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Software Requirements Specification – ContACT Book AppLication

**VERSION 1.0**

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|  |  |  |  |

TABLE OF CONTENTS

1. Introduction 1

1.1. Purpose of this Document 1

1.2. Scope of this Document 1

1.3. Overview 1

2. GenERAL Description 2

2.1. PLANNING 3

2.2. FEASABILITY STUDY 3

2.3. Design 3

2.4. Development (Implementation) 4

2.5. References 4

3. ROLES AND RESPONSIBILITIES 4

3.1. Project Executive Steering Committee 5

3.1.1. ROLE 5

3.1.2. RESPONSIBILITY 5

3.2. Project Sponsors 5

3.2.1. Project Executive Sponsor 5

3.2.1.1 ROLE 5

3.2.1.2 RESPONSIBILITY 5

3.2.2. Project Business Sponsor 5

3.2.2.1 ROLE 5

3.2.2.2 RESPONSIBILITY 5

3.3. Project Director 5

3.3.1. ROLE 5

3.3.2. RESPONSIBILITY 6

3.4. Project Manager 6

3.4.1. State Project Manager 6

3.4.1.1 ROLE 6

3.4.1.2 RESPONSIBILITY 6

3.4.2. Vendor Project Manager 6

3.4.2.1 ROLE 6

3.4.2.2 RESPONSIBILITY 6

3.5. Requirements Managers 6

3.5.1. State Requirements Manager 6

3.5.1.1 ROLE 6

3.5.1.2 RESPONSIBILITY 7

3.5.2. Vendor Requirements Manager 7

3.5.2.1 ROLE 7

3.5.2.2 RESPONSIBILITY 7

4. REQUIREMENTS MANAGEMENT PROCESS 7

4.1. The Process 8

5. Establish Controlled Requirements Repository 10

5.1. Requirements Repository 11

5.2. Create Requirements Baseline 11

5.2.1. Load Requirements Baseline 12

5.2.2. Identify and Tag Requirement 12

5.2.3. Set Requirement Attributes 12

6. Perform Requirements Traceability 12

7. Managing Requirements Change 13

7.1. Requirements Change Impact Assessment 13

7.2. Updating Baseline Requirements 18

7.2.1. Modification Update 18

7.2.2. Addition Update 19

7.2.3. Deletion Update 19

7.3. Reviewing Traceability 19

8. Requirement Metrics and Status Reporting 20

APPENDIX A. Overview of Requirements Traceability A-1

APPENDIX B. Example Requirements Tagging, Attributes, and Relationships B-1

APPENDIX C. Traceability Metrics and Reporting C-1

APPENDIX D. COTS, MOTS, AND CUSTOM CONSIDERATIONS D-1

# Introduction

## Purpose of this Document

The purpose of this Requirements Specification document is to clearly define and outline the functional and non-functional requirements for the development of the "Contact Book" software application. This document serves as a foundation for both the development and the validation processes, ensuring that all stakeholders, including developers, testers, and end-users, have a shared understanding of the project's objectives. By detailing the specific requirements, expectations, and constraints of the system, this document aims to minimize any ambiguity and set a clear roadmap for the design, development, and implementation of the application. It will also act as a reference point throughout the project's lifecycle to ensure that the delivered product aligns with the defined goals.

## Scope of this Document

This document encompasses all the essential details needed to develop the "Contact Book" software application. It covers the full range of functionalities, including user interface requirements, system architecture, and integration with other platforms or services. The scope also includes system performance and security requirements, data management strategies, and user accessibility features. Additionally, the document highlights the expected development timeline, resource allocation, and associated costs to deliver the product to completion. By thoroughly addressing both technical and business considerations, this document will ensure that the project stays within budget, meets deadlines, and satisfies the end-users' needs. The value this document provides to the customer includes a clear framework for understanding the project's goals, deliverables, and the expected outcomes.

## Overview

The "Contact Book" software application is a user-friendly platform designed to help individuals store, manage, and organize their contacts efficiently. Users can add, delete, and search for contacts. The application will feature an intuitive user interface, ensuring ease of use for individuals with varying levels of technical expertise. The product is intended to be lightweight, fast, and responsive. The overall goal of the "Contact Book" application is to provide a reliable, seamless solution for managing personal or professional contact information in an organized and efficient manner.

# GenERAL Description

The **"Contact Book"** application is a comprehensive yet simple-to-use software solution designed to help users efficiently store, manage, and organize their contact information. Whether for personal or professional use, the application provides a central location where individuals can maintain detailed records of contacts, including names, phone numbers and email addresses.

The primary functions of the application include adding, searching and deleting contacts. With a focus on user-friendliness, the application ensures that individuals of all technical skill levels can manage their contacts without encountering steep learning curves or complex procedures.

Key features of the **Contact Book** include:

* **Contact Management**: Users can easily create new contact entries, search existing information, and remove outdated or unnecessary contacts. Each contact record can store multiple fields of information such as name, phone number and email address.
* **Search and Filter**: A powerful search function enables users to quickly locate specific contacts by entering keywords, names, or other attributes.
* **User Interface (UI)**: The application will feature an intuitive, clean, and command prompt interface that simplifies navigation. The design will prioritize ease of use, ensuring that both tech-savvy and non-technical users can efficiently perform tasks with minimal effort.
* **Lightweight and Responsive**: Designed to be fast and responsive, the application will provide a smooth user experience, even when managing a large number of contacts. The software will be optimized for performance, ensuring that users can access and modify their data quickly and with minimal delay.

The overall goal of the **"Contact Book"** application is to provide a reliable, efficient, and accessible solution for managing contact information. By offering essential features like easy data entry and quick retrieval, the application will cater to the diverse needs of users who require an organized, up-to-date record of their personal or professional contacts. Whether it’s for managing business contacts, personal relationships, or a mix of both, the Contact Book aims to be an indispensable tool for everyday communication management.

# FUNCTional Requirements

## Contact Management

### Adding a Contact

* The application must allow users to create new contacts by entering details such as:
  + Full Name
  + Phone Number
  + Email Address
* The system should validate the entered data for required fields (name, phone number & email) and ensure data formats are correct (e.g., email format, phone number format).
* The validated data should be saved into a file on windows file system.

### Contact Search

* The application must allow users to search for contacts by entering keywords, including:
  + Contact’s name (partial or full)
  + Phone number
  + Email address
* The system should read the file where the data is saved and retrieve the matching contacts.
* The search results should display all matching contacts in real-time with serial numbers.
* The searched results should give an option to delete contacts pointing the serial number - “Enter serial number/numbers to delete the contact or 0 to exit search to main menu”

### Deleting a Contact

* The system must allow users to delete contacts from their list after searching.
* To delete the prompt should ask the user to select the searched serial number and confirm deletion.
* Deleting a contact must prompt the user for a confirmation to prevent accidental deletion.
* The deletion action should be saved to the file on windows file system.

### Data Import/Export

#### Importing Contacts

* The application should allow users to import contacts from other file formats (e.g., CSV, txt).
* The system must ensure the correct mapping of imported fields (name, phone number, email.) to the contact data structure.

#### Exporting Contacts

* Users must be able to export their contacts to a variety of formats (e.g., CSV, txt) for backup, sharing, or transferring to another system.

# Interface Requirements

## User Interface (UI) Requirements

### General UI Layout

* The application should have a clean, simple, and intuitive layout with easy navigation.
* The main screen should display the contact list, allowing users to perform actions such as adding, searching and deleting contacts.
* The interface should be designed to minimize the number of steps required to perform common tasks.

## External Interface Requirements

### Import/Export Interfaces

* The application should provide an interface for importing and exporting contacts in common formats (e.g., CSV, txt).
* For importing, users should be able to upload a file.
* For exporting, users should be able to download a contact list in CSV or txt format, which can be opened in other applications.

## System Interfaces

### Database/Storing Interface

The application should use a backend file (e.g., txt or similar) to store contact information. The file interface should:

* Support CRUD (Create, Read, Update, Delete) operations for contacts and associated data.
* Ensure that the data is securely stored and encrypted to protect user privacy.
* Maintain file integrity, preventing data loss or corruption during app usage.

# Performance Requirements

## Response time

### Contact Search

* The application must return search results for any query (e.g., searching by name, phone number, or email) within 1 **second** under normal conditions.
* For searches with more than **1,000 contacts**, the search results must still be displayed within **5 seconds**.

### Adding and Deleting Contacts

* When adding or deleting a contact, the system must reflect the change and display the updated information within **1 second** after the user submits the action.
* The application must immediately update the displayed contact list, ensuring no delay in the interface when users perform these actions.

### Viewing Contact Details

* Viewing the details of a contact (including all fields such as name, phone numbers, and emails) must take no longer than **1 second** after the user searches the contact in the list.

## Throughput

### Data Import/Export

* The application should be capable of importing contacts from external files (CSV, txt) at a rate of 100 contacts per second.
* The export process should allow users to export their entire contact list (up to 5,000 contacts) in less than 30 seconds.

## System Resource Utilization

### CPU and Memory Usage

* The application should operate efficiently, ensuring that CPU usage does not exceed 2**5%** during typical operations, including loading contacts, performing searches, or deleting contact details.
* Memory consumption must be kept within **100 MB** for a contact list of up to **5,000** contacts.

## Availability and Reliability

### System Uptime

* The system should have a **99.9% uptime** over a rolling 30-day period, ensuring the application is consistently available to users without significant downtime.
* Maintenance windows or outages for updates and patches should be scheduled during off-peak hours and should not exceed **1 hour per month**.

### Error Handling and Recovery

* The system must be resilient and able to recover gracefully from common errors (e.g., database failures).
* If the system encounters an error, it should display a clear error message to the user.
* The application should ensure that no data is lost in case of a failure during synchronization or data entry.

## Load Testing

### Stress Testing

* The application should undergo load and stress testing to verify that it can handle sudden increases in user activity.

### System Failover and Redundancy

* The application must include system failover mechanisms, such as database clustering and load balancing, to ensure that performance is not impacted by system failures or high load.

# Design Constraints

## Platform and Device Compatibility

### Cross-Platform Support

* There is no cross-platform support, the application is designed and runs only on Windows PC with Windows 10 and greater.

### Device Specifications

* The application must work on any Intel and AMD processors.

## Visual Design Constraints

* The app's design should minimize the use of high-resolution images or heavy graphics to reduce loading times and conserve system resources.
* The color palette should be simple and neutral.

## Data storage and management

* The local data storage is to be performed using windows file system with a txt file.

## Performance Constraints

### Latency and load time

* The application must return search results for any query (e.g., searching by name, phone number, or email) within 1 **second** under normal conditions.
* For searches with more than **1,000 contacts**, the search results must still be displayed within 2 **seconds**.

### Adding and Deleting Contacts

* When adding or deleting a contact, the system must reflect the change and display the updated information within **1 second** after the user submits the action.
* The application must immediately update the displayed contact list, ensuring no delay in the interface when users perform these actions.

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# Non-functional attributes

## Security

### Data Protection

* All user data, including contact information and personal data, must be **encrypted**.

### Access Control

* The app should prevent unauthorized access to sensitive data.

### Compliance

* The application must comply with relevant privacy laws and regulations such as **GDPR** (General Data Protection Regulation), **CCPA** (California Consumer Privacy Act), and **HIPAA** (if applicable), ensuring user data is handled securely and users have control over their data.
* Users must be able to delete their data upon request, and they should be notified about data collection practices during initial use.

### Incident Response and Recovery

* The system must include logging and monitoring to detect potential security incidents (e.g., unauthorized access attempts or data breaches).
* In case of a security breach, the system should notify the affected users within **72 hours** and follow proper incident response protocols, including data recovery procedures.

## Reliability

### Availability

* The system must have a **99.9% uptime** for both the mobile and web applications. Scheduled maintenance should not exceed **1 hour per month**.
* The application must include automatic failover mechanisms to ensure continued operation in case of hardware or software failures.

### Fault Tolerance

* The system should be designed to recover gracefully from errors and failures, without losing user data. For example, in case of synchronization failure, the app should retry the operation automatically.
* **Backup systems** should be implemented to protect user data, and the system should allow users to restore their contacts from a backup if data loss occurs.

### Data Integrity

* The system should ensure that user data is always consistent and not corrupted, especially during synchronization or database updates.

## Usability

### User Experience (UX)

* The application should have an intuitive, easy-to-use interface, making it accessible to users with varying levels of technical expertise.
* Key actions, such as adding a new contact, searching for a contact, and viewing contact details, should require **no more than 3 steps** to perform.

### Accessibility

* The application should support keyboard navigation for desktop users.

### Localization

* The application should support **multiple languages** (e.g., English, Spanish, French, and German) to cater to users in different regions.
* The user interface (UI) should automatically adapt to the language and regional preferences of the user, including date formats, currency symbols, and number formats.

## Maintainability

### Modularity and Extensibility

* The application should be built in a modular fashion, with each feature or component of the system isolated in separate modules for easier updates, bug fixes, and scalability.
* The architecture should support extensibility, allowing for easy addition of new features without requiring major changes to the core system.

### Code Quality

* The codebase must adhere to **clean code principles**, ensuring it is well-documented, readable, and easy to understand.
* It should follow coding standards and best practices, including version control (e.g., **Git**) and regular code reviews to ensure high-quality, maintainable code.

### Automated Testing and Continuous Integration

* The system should include automated tests (unit, integration, and functional tests) to ensure that all components work correctly and that new changes do not break existing functionality.
* Continuous integration (CI) and continuous deployment (CD) pipelines should be used to automate the build, test, and deployment processes, ensuring that updates and bug fixes can be released quickly and safely.

## Scalability

### Horizontal Scalability

* The system should support horizontal scalability, meaning it can handle increasing numbers of users and contacts.
* The database must be capable of scaling to support **millions of users and contacts** while maintaining performance.