Design Document: COVID-19 Management System (Using C Language)

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## 1. Introduction

### Purpose

The purpose of this document is to provide a technical specification for the development of the COVID-19 Management System using the C programming language.

### Scope

This document covers the architecture, design, and technical aspects of the COVID-19 Management System.

### Audience

This document is intended for developers, testers, project managers, and healthcare professionals involved in the development and deployment of the COVID-19 Management System.

## 2. System Architecture

### Overview

The COVID-19 Management System will be developed as a command-line application using the C programming language.

### High-Level Components

* Main Program
* User Registration and Authentication Module

### Data Flow Diagram

To be created

## 3. Data Structures

* User Data Structure

struct User {

char name[50];

char fatherName[50];

char dob[15];

char email[100];

char gender[10];

char aadhaar[13];

char username[20];

char password[20];

char accountNumber[13];

};

* Vaccine Data Structure

struct Vaccine {

char name[50];

int dosesAvailable;

int dosesAdministered;

};

* Booking Data Structure

struct Booking {

char referenceID[15];

char aadhaar[13];

char date[15];

int doseNumber;

};

## 4. Modules

User Registration and Authentication Module

* Registers users with unique Aadhaar numbers.
* Provides login functionality.

Booking Management Module

* Allows users to book vaccine slots by choosing available dates.
* Cancels and reschedules bookings.
* Ensures users don't repeat the same dose.

Inventory Management Module

* Admin can add/delete vaccine stocks.
* Displays available vaccine doses.
* Admin can book slots for users.

Reporting Module

* Admin can check vaccination stats for specific days or date ranges.
* Tracks doses administered and available inventory.

## 5. Security Measures

Aadhaar Verification

* Ensures that no two users have the same Aadhaar number.

## 6. Testing Strategy

Unit Testing

* Development of unit tests for individual functions and modules.
* Ensures proper functionality of isolated components.

Integration Testing

* Testing interactions between modules to ensure seamless data flow.
* Detects potential issues when different modules are combined.

## 7. Deployment and Hosting

Environment Setup

* Explanation of the required development environment (compiler, libraries).
* Installation instructions for prerequisites.

Deployment Steps

* Detailed steps to compile

## 8. Maintenance and Support

Bug Tracking

* Recommendations for using debugging tools.
* Logging and tracking mechanisms for identifying and resolving bugs.

Feature Requests

* Process for collecting and prioritizing user feature requests.
* Guidelines for implementing new features based on user needs.