# Software Requirements Engineering

# Figma Design

## Abstract

RequirementSage is an advanced chatbot that utilizes state-of-the-art Natural Language Processing (NLP) and Machine Learning (ML) technologies to revolutionize the software requirements-gathering process. This intelligent chatbot engages in natural, conversational interactions with stakeholders, extracting comprehensive software requirements to streamline the process, particularly for small-scale projects.

## Vision Statement

The vision for RequirementSage is to become a cutting-edge solution for software requirements gathering, providing an efficient and user-friendly experience for stakeholders involved in software development. By leveraging NLP and ML, RequirementSage aims to:

- **Automate Requirements Gathering**: Eliminate manual and time-consuming processes by automating the collection of software requirements.
- **Improve Communication**: Facilitate clear and effective communication between end users and software developers through natural language interactions.
- **Enhance Accuracy**: Utilize ML to enhance requirement understanding and reduce the risk of miscommunication or incomplete requirements.
- **Support Small-Scale Projects**: Tailor the chatbot's capabilities to cater specifically to small-scale projects, enabling cost-effective and efficient development.
- **Learn and Adapt**: Continuously learn from interactions to provide more accurate and relevant requirements gathering over time.
- **Ensure Data Security**: Implement robust security measures to protect sensitive project information and maintain compliance with data privacy regulations.

## Scope of the Project:

**1. Business Goal and Objectives**: Aims to automate requirements gathering, reduce effort, summarize requirements, and enable real-time documentation for small-scale projects with a focus on e-commerce websites.

**2. Project's Goal and Objectives**: It focuses on the chatbot's language understanding, context recognition, user intent identification, and entity categorization specifically tailored for e-commerce scenarios.

**3. Project Assumptions**: Assumes reliable internet connectivity and prioritizes chatbot design and performance, specifically optimized for interactions related to e-commerce.

**4. Project Deliverables:** Includes user instructions, predefined scripts, and continuous validation of chatbot functionality for small-scale e-commerce projects.

**5. Limitations and Constraints**: Limited to small-scale e-commerce project requirements gathering due to complexity, ensuring the chatbot is specialized for the unique needs of e-commerce websites.

## Main Features:

**1. User Account Management:** Allows users to create and manage accounts for tracking preferences and feedback.
**2. Requirements Gathering via Chat:** A core feature enabling users to discuss and specify software requirements
**3. Project Proposal Generation:** Automatically generates project proposals based on the gathered requirements.
**4. Requirements Listing:** Compiles a list of identified software requirements.
**5. Creation of Software Requirement Document (SRD):** Documents software requirements in a structured manner.
**6. User Feedback Collection:** Gathers user feedback for continuous improvement.

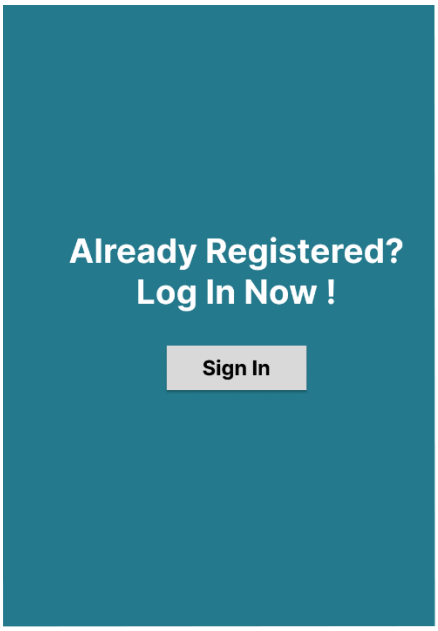
The project proposal outlined the ambitious goal of automating requirements gathering using an intelligent chatbot. It identifies key features, objectives, assumptions, constraints, and feasibility considerations, providing a comprehensive framework for the development of the "RequirementSage" chatbot.

# Overview and Link for Figma Design:

For an in-depth look at the high-level final design and prototyping of our project see the link https://www.figma.com/file/buLuDhGz8hfIpYUQ2gmN94/Main-Interface?type=design&node-id=0%3A1&mode=design&t=0ukeifSKi8XOwx5b-1 This Figma design encapsulates the culmination of our design efforts, providing a detailed visual representation of our user interface and interactive prototyping, ensuring a holistic understanding of the project's user experience.

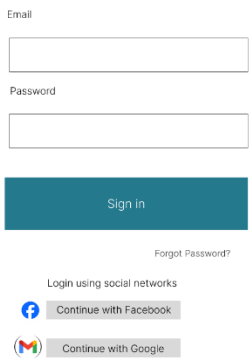
### F-1.1 User Account Management

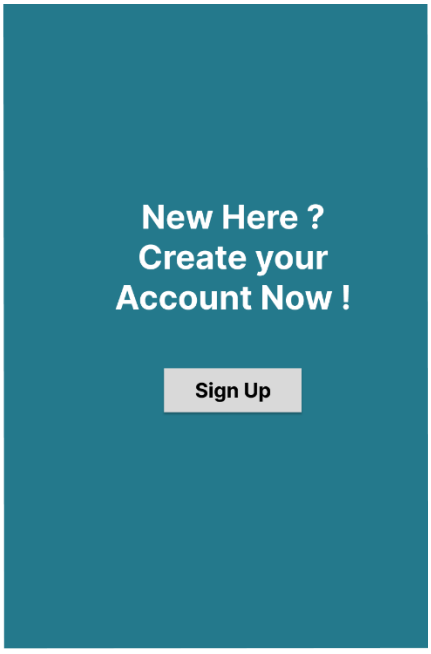
- **F-1.1.1:** Users shall be able to register him/herself with a unique username, email address, and password.



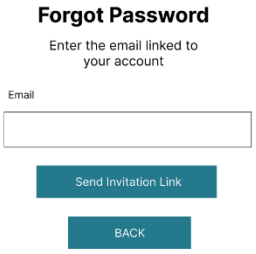


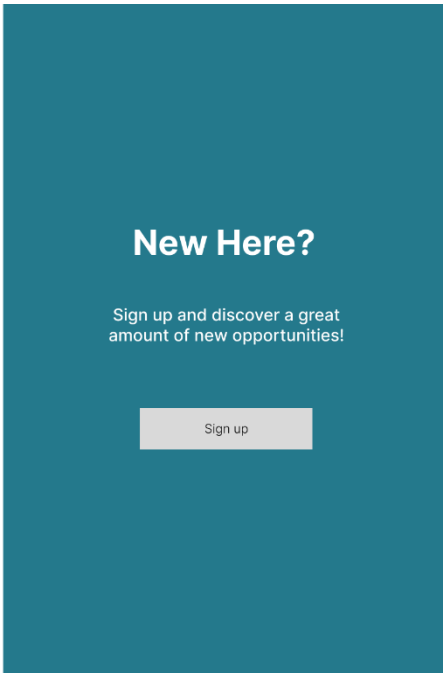
- **F-1.1.2:** The software shall allow registered users to log in using their username and password.



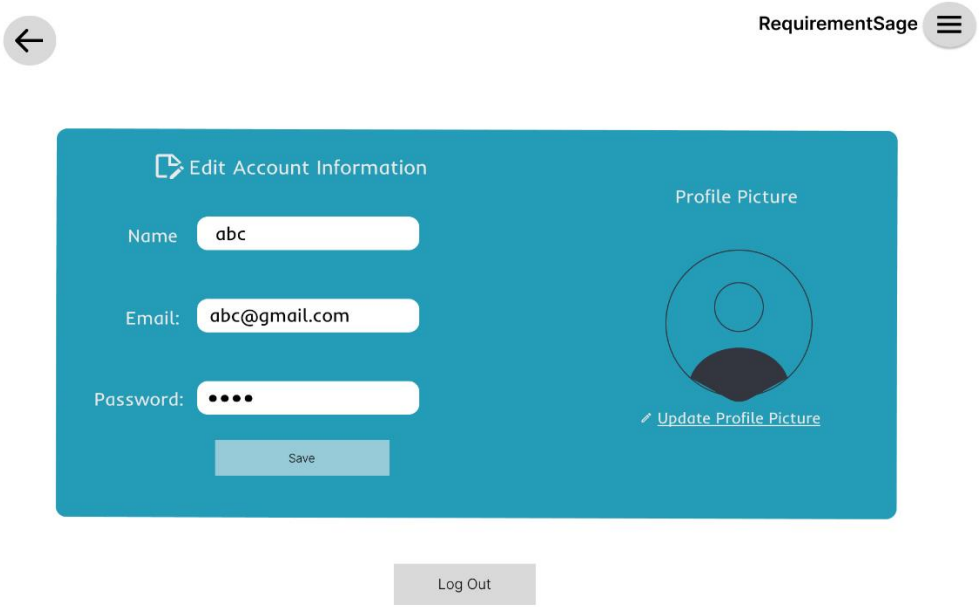

- **F-1.1.3:** Users shall be able to retrieve his password in the case of forgetting it.



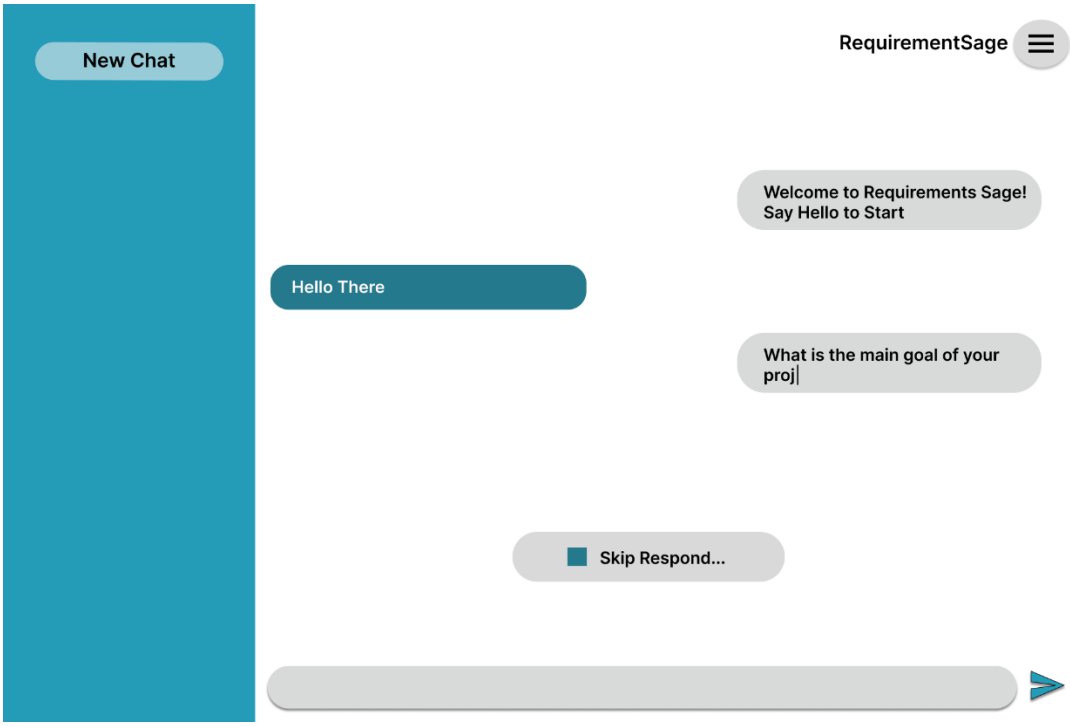

.

- **F-1.1.4:** The software shall provide an option for users to log out to their accounts.
- **F-1.1.5:** The software shall provide an option for users change their username, email, and password.



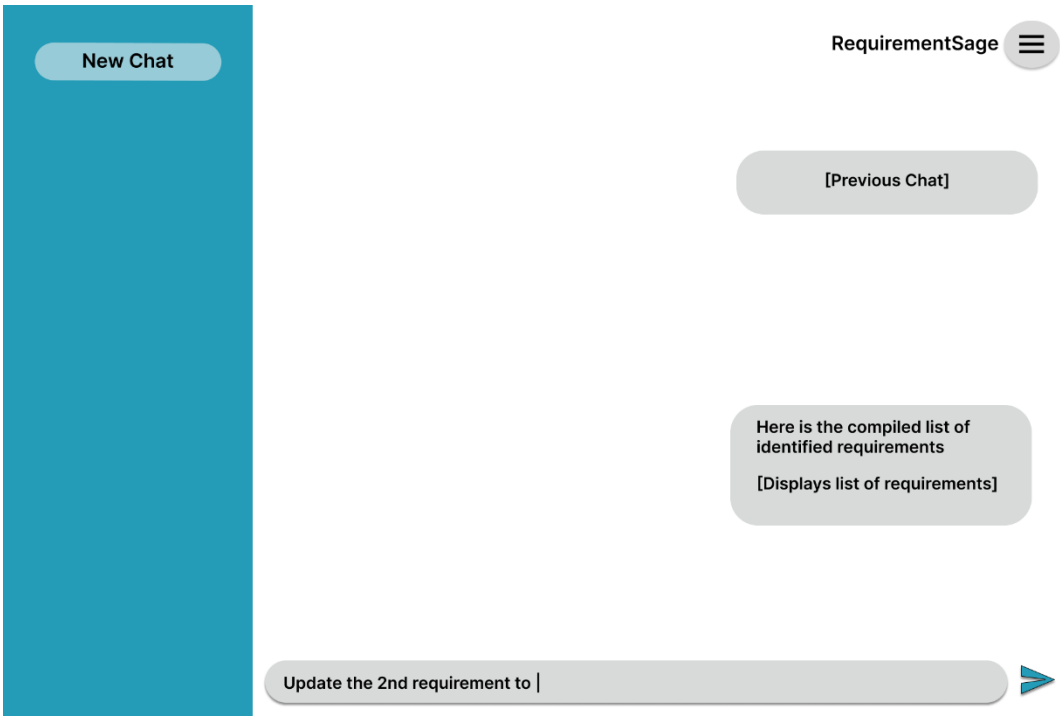
## F-1.2 Requirements Gathering via Chat

- **F-1.2.1:** Users shall be able to initiate a chat session for gathering software requirements by typing “Hello”.
- **F-1.2.2:** The software shall process user-provided input in the English language that shall be parsed to identify requirements, questions, and clarifications.
- **F-1.2.3:** The software shall generate relevant requirement elicitation questions based on user-provided information.



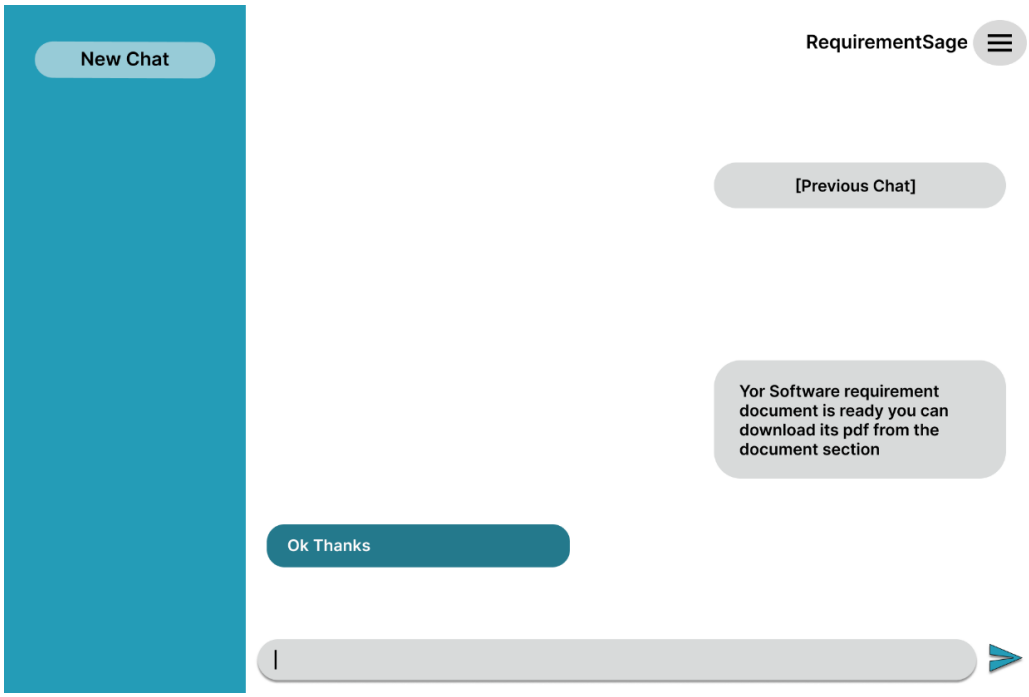

## F-1.4 Requirements Listing

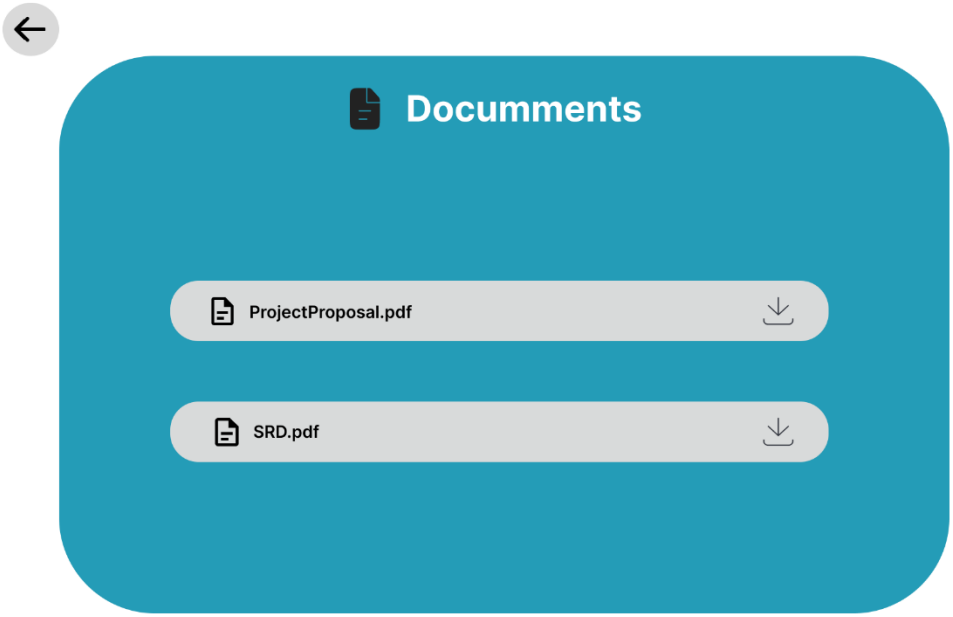
- **F-1.4.1:** The software shall compile a comprehensive list of identified software requirements through information gathered from various sources through user interactions and documents.
- **F-1.4.2:** The software shall classify requirements into different categories or types i.e. functional requirements, non-functional requirements, and user-specific requirements.
- **F-1.4.3:** The software shall accommodate updates and changes to individual requirements allowing the user to able to add, modify, or remove requirements from the compiled list.

- 


## F-1.5 Creation of Software Requirement Document (SRD)

- **F-1.5.1:** The software shall create a structured Software Requirement Document (SRD) that shall include an introduction, purpose, scope, requirements, dependencies, and any other relevant sections.
- **F-1.5.2:** The software shall allow users to export the SRD document that may be saved in PDF format.
- **F-1.5.3:** Users shall be able to add, modify, or remove requirements and associated content.




## Note:

This design only demonstrates the features of our chatbot. Due to the limitation that we can't showcase its functioning (interaction between user and chatbot) in Figma, we have attached the code prototype to illustrate it. Due to limited time, the code only demonstrates user authentication, the conversation between the user and the chatbot,

and some of its GUI elements. The functionalities will be demonstrated in the final code phase.