



# TED UNIVERSITY

## SENG 491 - SENIOR PROJECT

### Intelligent Documentation Assistant for SRS (IDAS)

#### Project Specifications Report

Fall 2025

**Team Members:**

İlayda Dim – 16976338092

Yaren Saklavcı – 10040078662

Kaan Aytekin – 10906257460

**Supervisor:** Elif Kurtaran Özbudak

**Jury Members:** Tansel Dökeroğlu - Ali Berkol

| Name                              | Date       | Reason For Changes                                    | Version |
|-----------------------------------|------------|---|---------|
| Project Specifications Report-1.0 | 12.11.2025 | First version of Project Specifications Report.       | 1.0     |
| Project Specifications Report-2.0 | 28.12.2025 | Changes according to feedback gathered from HAVELSAN. | 2.0     |

# 1. Introduction

This document describes the specifications for the Intelligent Documentation Assistant for SRS (IDAS) project, which will be developed as part of the Senior Project. The project team consists of İlayda Dim, Yaren Saklavcı, and Kaan Aytekin. The project advisor is Dr. Elif Kurtaran Özbudak.

## 1.1. Description

One of the main products of the Software Development Life Cycle (SDLC) is the Software Requirements Specification (SRS), which is essential to the success of software projects. Following design, development, and testing phases are directly guided by the SRS.

However, creating an SRS is a critical effort, requiring significant time and team resources. Expert knowledge, consensus among multiple stakeholders, and meticulous attention to detail are also crucial. In later project stages, ambiguous, inconsistent, unclear, or untraceable requirements lead to misunderstandings, costly errors, rework, and schedule drift, lead to costly project changes and significantly increase the overall risk of project failure.

By improving requirements quality early in the SDLC, this project seeks to reduce these problems. The IDAS project provides a web-based environment made up of two main modules:

**Authoring Mode:** Using HAVELSAN-standard templates, users will be able to manually complete SRS parts in this manner. An AI-powered recommendation engine that directs the writing process will be part of the module. This engine will provide tested draft requirements statements, support terminology, and notify users of any missing parts or headings. This module's objective is to enable users to generate requirements that are traceable, consistent, and unambiguous.

**Review Mode:** Users will be able to upload a finished SRS document to the platform in this mode. The system will automatically extract needs, analyze the uploaded text at the sentence level, and categorize requirements as either functional or non-functional. The platform will identify quality flaws including ambiguity, redundancy, and contradictions. The results will be displayed in reports that are easy to read and understand. Any inconsistencies or anomalies found would be suggested for analyst review rather than being formally verified.

In the early phases of the SDLC, IDAS aims to improve productivity and quality assurance by combining automated document review with real-time creation support.

## 1.2. Constraints

**Scope:** The project initially focuses on HAVELSAN-based Software Requirements Specification (SRS) documents and templates.

**Technological Stack:** The platform shall be developed as a web-based system using modern front-end and back-end technologies. The technologies used throughout the project may be updated or modified depending on technical feasibility and academic calendar constraints.

**AI Resources:** The system is supposed to be built on top existing large language model (LLM) APIs, rule-based methodologies, and AI-powered suggestions.

**File Support:** Review Mode shall be primarily optimized for the .docx file format.

**Timeframe:** The entire project shall be completed within two academic semesters as part of the SENG 491-492 sequence.

### 1.3. Professional and Ethical Issues

The development and implementation of the project requires adherence to professional standards and ethical principles. Priority will be given to the following:

**Academic Integrity:** The project is a tool for supporting analysts and students in producing better SRS documentation. The system's goal is to improve standard compliance and enable early quality assurance, not to automate professional analyst labor or the learning process.

**Data Protection:** Uploaded documents shall be securely stored and will not be shared with external services or individuals.

**Accountability and Responsibility:** The platform's analysis, conclusions, and AI-powered suggestions are meant to support human analysts rather than take their place. Any discrepancies, ambiguities, or quality defects pointed out by the system are considered recommendations. It is entirely up to the user (analyst, engineer, or student) to accept or reject suggestions and make final changes to the document.

## 2. Requirements

### 2.1. Functional Requirements

#### 2.1.1. Authoring Mode Requirements

| #    | Requirement Description  |
|------|--|
| FR 1 | The system shall allow the user to create an SRS document and enter text based on templates compliant with the HAVELSAN standard.        |
| FR 2 | The system shall detect missing standard HAVELSAN sections or headings in the active document and remind the user.                       |
| FR 3 | The system shall analyze the text against a predefined terminology glossary and detect usages that are incompatible with standard terms. |

|             |   |
|-------------|---|
| <b>FR 4</b> | The system shall suggest draft requirement sentences appropriate to the user's writing context. |
|-------------|---|

### 2.1.2. Review Mode Requirements

| #            | Requirement Description   |
|--------------|---|
| <b>FR 5</b>  | The system shall allow the user to upload an SRS document from their local system.  |
| <b>FR 6</b>  | The system shall parse the text and basic structure (headings, paragraphs) of the uploaded .docx format document.                                   |
| <b>FR 7</b>  | The system shall extract and identify requirement statements from imported documents.   |
| <b>FR 8</b>  | The system shall classify each requirement as Functional or Non-Functional, including relevant subcategories.                                       |
| <b>FR 9</b>  | The system shall analyze the requirements based on the Uncertainty and Quality Checklist.   |
| <b>FR 10</b> | The system shall detect and flag expressions containing ambiguity, untestability, duplication and conflicts as a result of the analysis.            |
| <b>FR 11</b> | The system shall generate and present a visual report containing the findings detected in Review Mode (classification results and flagged defects). |

## 2.2. Non-Functional Requirements

| #            | Requirement Description  |
|--------------|--|
| <b>NFR 1</b> | The platform shall be a web-based application.   |
| <b>NFR 2</b> | Review Mode shall be optimized primarily for the .docx file format.  |
| <b>NFR 3</b> | The system shall support the authoring and review of SRS documents that comply with the HAVELSAN standard. |
| <b>NFR 4</b> | The system shall handle incomplete or malformed documents without crashes.                                 |
| <b>NFR 5</b> | User data shall remain private and never shared with unauthorized parties.                                 |

|              |  |
|--------------|--|
| <b>NFR 6</b> | The architecture shall be modular, enabling independent updates to AI and UI components. |
| <b>NFR 7</b> | The backend shall support multiple users and concurrent document analyses.               |
| <b>NFR 8</b> | The web application shall operate on major browsers (Chrome, Edge, Firefox).             |

### 3. References

Dim, İ., Saklavcı, Y., & Aytekin, K. (2025). *Intelligent documentation assistant for SRS (IDAS) project proposal* [SENG 491 Project Proposal]. Department of Software Engineering, TED University.

HAVELSAN A.Ş. (n.d.). *Corporate documentation template*. Internal document.