Software Requirements Specification

for

Surveying Software,

Release 1.0

Version 1.0

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Revision History

Name	Date	Reason For Changes	Version
Everyone	14/09/2023	initial draft	Version 1.0

1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) document outlines the essential functional and nonfunctional requirements of the Surveying Software for its initial release (Version 1.0). This document is intended to guide the project team for the development and quality assurance of the software. All the requirements hence stated are considered to be of high priority unless stated otherwise.

1.2 Product Scope

The Surveying Software will allow customers to create flexible surveys, distribute, and manage them which they can then share with their intended audience. Its primary purpose is to enable the users to gather insights, and data efficiently.

1.3 References

1. IEEE Guide for Software Requirements Specifications, ieeexplore.ieee.org/document/278253

2. Overall Description

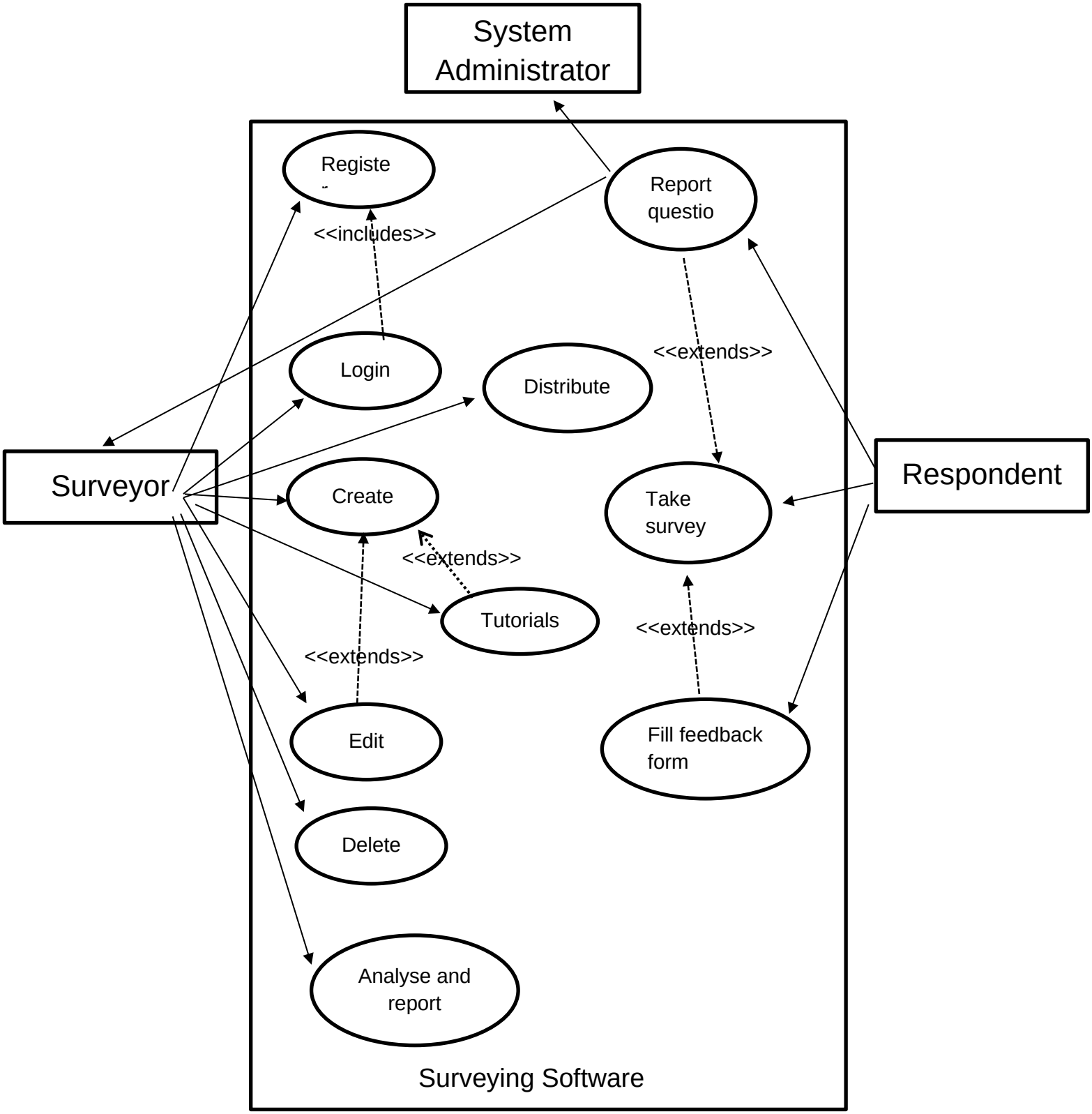
2.1 Product Perspective

The Surveying Software is a new and self-contained product. It does not act as a replacement for any existing systems or nor is it a follow-on member of a product family. It is instead designed as a distinct and comprehensive tool to meet the specific needs for users who demand convenient and effective survey creation and management capabilities.

2.2 Product Functions

- Survey Creation: Survey Creators should be able to create surveys with various question types and answer choices and set the visibility for the Respondents.
- Survey Data Analysis: Users shall be provided with various data analysis and visualization tools to analyze the data.
- Survey Distribution: Survey Creators shall be able to generate a link to share the survey with respondents and shall also be able to change access settings of the survey.
- Survey Participation: Respondents shall be able to take the survey.
- System Administration: The system shall generate and provide user accounts and authenticate those said accounts when the user wants to register or log into the software.

2.3 User Classes and Characteristics



USE CASE DIAGRAM

System Administrators - The system administrators are responsible for managing the Surveying Software, the user accounts and the database. They are highly knowledgeable about the Surveying Software.

Survey Administrator (Creator) - The survey administrator is responsible for creating and managing surveys. They gather the aggregate data for research, education or for business. They will also be responsible for distributing the survey to the respondents. They may have varying levels of technical expertise.

Survey Respondents - The survey respondents are the individuals or groups who participate in the surveys created by the software. Their privacy and data security is of utmost importance. They can provide feedback on the survey's experience once finished.

2.4 Operating Environment

OE-1: The Surveying Software shall operate with the following Web Browsers on desktops: Google Chrome (version 117.0.5938.60 and onwards), Mozilla Firefox (version 117.0.1 onwards), and Microsoft Edge (116.0.1938.81 and onwards).

OE-2: The Surveying Software shall operate on a server running Arch Linux version 2023.09.01 .

OE-3: The software will be accessible to both surveyors and respondents via the internet.

2.5 Design and Implementation Constraints

CO-1: All user written functions in the code shall be commented..

CO-2: MongoDB shall be used as the database engine for data storage and retrieval.

CO-3: All HTML code shall conform to the HTML5 standard.

CO-4: All server-side scripts and backend logic shall be written in Javascript.

CO-5: The server must run 24/7 unless under maintenance.

2.6 User Documentation

UD-1: The software shall provide an online help system that describes and outlines all software functions.

UD-2: The software shall present first-time users with an online tutorial to allow users to understand the creation and management of surveys.

UD-3: The software shall include a frequently asked questions (FAQ) section that will address common queries.

2.7 Assumptions and Dependencies

AS-1: The software will have a reliable connection to the internet.

AS-2: The software will be compatible with the hardware, operating system and browser.

AS-3: The software should be scalable to accommodate the growing number of users and surveys.

AS-4: The hosting infrastructure is reliable and has minimum downtime.

DE-1: The software shall depend on the MERN stack.

DE-2: The software shall follow the query rules (parameters) of the API used for Database.

DE-3: The software shall depend on Google Chrome, Mozilla Firefox or Microsoft Edge (latest version for all of them) to run.

3. External Interface Requirements

3.1 User Interfaces

UE-1: Help page for new users.

UE-2: Login Screen that routes the user and Survey Creator to their respective Home screens.

UE-3: Dashboard for Survey Creator to navigate between their profile, the surveys they have created and the surveys they were creating.

3.2 Hardware Interfaces

Any desktops with the latest web browser.

3.3 Software Interfaces

SI-1: The software is primarily designed to run on desktop web browsers. It is compatible with Windows, Linux and MAC operating systems as long as the browsers satisfy the version constraints listed in the section **2.4 Operating Environments OE-1**.

SI-2: The software's web-based interface is designed to work with major web browsers, including Google Chrome, Mozilla Firefox, and Microsoft Edge.

SI-3: The client-side software shall render web-pages and programmatically interact with the server using the latter's API.

SI-4: The server shall retrieve user details and survey data from the Database.

3.4 Communications Interfaces

CI-1 :The system shall send automated email invitations and reminders to a survey.

CI-2 **:**Providing urls and or QR codes to access a survey**.**

CI-3**:** The system shall use third-party APIs for communication(emails and QR codes).

CI-4: The users can simultaneously access Databases indirectly by editing or creating surveys real time data transfer between survey and database.

4. System Features

4.1 Survey Creation

4.1.1 Description and Priority

This feature allows users(Survey Creators) to create surveys. The survey can be created in three ways: from scratch, using templates or as a copy of a previously created survey. The surveys can have various question types, answer choices and configurations.
Priority: High

4.1.2 Stimulus/Response Sequences

Stimulus: Survey Creator clicks on ‘Create New Survey’.

Response: The browser displays a window to allow the user to construct a new survey from scratch, using templates or as a copy of a previously created survey.

Stimulus: Survey Creator clicks on ‘Edit Survey’

Response: The creator will be redirected to their survey where they can add new questions, delete questions or modify already existing questions.

Stimulus: Survey Creator clicks on ‘Edit Survey Settings’

Response: The creator will be redirected to a page where they can edit the duration of the survey.

4.1.3 Functional Requirements

Survey.Create	Survey Creators shall be able to create new surveys.
Survey.Create.Template	Survey Creators shall be able to create a new survey using a predefined template.
Survey.Create.Copy	Survey Creators shall be able to create a new survey by mirroring the contents and configurations of a survey previously created by them.
Survey.Edit	Survey Creators shall be able to edit, add or remove questions and answer choices from a survey.
Survey.Preview	Survey Creators shall be able to preview the survey as it would be shown to the respondents.
Survey.Save	Survey Creators shall save the survey with their desired configurations, questions and answer choices.
Survey.Sample	Survey Creators shall be able to sample the survey.
Survey.Settings	Survey Creators shall be able to edit the settings of

	the survey.
Survey.Settings.Duration	Survey Creators shall be able to edit the duration for which the survey will be held for.
Survey.Settings.Visibility	Survey Creators can restrict the visibility of surveys to selected users.
Survey.Delete	Survey Creators shall be able to delete the survey.
Survey.Questions.Type	The software shall support multiple question types, such as multiple-choice, and filling fields.
Survey.Questions.Order	Survey Creators shall be able to reorder the questions within a survey.
Survey.Questions.Constraints	Survey Creators shall be able to add constraints to the answer choices (e.g. required fields).
Survey.Questions.Randomize	Survey Creators shall be able to randomize the order of the questions and answers to minimize bias.

4.2 Survey Data Analysis

4.2.1 Description and Priority

Surveyors (Creators) can view the data collected from the respondents for analysis. This feature also allows the surveyor to generate a report based on the responses that have been collected to their survey.
Priority: High

4.2.2 Stimulus/Response Sequences

Stimulus: Surveyor clicks on ‘Generate Report’

Response: The responses to the survey will be thoroughly analyzed and a detailed report that includes charts and graphs will be given to them. If the surveyor wishes to share this report with the respondent’s, then a link will be generated for the same.

4.2.3 Functional Requirements

Survey.Report.Generate	The software shall generate a report where it lists all data that’s gathered from the respondents.
Survey.Data.Export	The software shall export all the data collected by the respondents to a csv file.
Survey.Analytics	The software shall analyze the responses and visualize the survey data by creating graphs, charts and plots.

4.3 Survey Distribution

4.3.1 Description and Priority

This feature allows the surveyor to generate a link to the survey for sharing and collecting responses.
Priority: High

4.3.2 Stimulus/Response Sequences

Stimulus: Survey Creator clicks on ‘Generate Survey Link’

Response: This marks the end of the survey creation. A link to the survey will be generated. This link has to be shared with the respondents.

4.3.3 Functional Requirements

Survey.Link.Generate Survey.Link.Share	The system shall generate a link to the survey . This link can be shared manually or the software can automate the part of sending the email and reminders if the respondents are a part of a google group.
Survey.Access	The surveyor will have a choice regarding the access to the survey. A respondent who isn’t a part of the google group the user has sent the mail to has to confirm that they are a human by entering a **captcha**.

4.4 Survey Participation

4.4.1 Description and Priority

This feature allows the respondent’s to take the survey and report any issues faced.
Priority: High

4.4.2 Stimulus/Response Sequences

Stimulus: Survey Responder clicks on the link to the survey.

Response: The browser will display a window that lets the responder take the survey. If they feel that any of the questions are inappropriate, they can report those questions using the report button.

4.4.3 Functional Requirements

Survey.Respond	The user who has the link is expected to fill out the responses to the survey.
Survey.Response.Validate	The system shall validate the response to make sure that it meets the constraints of the question.
Survey.Submit	Once the validation of the responses is performed all the responses shall be collected and stored.
Survey.Feedback	The system shall ask for any feedback that the user wants to provide once the user has finished taking the survey. This functionality has been described in the section **4.6 Feedback**

4.5 System Administration

4.5.1 Description and Priority

This feature is to manage the user accounts.
Priority: High

4.5.2 Stimulus/Response Sequences

Stimulus: User clicks on ‘Register’

Response: The browser will render the registration page where the user has to enter a unique username and password.

Stimulus: User clicks on ‘Login’

Response: The entered fields shall be validated against the existing records of all registered users.

Stimulus: User clicks on ‘Logout’.

Response: The user can safely Log Out after using the software .

4.5.3 Functional Requirements

User.Registration: User.Registration.Validate:	A new user has to first register using a username and password before being able to use the software. The entered username is first checked for uniqueness and the password entered will be checked for the constraints set on the password field.
User.Login User.Login.Failed: User.Login.Success:	An already registered user will be allowed to use the software only if they have been authenticated. If the user enters wrong credentials they can click on the forgot password option or try two more times. Entering the wrong credentials two more times only the forgot password and register option will be displayed . If the user is authenticated they will be redirected to the home page.
User.Logout	The user can Log Out after using the software . The current session will be safely terminated.

4.6 Feedback

4.6.1 Description and Priority

Every respondent can optionally fill the feedback form after responding to the survey.
Priority: Medium

4.6.2 Stimulus/Response Sequences

Stimulus: Respondent clicks on ‘Skip Feedback Form’.

Response: The survey is now complete. The responses will be submitted and if it is successful, the browser displays a window to let the respondent know that their responses have been received.

Stimulus: Respondent clicks on ‘Fill Feedback Form’

Response: The browser will display a feedback form to be filled by the respondent.

Stimulus: Respondent clicks on ‘Submit feedback’.

Response: The survey is now complete. The feedback data will be collected and stored in a database and the respondent will receive a message regarding the successful submission.

4.6.3 Functional Requirements

Feedback.Fill	The responder will fill out the feedback form regarding their experience taking the survey and suggestions on how to improve it .
Feedback.Submit	The feedback data will be collected and stored. This data will be displayed to the surveyor after the report is generated.
Feedback.Skip	The respondent need not mandatorily fill out the feedback form. This option lets them submit the survey responses without asking for any feedback.

4.7 Tutorials and Help

4.7.1 Description and Priority

Every new user will be presented with a web page showing the working of the website.
Priority: Medium

4.7.2 Stimulus/Response Sequences

Stimulus: Respondent or Survey Creator logins in for the first time.

Response: They are routed to a web page with all working details.

Stimulus: Respondent clicks on ‘Close Tutorial’

Response: The browser will redirect the user to the Home dashboard.

4.7.3 Functional Requirements

Tutorial.Next	Next tutorial page is displayed
Tutorial.Close	Tutorial is closed.
Tutorial.FAQ.ask	Ask some questions to the Admin about the software.

Notifications	Notifications pushed onto the user regarding his FAQs or survey notifications.
Tutorial.FAQ	Most common questions asked and answered.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: The software should respond to user actions within 2 seconds.

PE-2: The software should support at least 100 concurrent users without loss in performance.

PE-3: Database queries should have a response time of less than 5 seconds.

PE-4: Data export operations, such as exporting data or generating reports must be completed within 20 seconds regardless of the size of the dataset.

5.2 Safety Requirements

SA-1: The data collected from the respondents shall only be accessible to the people that are a part of the survey creator’s organization.

SA-2: All data collected from respondents must be encrypted in transit to ensure confidentiality.

5.3 Security Requirements

SE-1: Everything that involves the respondents personally identifiable information shall not be collected unless volunteered by the respondent. This includes location details gathered from the browser or the ip address.

SE-2: Users shall be required to log into the Surveying Software for all operations except taking the survey as a respondent.

SE-3: All data collected from respondents must be encrypted in transit.

SE-4: User authentication shall require a unique username and a strong password with a minimum length of 8 characters consisting of at least one uppercase, one lowercase, one digit and one special character.

SE-5: The software shall maintain a log of user logins and registrations along with timestamps and identifiers.

5.4 Software Quality Attributes

Availability-1: The software shall be available to users at all times unless under maintenance.

Portability-1: The software shall run on windows, mac os and linux as long as the user is running the latest version of the compatible browsers.

Robustness-1: If the surveyor's internet connection was cut off before saving the survey, they will still be able to recover and continue from the state where they left off.

6. Other Requirements

There are no additional requirements to be specified in this section. All relevant project requirements have been documented in their respective sections of this SRS.

Appendix A: Glossary

User Registration = User enters a unique username and a password satisfying all constraints.

User Login = The entered user credentials will be validated and user gets Authenticated.

Create Survey= User creates a survey using the three options available to them.

Respondent = The person who takes the survey

Survey = An interactable form with questions to which respondents can provide answers to

Survey data = Collection of all the responses from the respondents for a given survey

Survey administrator = Individual/group responsible for overseeing the survey

Survey creator = Individual who creates the survey

Data analyst = Interpreting data to discovery meaningful insights, patterns and trends

Report = Document that provides information

Feedback = Helpful information or criticism that is given for a product/service/performance

API = Application Program Interface

Survey templates = Already made survey blueprints.

Data export = Extraction and conversion of data from their existing format to a more desirable format

Appendix B: Analysis Models

No analysis models are included in this document.

Appendix C: To Be Determined List

There are no TBD(to be determined) references in this SRS document.