Software Requirements Specification

for

ISO Audit Management System

Version 3.0 approved

Prepared by Gautham Krithiwas, Gautam Malhotra, Ishaan Bhattacharjee, Joshita Gautam

GI Joe

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Revision History

Name	Date	Reason For Changes	Version
Ishaan	14-11-2023	Adding Requirements Traceability Matrix and Glossary	2
Ishaan	21-11-2023	Updated Requirements Traceability Matrix	3

1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) outlines the functional and non-functional requirements for the initial release (version 1.0) of the ISO Audit Management System. The document intends to guide the project team tasked with implementing and testing the system to ensure its proper functioning. All requirements specified in this SRS are considered high priority and are committed for release 1.0 unless explicitly noted otherwise. The SRS serves as a comprehensive reference for stakeholders involved in the development and testing of the software, providing a clear understanding of its features and capabilities.

1.2 Intended Audience and Reading Suggestions

The purpose of this document is to provide a comprehensive overview of the ISO Audit Management System. It aims to facilitate the ease of use and understanding of software for the company's executive and administrative staff. Additionally, the document can serve as supplementary reading material for ISO certification agency personnel in case of any unexpected errors or exceptions occurring during the software usage. Its detailed description will help ensure all interested parties are fully informed about the software's functionalities and capabilities.

1.3 Project Scope and Project Features

The ISO Audit Management System is a web-based platform that serves as an interface for companies to list details of their projects and provide all necessary documentation to external auditing agencies. The system allows companies to choose the project model (waterfall, scrum, iterative incremental) and associated documents required for each project and its audit criteria. Through the system's user-friendly interface, auditing agency personnel can access the details of company projects, inspect them, and provide detailed feedback to the company. The system calculates the percentage of requirements fulfilled according to the audit criteria and if applicable, provides certification. The ISO Audit Management System streamlines the auditing process, ensuring that companies are compliant and meet industry standards.

1.4 References

1. https://synersia.org/wp-content/uploads/2021/02/ISO-19011-2018-Pedoman-Audit-Sistem-Manajemen-EN.pdf
2. https://www.iso.org/obp/ui/#iso:std:iso:19011:ed-3:v1:en

2. Overall Description

2.1 Product Perspective

The ISO Audit Management System is a new self-contained product specifically designed for companies to get their projects audited. The context diagram in Figure 1 illustrates the external entities and system interfaces for release 1.0. The system needs to evolve to include CMM auditing in future releases.

2.2 User Classes and Characteristics

Characteristics:

- **Administrators:** Administrators have the highest level of access and control over the system. They are responsible for configuring and maintaining the system, managing authorizations and permissions, setting up audit templates, and overseeing the entire audit process.

- **Auditors:** Auditors are responsible for conducting audits, gathering evidence, documenting findings, and making recommendations for corrective actions.

- **Managers & Executives:** Managers and executives need summarized reports and dashboards to make strategic decisions based on audit findings and compliance data.

- **End Users:** End users may have limited access to the system, primarily for viewing audit reports and findings relevant to their areas of responsibility.

- **Technical Support/Help Desk:**Technical support personnel provide assistance to users encountering issues or questions related to the system.

Requirements:

- **Administrators:** Administrators require advanced technical expertise, strong knowledge of ISO standards, and the ability to configure the system to meet organizational needs. They need comprehensive reporting capabilities for compliance monitoring.

- **Auditors:** Auditors need an intuitive user interface for conducting audits, uploading evidence, and generating reports. They should have access to audit templates and guidelines, as well as the ability to collaborate with other auditors.

- **Managers and Executives:** They require high-level, executive-style reporting and visualizations that provide insights into the organization's overall compliance and areas that may require attention.

- **End Users:** They require easy access to view relevant audit reports and documentation without the need for advanced technical skills.

- **Technical Support/Help Desk:**They need access to system logs, error messages, and user support documentation to assist users effectively.

Distinguishing the favored user classes from those less important depends on the organization's specific needs. Administrators and auditors are often considered primary users, and their requirements may take precedence. However, all user classes play essential roles in the successful implementation of an ISO Audit Management System, and their needs should be considered to ensure a user-friendly and effective system.

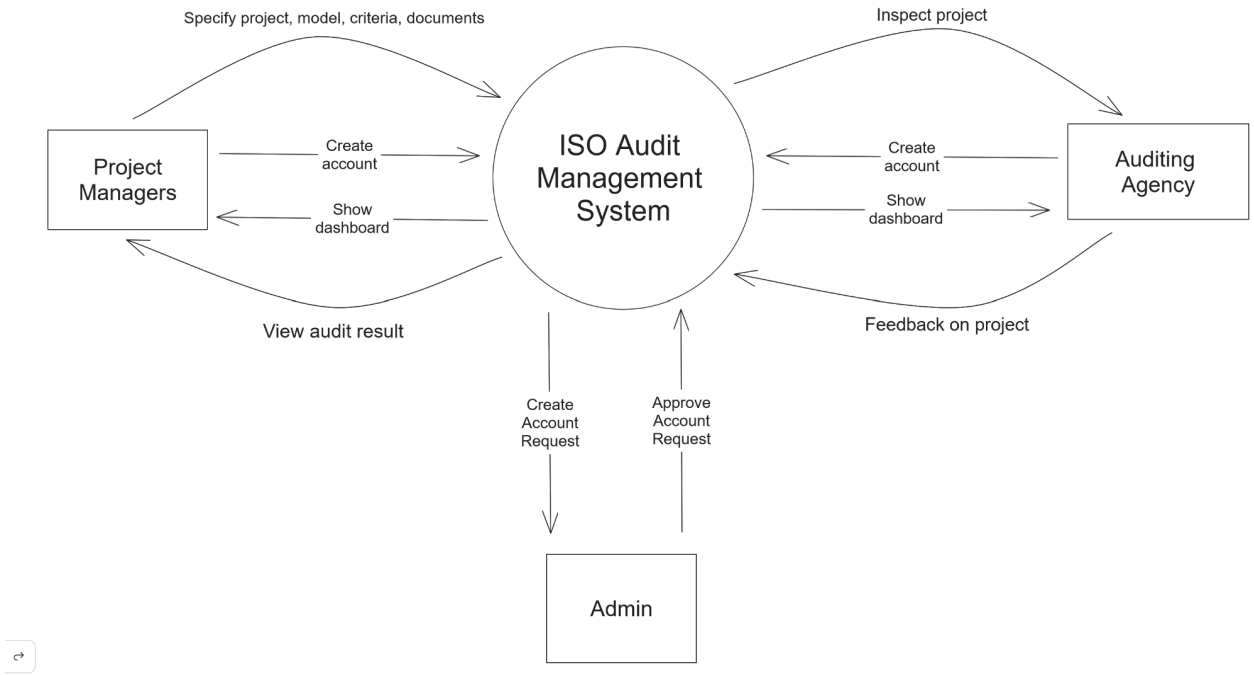

Figure 1
Context diagram of release 1.0 of the ISO Audit Management System

2.3 Operating Environment

OE-1: Hardware Platform:

The ISO Audit Management System should operate on standard hardware platforms commonly used in business environments. The specific hardware requirements may vary depending on factors such as the size of the organization and the expected load on the system. A typical hardware platform for this system would require sufficient RAM (8GB & above), adequate Storage Space depending on Data, and a multi-core processor. For the software side, any machine capable of running modern web browsers would do.

OE-2: Operating System and Versions:

The ISO Audit Management System should be compatible with widely used operating systems. The following operating systems and versions are recommended: latest versions of Microsoft Windows, Linux or MacOS.

OE-3 Software Components and Dependencies:

The ISO Audit Management System relies on various software components and dependencies to function properly. These include:

- Web Browsers: The system should be accessible and fully functional on modern web browsers like Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari.
- Web Server: A web server, such as Apache or Nginx, is required to host and serve the application to users.
- Database Management System: The system requires a relational database management system (RDBMS) for data storage. Compatible databases include:
    - MySQL
    - Microsoft SQL Server
- Programming Framework and Language: The system is typically built using web development frameworks and languages, such as:
    - JavaScript/Node.js/React.js
    - Python
    - HTML/CSS/Bootstrap
- Third-Party Libraries and APIs: Depending on specific functionalities, the system may utilize third-party libraries and APIs for tasks like reporting, document storage, or integration with other software.

The compatibility of these components should be verified as new versions become available to ensure seamless operation of the ISO Audit Management System.

2.4 Design and Implementation Constraints

The design and implementation of the ISO Audit Management System will be subject to various constraints that may limit the options available to developers. These constraints include:

CO-1: Regulatory Compliance: The system must adhere to ISO standards, which can impose specific requirements on how audits are conducted, documented, and managed. Developers must ensure that the system aligns with these standards.

CO-2: Data Privacy and Security: Given the sensitive nature of audit data, the system must comply with data privacy regulations such as GDPR, HIPAA, or industry-specific standards. This includes data encryption, access controls, and secure transmission.

CO-3: Integration with Existing Systems: The system may need to integrate with other software applications or databases within the organization. Developers must ensure seamless integration with these systems, which may require specific protocols or APIs.

CO-4: Operating System Compatibility: The system must be compatible with the designated operating systems, which may limit the choice of development tools and technologies. For example, if the organization predominantly uses Windows servers, the system should be Windows-compatible.

CO-5: Database Selection: The system may need to use a specific relational database management system (RDBMS) due to organizational preferences or compatibility requirements. The selection of a database system can impact the data model and queries.

CO-6: Legal and Intellectual Property Constraints: Developers must ensure that the software and any third-party components used do not infringe on intellectual property rights and comply with relevant licensing agreements.

CO-7: Parallel Operations: The system may need to support parallel audits and simultaneous user interactions. Developers should design for scalability and concurrent access to prevent performance bottlenecks.

CO-8: Deployment Constraints: The organization's deployment environment, whether on-premises or cloud-based, can impact the system's architecture and deployment strategy.

Understanding and addressing these constraints early in the design and implementation phases is essential to deliver a successful ISO Audit Management System that meets the organization's requirements while adhering to regulatory and operational limitations.

2.5 User Documentation

User documentation plays a vital role in ensuring that both project managers and auditors can utilize the ISO Audit Management System efficiently. Clear and comprehensive documentation helps users navigate the system's features, troubleshoot issues, and maximize the benefits of the software. In this section, we provide an overview of the user documentation requirements, including the types of documentation that will be made available to users.

UD-1: User Manuals
User manuals will be available for both project managers and auditors, providing step-by-step instructions on how to perform various tasks within the system. These manuals will cover essential functions such as project submission, audit management, report generation, and user management.

UD-2: Quick Start Guides
Quick start guides will offer concise instructions to help users get started with the system quickly. They will provide a brief overview of the most common tasks and actions required for immediate use.

UD-3: Video Tutorials
Video tutorials will complement written documentation by offering visual guidance on using the system. These tutorials will cover specific processes and workflows, allowing users to follow along visually.

UD-4: Frequently Asked Questions (FAQs)
An FAQ section will be provided, addressing common queries and issues that users may encounter. This section will serve as a quick reference for resolving common problems.

UD-5: Online Help and Tooltips
The system will feature online help resources accessible within the application. Tooltips will provide contextual information to users as they interact with various elements of the user interface.

2.6 Assumptions and Dependencies

Assumptions:
AS-1: Availability of Hardware and Infrastructure: We assume the availability of the necessary hardware components and IT infrastructure required for the installation and operation of the ISO management system. Any limitations or unavailability of these resources could affect the project's timeline and functionality.
AS-2: Third-Party Software Components: We assume that third-party software components, such as database management systems or web servers, will be available as per their specifications and licensing agreements. Any changes or disruptions in these components may require adjustments in our system.
AS-3: Regulatory Compliance: It is assumed that the ISO management system requirements and specifications align with the relevant ISO standards and regulatory requirements in our industry. Any changes in these standards may necessitate updates to the system.
AS-4: User Availability for Testing: We assume that users and stakeholders will be available for testing and validation activities as scheduled. Delays or unavailability of key users for testing may impact the project timeline.
AS-5: Data Accuracy and Completeness: We assume that the data provided for system development and testing purposes is accurate and complete. Inaccurate or incomplete data may affect the system's functionality and testing outcomes.

Dependencies:
DE-1: Network Infrastructure: The system depends on a stable network infrastructure for communication between system components and external services. Network outages or performance issues may affect system functionality.
DE-2: Security Software: The project assumes the use of specific security software and protocols to protect against cybersecurity threats. Any changes in security requirements or software may require updates to the system's security features.
DE-3: Compliance Updates: The ISO management system must stay compliant with evolving ISO standards and industry regulations. Changes in these standards may trigger updates and modifications to the system.
DE-4: Availability of Skilled Personnel: The project relies on the availability of skilled developers, testers, and IT personnel to design, develop, test, and maintain the system. A shortage of skilled personnel may impact project timelines.
DE-5: Aptitude of users: The software's effectiveness is contingent upon the technical aptitude and basic knowledge of the personnel responsible for uploading documents to the system, as well as the auditing agency personnel responsible for accessing the documentation uploaded by the company under audit. It is crucial that these individuals possess the necessary competencies to judge the documents accurately and easily access them from the website. Therefore, it is recommended that the organization provide adequate training and support to ensure that all relevant parties can navigate the system smoothly and efficiently. Such measures will help to ensure the successful implementation and use of the software, ultimately leading to a more streamlined and effective audit management process.

DE-6: Hardware Procurement: Procurement and delivery of hardware components necessary for system deployment must align with project timelines. Delays in hardware acquisition may affect project milestones.

3. System Features

3.1 Project Specification

3.1.1 Description and Priority

A user interface that allows the project manager to link a github repository to be audited, as well as the model each project follows, documents associated with the project and the minutes of the meeting for the project reviews. Priority = High.

3.1.2 Stimulus/Response Sequences

Stimulus: UI requests the user for the github repository.
Response: Project manager types in the link.

Stimulus: UI requests the user to select the projects to audit and which model they follow. The UI requests the user to upload the associated documents under the project folder in a “/documents/” folder. There is an “Upload” button to upload everything.
Response: Project manager ticks the projects to be audited and selects the associated models.

Stimulus: UI requests the user to confirm upload.
Response: Project manager either confirms upload, or rejects it and goes back to edit the files to be uploaded.

3.1.3 Functional Requirements

Repository.Link:	The system shall allow the user to enter the Github repository of the projects.
Repository.Link.Projects:	The system shall allow the user to select the projects under the repository to audit.
Repository.Link.Projects.Model:	The system shall allow the user to specify the model that each project follows.
Repository.Link.Projects.Documents:	The system takes the documents uploaded onto the project’s folder.
Repository.Upload:	The system allows the user to upload all the information entered.

Repository.Confirm:	The system asks the user to confirm the uploading of the audit request.
Repository.Reject:	In case the confirmation to upload the repository is rejected, the system allows the user to modify the files to be uploaded.
Repository.Changelink:	The system allows the user to change the Github link to take under consideration.
Repository.View	The system allows the user to view a repository sent for auditing in the past and the feedback given.
Repository.Status	The system allows the user to view the status of a repository sent for auditing, whether it has been audited or not.

3.2 Auditing Portal

3.2.1 Description and Priority

A user interface that allows the auditor to view the project, compare it with the documents provided and return feedback to the project manager on how it conforms with the document. Priority = High.

3.1.2 Stimulus/Response Sequences

Stimulus: UI shows the project along with the documents specified, the model each project follows, and the documents associated with each project.
Response: The auditor can open the projects, compare with the documents provided.

Stimulus: UI allows the auditor to type in a percentage of conformal of each project with the documents specified. The auditor is also prompted to upload a document with more detailed feedback.
Response: Auditor fills the field for percentage, and then uploads a document with their feedback (for each project).

3.1.3 Functional Requirements

Audit.Projects	The system displays the projects to be audited.
Audit.Projects.Conformance	The system allows the auditor to specify the percentage with which the project conforms with the documents.
Audit.Project.Feedback	The system allows the auditor to upload the feedback on the

	project.
Audit.Confirm	The system asks the user to confirm the submission of the audit.
Audit.Reject	In case the auditor does not confirm the submission of the audit, the system takes the user back to the previous page.
Audit.View	The system allows the user to view all the audits sent to the agency.
Audit.Status	The system displays whether the audit for the project has been sent.

4. External Interface Requirements

4.1 User Interfaces

The user interface is divided into two main parts - one used by company personnel responsible for uploading the necessary documentation of projects undertaken in the organization and required for ISO certification, and another for auditing agency personnel. The interface would require specific company-only credentials to gain access.

The first part of the interface will have an option for entering basic details of the project including name, date started, members involved, etc. On clicking submit and submitting basic information, the next page will provide more detailed information about the project. A drop-down menu is provided for choosing the type of project model from waterfall, scrum, and iterative incremental. Based on this choice, there is a redirect to a page based on the chosen option, with options in the UI to upload the necessary documentation. The documentation upload page is specific, based on the project model chosen for ease of use. Finally, an option is provided for additional comments to be given before submitting.

For auditing agency personnel, a different interface is provided, protected with their unique login credentials. Here, they can choose the company under audit and access every project listed by the respective company. Once the project and company are selected, the site will have complete details of the project collected earlier on, including the type of project model used, enabling the auditing agencies to use the requisite methods based on the type of project model used.

4.2 Hardware Interfaces

[No Hardware interfaces have been identified]

4.3 Software Interfaces

SI-1: Database Management System (DBMS)
SI-1.1: Manages all audit-related data
SI-1.2: Stores and manages all user information
SI-1.3: Handles and oversees the entire system configuration

SI-2: Microsoft Office 365 (Reporting)
SI-2.1: Generating and formatting audit reports in Excel format

SI-3: Operating System
SI-3.1: Audit management system software
SI-3.2: Provides system-level security
SI-3.3: Manages hardware resources

[Additional software interfaces to be provided in upcoming versions of the document]

4.4 Communications Interfaces

The ISO Audit Management System requires various communication interfaces to facilitate data exchange, user interactions, and system functionality. Here are the key aspects of communication interfaces for the system:

1. Web Browser Interface: The primary user interface for the system is through web browsers. The system must be accessible and fully functional on modern web browsers.

2. Formatting: HTML, CSS, JavaScript, and AJAX technologies are used for rendering web pages.

3. Security: Secure Sockets Layer (SSL) or Transport Layer Security (TLS) encryption is required to secure data transmission between the user's browser and the web server.

4. Database Communication: The system communicates with the underlying database management system (e.g., MySQL) for data storage, retrieval, and updates. SQL queries and database commands are used to interact with the database.

5. File Upload and Download: Users may need to upload audit evidence documents and download audit reports. This requires secure file transfer protocols like FTP or HTTP.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: The system is required to accommodate a maximum of 100 concurrent users, comprising both the auditor and company personnel. The average usage time for each user is expected to be 30 minutes anytime during standard working hours from 8:00am to 6:00pm. These figures have been determined based on the anticipated usage of the system and must be considered as a non-functional requirement to ensure its proper functioning.

PE-2: The upload and download interface of documents should have a constraint of 5MB for each document and uploads and downloads should not take more than 45 seconds to upload or download on a 1Mbps modem connection.

PE-3: Responses to user input should not take more than 2 seconds to process

PE-4: Acknowledgement messages should be given within 2 seconds on upload of documents and it should be clearly visible to to users to eliminate any confirmation

PE-4: The system should display a clear confirmation message on successful submission in each section of the submission interface

PE-5: The system should have capacity of approximately 50GB cloud storage to accommodate multiple auditing documents from different companies to be stored and uploaded safely without any issues and provide fast and reliable access to the auditing agency for all uploaded documents for 30 days after first upload.

5.2 Safety Requirements

No safety requirements have been identified.

5.3 Security Requirements

SE-1: All users (project managers and auditors) shall be required to log in for all operations.

SE-2: All private information regarding username and password, documents, etc. shall be encrypted.

SE-3: The system shall not allow project managers to observe the audit requests sent by other project managers, and the system shall not allow the auditors to view audit requests sent to other auditing agencies.

5.4 Software Quality Attributes

Availability-1: The system shall be available to users for 99.9% of the time between 8:00am and 6:00pm during the weekdays, 95% of the time for the remaining portion of the day and on weekends.

Portability-1: The system shall run on all major browsers.

Robustness-1: The system shall save changes periodically in case of a connection loss so users may pick up from where they left off.

Usability-1: The user interface shall be simple for ease of use to new users, with textual hints.

5.5 Requirement Traceability Matrix

Requirement Traceability matrix					
ID	Requirements	Specification	Test Cases	Status	Comments
1	Create homepage	Follow design, add approved content	Run split test	Started	
2	Select designs	Art director will make final choice	Adhere to branding	Done	
3	UI for Project Managers	Enter project details, select model, upload docs	Verify UI elements, check redirects	Done	Docs access through github
4	UI for Auditors	View project details, compare with documents	Test conformance percentage	Planned	Awaiting development
5	DBMS	Manage audit-related data, store user info	Validate data storage and retrieval	Planned	Awaiting development
6	Microsoft Office 365 (Reporting)	Generate/format audit reports in Excel format	Check report generation	Planned	Awaiting development
7	Operating System	Audit management system software	Ensure system-level security	Planned	Awaiting development
8	Web Browser Interface	Render web pages, secure data transmission	Test on different browsers	Planned	Awaiting development

6. Other Requirements

Appendix A: Glossary

Term	Definition
Audit	A systematic process of gathering and evaluating evidence to determine whether an organization's activities comply with a set of standards or criteria.
Audit criteria	The specific requirements or standards that are used to assess an organization's performance.
Audit evidence	The information that is gathered during an audit to support the auditor's findings.
Audit report	A document that summarizes the findings of an audit.
Audit trail	A record of all the activities that have taken place on a system or network.
Auditor	A person who conducts audits.
Conformance	The degree to which an organization's activities comply with a set of standards or criteria.
Corrective action	An action taken to address a nonconformity.
Corrective action plan	A document that describes the corrective actions that will be taken to address a nonconformity.
Document control	The process of managing documents to ensure that they are accurate, up-to-date, and controlled.
ISO Audit Management System	A software system that helps organizations to manage their ISO audits.
Nonconformity	A failure to meet an audit criterion.
Preventive action	An action taken to prevent a nonconformity from occurring.
Project manager	The person responsible for planning, executing, and monitoring a project.
Project model	A framework for organizing and managing a project
Repository	The location where audit evidence is stored.
Risk	The likelihood and impact of a negative event.
Risk assessment	The process of identifying and evaluating risks.
Risk management	The process of developing and implementing strategies to mitigate risks.
Upload	The process of transferring files from a user's computer to the ISO Audit Management System.
Download	The process of transferring files from the ISO Audit Management System to a user's computer.

Appendix B: Analysis Models

[Will be updated in future releases]

Appendix C: Issues List

[Will be updated in future releases]