Software Requirements Specification

for

PDF Compressor Web Application

Version 1.0 approved

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31st May 2023

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1. Purpose

The purpose of this document is to provide a detailed Software Requirements Specification (SRS) for the development of a PDF compressor web application using the MEAN stack (MongoDB, Express.js, Angular, Node.js). This application is specifically designed to cater to the needs of the employees and staff of an organization, allowing them to compress and optimize PDF files for efficient storage and sharing.

1.2. Document Conventions

This document is typed using the font 'Arial' with font size 13pt & 17pt for headings, and uses the following convention:

Definitions, acronyms, and abbreviations:

SRS	Software Requirement Specification
DB	Database
DDB	Distributed Database
ER	Entity Relationship
Info	Information
Inventory	An object which holds items available
Barcode	Unique identifier assigned to a single item

1.3. Intended Audience and Reading Suggestions

The intended audience of this document are firstly the developers, project managers, involved with the life cycle of the software's development. Secondly, it is for the administrators, users, database organizer/handler, and other employees like manager, consultants of the government organization.

The SRS document is suggested to be read in a sequential manner. If absolutely necessary, the External Interface Requirements can be skipped to give priority to System Features.

1.4. Product Scope

The product scope of a PDF compressor web application refers to the features and functionalities that the application will provide to its users. The main purpose of a PDF compressor is to reduce the file size of PDF documents without significantly affecting their quality. Here are some common features included in the product scope of a PDF compressor web application:

1. File Compression: The web application allows users to upload PDF files and compress them to reduce their file size. This can be done through various compression techniques such as image optimization, font subset embedding, and content compression.

2. Batch Processing: The ability to compress multiple PDF files simultaneously is a useful feature for users who need to compress a large number of files. The web application should support batch processing to streamline the compression process.

3. Customizable Compression Settings: Users may have specific requirements for the compression process. The application should provide customizable compression settings, such as selecting the desired level of compression, choosing specific compression methods, or configuring image resolution and quality.

4. Preview and Comparison: The web application should allow users to preview the compressed PDF files before downloading them. Additionally, it can provide a side-by-side comparison of the original and compressed files, showing the differences in file size and quality.

5. Download and Sharing Options: After the compression process, users should be able to download the compressed PDF files to their devices. The application may also provide options for sharing the files directly through email, cloud storage services, or social media platforms.

6. Security and Privacy: PDF files often contain sensitive or confidential information. Therefore, the web application should ensure data security and privacy by using secure encryption protocols, protecting user information, and providing secure file transfers.

7. User-Friendly Interface: The application should have an intuitive and user-friendly interface, allowing users to easily navigate through the compression process, select files, adjust settings, and download the compressed files.

8. Cross-Platform Compatibility: To maximize usability, the web application should be compatible with different web browsers and devices, including desktops, laptops, tablets, and smartphones.

9. Performance and Scalability: The application should be designed to handle a large number of users and PDF files simultaneously, ensuring fast and efficient compression without compromising on quality.

10. Integration and APIs: Some users may require the PDF compressor to be integrated into their existing workflows or applications. The web application can provide APIs or integration options to allow seamless integration with other systems.

It's important to note that the product scope may vary based on the specific requirements and target audience of the PDF compressor web application..

1.5. References

- https://krazytech.com/projects/sample-software-requirements-specificationsrs-report-airline-database
- https://www.cse.msu.edu/~chengb/RE-491/Papers/SRS-BECS-2007.pdf

2. Overall Description

This section includes details about what is and is not expected of the pdf compressor web application in addition to which cases are intentionally unsupported and assumptions that will be used in the creation of the app.

2.1. Product Perspective

The PDF compressor web application will be a standalone system, serving as a tool for the employees and staff of the organization. It will interact with the existing IT infrastructure and support the upload, compression, and download of PDF files. The

application will be accessible through a web browser and provide a responsive and intuitive user interface.

Product Features

Pdf Compressor web app will provide a number of functions such as:

1. **Login/Register:**
    a. Allow to create account for a new user
    b. Allow the existing users with the correct credentials to log in and out of the system.
2. **View Profile - allows the users to:**
    a. View and edit personal information, app preferences and go to settings
    b. View total number of compressed files
3. **Pdf upload:**
    a. Users will be able to upload PDF files from their local devices to the application.
    b. The application will validate the file format and size restrictions.
4. **Compression options:**
    a. The application will provide users with a range of compression options.
    b. Users can choose the desired compression level based on their requirements.
5. **File management:**
    a. The application will manage the uploaded PDF files, maintaining a structured database.
    b. Users can view, search, and organize their compressed PDF files within the application.
6. **Downloading of compressed pdf files:**
    a. Users will be able to download the compressed PDF files to their local devices.

The diagram shows the functions of Pdf Compressor:

(Replace with our ER diagram)

2.2. User Classes and Characteristics

The PDF compressor web application is designed for employees and staff of the organization who handle PDF documents regularly. The target users are expected to have basic computer literacy and familiarity with web applications. They should be able to upload, download, and manage files with ease.

2.3. Operating Environment

The PDF compressor web application will be developed as a web-based solution and will be accessible through popular web browsers such as Google Chrome, Mozilla Firefox, and Microsoft Edge. The application will be hosted on a server that supports the MEAN stack technologies (MongoDB, Express.js, Angular, Node.js) and ensures compatibility with the target browsers.

Operating Environment of the software is listed as:

- Real-time database
- Client/server system
- Operating system: Windows
- Database: MongoDb
- TechStack: MEAN framework

2.4. Design and Implementation Constraints

- Operating system compatibility: The app is designed to work with the specific operating systems and devices for which it is intended.
- Data privacy and security: The app complies with relevant data privacy and security regulations.

- User experience: The app is designed to provide a seamless and intuitive user experience, taking into account factors such as screen size, device performance, and user behavior.
- Technical constraints: The app's design and implementation takes account technical constraints such as limited processing power, memory, and storage capacity of the user's device.

2.5. Assumptions and Dependencies

- Assumption of user's willingness to use technology: The app assumes that users are willing and able to use technology to manage their and compress their pdfs.
- Assumption of reliable internet connectivity: The app assumes that users have access to reliable internet connectivity to access the app's features and data.
- Dependency on user input: The app's effectiveness depends on the accuracy and completeness of user input..
- Dependency on third-party libraries and frameworks: The app may use third-party libraries and frameworks for features such as UI design, database management, and network communication.

3. External Interface Requirements

3.1. User Interfaces

- Front-end framework: Angular
- Back-end framework: NodeJs
- Database: MongoDb

3.2. Hardware Interfaces

- Any browser such as Chrome, Firefox, Safari etc.

3.3. Software Interfaces

Following are the software used for the healthcare management online

Software used	Description
Operating system	We have chosen Windows and mac operating system for its best support and user-friendliness.
Database	We have chosen MongoDb since it allows real-time database connection, which means multiple users can see the changes in the data when the data gets created or edited.
MEAN Stack	To implement the project we have chosen MEAN stack, since it is considered among the best choices for web app development, especially when it comes to cross-platform app development.

3.4. Communications Interfaces

This project supports android and IOS apps which can be downloaded by the users from playstore or appstore and can utilize it according to their ease.

4. System Feature

4.1.1. Description and Priority

KitchenEase is a mobile application designed to help users manage their kitchen and cooking activities more efficiently. The app provides features such as recipe suggestions based on the ingredients available, a grocery list creator, and a meal planner. It also includes a pantry inventory system that allows users to keep track of the ingredients they have and their expiry dates.

The priority of KitchenEase is to simplify and streamline the cooking process for users by providing an all-in-one solution for meal planning, grocery shopping, and pantry management. By utilizing the app's features, users can save time, reduce food waste, and create delicious meals with ease. KitchenEase's goal is to help users achieve a healthier and more sustainable lifestyle through better kitchen management.

4.1.2. Stimulus/Response Sequences

- User opens the app, app displays home screen
- User selects recipe suggestion, app displays ingredients and cooking instructions
- User adds ingredients to grocery list, app saves list for later use
- User checks pantry inventory, and the app displays available ingredients and expiry dates.

4.1.3. Functional Requirements

- User registration and authentication
- Pdf upload
- Pdf compression
- Downloading of compressed pdf

5. Other Nonfunctional Requirement

5.1. Performance Requirements

The steps involved to perform the implementation of the Pdf Compressor database are as listed below.

A) E-R DIAGRAM

The E-R Diagram constitutes a technique for representing the logical structure of a database in a pictorial manner. This analysis is then used to organize data as a relation, normalizing relation and finally obtaining a relation database.

- **ENTITIES:** Which specify distinct real-world items in an application.
- **PROPERTIES/ATTRIBUTES:** Which specify properties of an entity and relationships.
- **RELATIONSHIPS:** Which connect entities and represent meaningful dependencies between them.

B) NORMALIZATION:

The basic objective of normalization is to reduce redundancy which means that information is to be stored only once. Storing information several times leads to wastage of storage space and increase in the total size of the data stored.

If a database is not properly designed it can give rise to modification anomalies. Modification anomalies arise when data is added to, changed or deleted from a database table. Similarly, in traditional databases as well as improperly designed relational databases, data redundancy can be a problem. These can be eliminated by normalizing a database.

Normalization is the process of breaking down a table into smaller tables. So that each table deals with a single theme. There are three different kinds of modifications of anomalies and formulating the first, second and third normal forms (3NF) is considered sufficient for most practical purposes. It should be considered only after a thorough analysis and complete understanding of its implications.

5.2. Safety Requirements

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure.

5.3. Security Requirements

Security systems need database storage just like many other applications. However, the special requirements of the security market mean that vendors must choose their database partner carefully. It will include

- Data confidentiality
- Data encryption
- Continuous monitoring
- User authentication and authorization

5.4. Software Quality Attributes

- **AVAILABILITY:** Pdf Compress webapp is a web application that is available on various browsers like google chrome, firefox, microsoft edge.
- **CORRECTNESS:** Users are able to manage and compress their pdfs easily and correctly.
- **MAINTAINABILITY:** Users are able to maintain their data easily.
- **USABILITY:** An easy and effective interface helps users to utilize this application to the most.
- **COMPATIBILITY:** Pdf compress is typically compatible with different web browsers.
- **EFFICIENCY**: It has well-designed features and operations that are optimized for user experience can help maximize the app's efficiency and minimize user frustration. Tools such as analytics and user feedback to continuously improve the efficiency of the app's features and operations has also been added.
- **PERFORMANCE:** The application should handle large PDF files efficiently, minimizing processing and compression times. The application should support concurrent uploads and compressions without performance degradation. The system should be scalable to accommodate increasing user demands.
- **SECURITY:** The application should implement secure user authentication mechanisms. The uploaded PDF files and user data should be protected from unauthorized access. The application should follow best practices for data encryption and secure communication.

- **DOCUMENTATION:** The application should have comprehensive and user-friendly documentation. The documentation should include installation instructions, user guides, and troubleshooting information.

5.5. Business Rules

It will include policies on -

- data management
- user roles and permissions
- system performance
- security requirements
- compliance with industry standards

The rules aim to ensure that the software meets the business needs and objectives of the stakeholders. And to ensure that the software solution aligns with the business goals and requirements.