.

**Rationale:** Users must be able to decide when they start an assessment.

**Fit criterion:** Users must be brought to the first assessment question upon starting the assessment.

### 9.3 Assessment Interface

**FR-AI1:** The system shall record user's audio and video upon starting the assessment.

**Rationale:** The system must be able to collect audio and video recordings for future analysis.

**Fit criterion:** The system must indicate to the user that audio and video recordings are ongoing.

**FR-AI2:** The system shall play audio prompts at the beginning of each question.

**Rationale:** The system must be able to play the respective question's audio to answer the given question.

**Fit criterion:** The system must successfully play the respective question's audio upon entering a new question.

**FR-AI3:** The system shall display a question's options for a user to select.

**Rationale:** Users must be able to provide a response to the question's audio for future analysis.

**Fit criterion:** The system must display the question's respective options upon starting a new question.

**FR-AI4:** The system shall allow a user to select one of the displayed options.

**Rationale:** Users must be able to select their best option to answer the question.

**Fit criterion:** The system must indicate to the user their selected response.

**FR-AI5:** The system shall allow a user to confirm their selection.

**Rationale:** Users must be able to confirm their selection to proceed to the next stage.

**Fit criterion:** Users must be brought to the next stage upon confirming their selection.

**FR-AI6:** The system shall keep track of the user's current question.

**Rationale:** The system must be able to keep track of the time the user enters and exits each question, to synchronize with the audio and video

recordings.

**Fit criterion:** The system must store the user's timestamps upon completing each question.

**FR-AI7:** The system shall inform the user about the assessment's completion.

**Rationale:** The system must inform the user of the test's completion to indicate they can exit the system.

**Fit criterion:** The user must be informed about the test's completion upon confirming the selection of the final question.

## 9.4 Data Collection and Storage

**DCS1:** The database shall store multimedia files including video, audio, and JSON format files for each session.

*Insert formal Specification*

**Rationale:** These file types are necessary to capture the full scope of the speech-language assessment, including patient responses and the structured data associated with each session (e.g., flagged occurrences, timestamps).

**Fit criterion:** The system must successfully store and retrieve at least 1GB of video, audio, and JSON data per session without data corruption.

**DCS2:** The database shall record the video, audio, flagged occurrences (e.g., errors or critical moments during the assessment), and timestamps for each question asked during the assessment.

*Insert formal Specification*

**Rationale:** Storing flagged occurrences and timestamps lets clinicians perform detailed analysis of patient responses and enables them to review specific moments of interest efficiently.

**Fit criterion:** The database shall include video and audio files for 100 percent of assessment sessions, and each recording must have flagged occurrences and timestamps associated with every question asked, retrievable via query.

**DSC3:** The system shall not store any personally identifiable textual information (e.g., patient name, address, or medical record number) in the database.

*Insert formal Specification*

**Rationale:** To maintain privacy and ensure compliance with data protection regulations such as HIPAA, identifying textual information must be excluded from storage in the database.

**Fit criterion:** ??.

**DSC4:** The database shall group all stored data by a unique user identifier to ensure data can be linked to specific users without storing identifiable information.

*Insert formal Specification*

**Rationale:** Using a unique user identifier allows for data organization and retrieval by patient without compromising patient privacy, supporting the requirement for anonymized data storage.

**Fit criterion:** The system must assign a unique identifier to every user and confirm through testing that all session data is properly grouped and retrievable under that identifier, with no misassociated data.

**DSC5:** Description.

*Insert formal Specification*

**Rationale:** Insert Rational

**Fit criterion:** Insert criterion here

## 9.5 Video and Audio Data Analysis

**VADA1:** Description.

*Insert formal Specification*

**Rationale:** Insert Rational

**Fit criterion:** Insert criterion here

**VADA2:** The analysis model shall have access to the video recordings of each session for the purpose of processing and analyzing patient speech patterns and behavior.

*Insert formal Specification*

**Rationale:** The video data contains essential visual and auditory information that the model needs to analyze in order to assess speech-related disturbances and non-verbal cues.

**Fit criterion:** Insert criterion here

## 9.6 Data Processing and Display

**DPD1:** Description.

*Insert formal Specification*

**Rationale:** Insert Rational

**Fit criterion:** Insert criterion here

## 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**

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# **12 Performance Requirements**

## **12.1 Speed and Latency Requirements**

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## **12.2 Safety-Critical Requirements**

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## **12.3 Precision or Accuracy Requirements**

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### **13.1 Expected Physical Environment**

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### **13.3 Requirements for Interfacing with Adjacent Systems**

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### **13.4 Productization Requirements**

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### **13.5 Release Requirements**

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## **14 Maintainability and Support Requirements**

### **14.1 Maintenance Requirements**

*Insert your content here.*

### **14.2 Supportability Requirements**

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### **14.3 Adaptability Requirements**

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## **15 Security Requirements**

### **15.1 Access Requirements**

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### **15.2 Integrity Requirements**

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### **15.4 Audit Requirements**

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## **18 Open Issues**

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## **19 Off-the-Shelf Solutions**

### **19.1 Ready-Made Products**

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### **19.2 Reusable Components**

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### **19.3 Products That Can Be Copied**

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## **20 New Problems**

### **20.1 Effects on the Current Environment**

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### **20.2 Effects on the Installed Systems**

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### **20.3 Potential User Problems**

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

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## **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**

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## **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?