**A PROPOSED OFFERING OF DENTAL CLINIC INVENTORY**

**AND SUPPLY MANAGEMENT SYSTEM FOR**

**MCVIL**

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REQUIREMENTS

**INTRODUCTION**

**Purpose of the Document**

This document outlines the software requirements for the Macvil Dental Clinic Inventory and Supply Management System. The purpose of this specification is to provide a clear and comprehensive understanding of the system's functionalities, non-functional attributes, and data requirements.

**Overview of the Software System Being Developed**

The system is a standalone, offline application designed to replace the clinic's manual inventory tracking, aiming to improve efficiency and accuracy in managing dental supplies.

**Scope of the Requirements Specification**

This document details the specific features and conditions that must be met for the project to be considered complete and successful and it defines the scope of the requirements specifying the features and functionalities to be included and excluded from the system.

**FUNCTIONAL REQUIREMENTS**

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| --- | --- | --- | --- |
| **Requirement Description** | **Priority** | **Dependencies** | **Acceptance Criteria** |
| The system shall allow the user to add new inventory items with details such as item name, quantity, category, and expiration date. | High | None | A new item is successfully added to the database and appears in the inventory list with all provided details. |
| The system shall allow the user to update an existing inventory item's details. | High |  | An existing item's details are successfully modified and the changes are reflected in the inventory list. |
| The system shall allow the user to delete an inventory item from the system. | High |  | A selected item is successfully removed from the database and is no longer visible in the inventory list. |
| The system shall display a real-time list of all inventory items, showing their name, current stock level, category, and expiration date. | High | None | The main inventory view accurately displays all items and their current status. |
| The system shall display alerts for items that are running low on stock. The low-stock threshold is defined per item. | High |  | The system correctly identifies and flags items with quantities at or below their set low-stock threshold. |
| The system shall display alerts for items nearing or past their expiration date. | High |  | The system correctly identifies and flags items with an expiration date within a predefined timeframe (e.g., 30 days) or items that have already expired. |
| The system shall provide a search function to quickly find specific inventory items by name. | Medium |  | The search bar accurately filters the inventory list based on the item name entered by the user. |
| The system shall provide a simple user authentication mechanism with a single, dedicated user account. | High | None | A user can successfully log in using a predefined username and password to access the system's features. |

Table 1

**NON-FUNCTIONAL REQUIREMENTS**

* **Performance:** The system shall load the main inventory list within 3 seconds. All CRUD (Create, Read, Update, Delete) operations on inventory items shall be completed within 2 seconds.
* **Usability:** The user interface shall be simple, intuitive, and easy for staff with minimal computer skills to navigate. The design should be clean, with clear labels and icons.
* **Reliability:** The system must be stable and operate reliably with or without an internet connection. It should not crash or corrupt data during normal operations. The system shall be tested to ensure it can handle concurrent reads and writes from the single user account without data integrity issues.
* **Security:** The system shall include a basic user authentication feature to prevent unauthorized access. The database file containing sensitive inventory data must be protected, but no advanced encryption is required.
* **Scalability:** The system is designed for a small dental clinic and is not required to scale to multiple users or locations. It should, however, be able to handle a few hundred inventory items efficiently.
* **Maintainability:** The code should be well-documented and structured logically to facilitate future maintenance or feature enhancements, if needed. The use of standard technologies (Python, Flask, SQLite) will aid in maintainability.

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| --- | --- | --- | --- | --- | --- |
| **Use Case Name** | **Description** | **Actors** | **Preconditions** | **Postconditions** | **Alternate Flows** |
| Manage Inventory System | This use case describes the process of a clinic staff member adding, updating, or deleting items in the inventory. | Clinic Staff | The user is logged into the system. | The inventory database is updated with the new, modified, or deleted item information. | Failed Add: If required fields are left blank, the system displays an error message and does not add the item.  Failed Update**:** If invalid data is entered, the system reverts to the original data. |
| View Inventory and Alerts | This use case describes how the clinic staff can view the current stock of all supplies and receive alerts. | Clinic Staff | The user is logged into the system. | The user has a clear view of the current inventory and any relevant alerts. | No Alerts: If no items are low on stock or nearing expiration, no alert notifications are displayed. |

**USE CASES**

Table 2

**DATA REQUIREMENTS**

* **Data Entities:**
  + **Supplies:** Represents the individual inventory items.
  + **Category:** Represents the classification of supplies (e.g., gloves, masks, syringes).
* **Attributes:**
  + **Supplies:** ID (Primary Key), Item Name (Text), Quantity (Integer), Category (Text), Expiration Date (Date).
* **Relationships:**
  + Supplies is a standalone entity, with a single-user interaction model. The relationships are managed within the SQLite database scheme.

**ASSUMPTIONS AND CONSTRAINTS**

**Assumptions:**

* The clinic will provide a dedicated computer with a compatible operating system (Windows) for system installation.
* All project requirements, including features and exclusions, are finalized and will not change after the development phase begins.
* The system will be used by a single user at a time and does not require multi-user access or networking.

**Constraints:**

* The system must operate entirely offline without requiring an internet connection.
* Financial and accounting features are strictly excluded from the scope.
* The system will only track consumable dental supplies, not non-consumable equipment.

**GLOSSARY**

**Terms and Definitions**

1. **Standalone System:** A software application that can run on a single computer without needing a network or internet connection.
2. **Inventory:** The complete list of items in stock at the clinic.
3. **Stockout:** A situation where a business runs out of stock for a particular item.
4. **CRUD:** An acronym for the four basic functions of persistent storage: Create, Read, Update, and Delete.
5. **UI:** User Interface.