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**Web Technology – Mobile Platforms (MAPD712)**

**Project: Patient Data Mobile App with React-Native**

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By: Group - 3

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# Introduction

The effective management of patient clinical data is not only necessary, but also a crucial component of offering high-quality healthcare services in today's quickly changing healthcare environment. In an effort to improve patient care and lighten administrative duties, hospitals and other medical facilities are increasingly turning to digital solutions to streamline and optimize their workflows. A substantial step towards attaining this objective has been made with the Patient Data REST API initiative.

# Background

To manage patient information in the past, healthcare providers used paper-based records and fragmented systems. This method has frequently led to waste, delays, and the potential for mistakes in patient care. Electronic health records (EHRs) and modern technology have caused a paradigm change in the healthcare sector. The difficulty, though, is in successfully utilizing digital tools' power to offer easy access to patient data while protecting data security and privacy.

# Scope

The design, creation, and deployment of a RESTful API service suited to the requirements of healthcare professionals, including doctors and nurses, are all included in the project's scope. The API enables the addition and retrieval of comprehensive clinical test results as well as general patient information. A critical patient identification tool is also included, which analyzes health indicators to identify patients with critical conditions.

The goal of the project is to strike a balance between scalability, data security, and user-friendliness. It seeks to provide a complete answer to the problems healthcare providers confront in effectively handling patient data.

# Requirement analysis

1. User Authentication and Authorization:

* The ability for users (healthcare providers) to securely log in is required.
* Different user roles (such as doctors and nurses) ought to have different access levels and permissions.

1. Add Patient Information:

* General patient data, such as name, age, gender, contact information, and medical history, should be added by healthcare professionals.
* This information needs to be securely validated and stored by the system.

1. View Patient Information:

* Users should be able to do a search using patient identifiers and read the general information for a particular patient.

1. List All Patients Information:

* A list of each patient's general information, which can be paginated for convenience, should be provided via the API.

1. Add Clinical Tests for a Patient:

* The ability to input clinical test information for a single patient, including the date, time, type of data, and readings or values, is required.
* The data should be verified by the system, and it should be linked to the appropriate patient.

1. View Clinical Tests of a Patient:

* Users ought to have access to and be able to examine comprehensive clinical test data for a particular patient.
* The information must be structured and presented clearly.

1. Delete Patient Information:

* In order to comply with data privacy laws, healthcare providers should have the flexibility to erase patient information as needed.
* The deletion procedure must be secure and permanent.

1. Delete Clinical Test Data:

* When appropriate, clinical test data for a single patient should be erasable by healthcare providers.
* Deletion must be carried out safely and with a log for auditing.

1. Identify critical patients:

* A component that allows the system to recognize patients in critical condition based on particular health parameter criteria, like blood pressure, should be included.
* Reliable and prompt identification of critical patients is required.

# Use case Diagram

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# Use case descriptions

* **Login:** 
  + **Actor:** Doctor, Nurse
  + **Description:** Allows healthcare providers to log into the system securely using their credentials.
* **Add patient info:** 
  + **Actor:** Doctor, Nurse
  + **Description:** Enables healthcare providers to add general patient information, including name, age, gender, contact details, and medical history.
  + **Relationship:** <<include>> Data Validation: Includes data validation checks through the "Data Validation Service" to ensure correctness and data type compliance.
* **View patient info:**
  + **Actor:** Doctor, Nurse
  + **Description:** Allows healthcare providers to view the general information of a specific patient by searching using patient identifiers.
* **List all patient info:**
  + **Actor:** Doctor, Nurse
  + **Description:** Provides a list of all patients' general information for quick access. This can be paginated for easier navigation.
* **Add clinical tests:**
  + **Actor:** Doctor
  + **Description:** Permits doctor to add clinical test data for a specific patient, including date/time, type of data, and readings/values.
  + **Relationship:** <<include>> Data Validation: Includes data validation checks through the "Data Validation Service" to ensure correctness and data type compliance.
* **View clinical tests:**
  + **Actor:** Doctor
  + **Description:** Enables doctor to retrieve and review detailed clinical test data for a specific patient.
* **Delete patient info:**
  + **Actor:** Doctor, Nurse
  + **Description:** Allows healthcare providers to delete patient information if required. The deletion process should be secure and logged for auditing.
* **Delete clinical test data:**
  + **Actor:** Doctor
  + **Description:** Permits doctor to delete clinical test data for a specific patient when necessary. Deletion should be done securely and logged for auditing.
* **Identify critical patients:**
  + **Actor:** Doctor, Nurse
  + **Description:** The system has a feature to identify patients in critical condition based on specific health parameter criteria, such as blood pressure. Critical patient identification should be reliable and immediate.

# Mockups

* **Mockup link:** <https://www.figma.com/proto/T15RHQKRQOVbWO5hcV5VjP/React-native?type=design&node-id=4-27&t=lhAmfU63DxqMZdo4-1&scaling=scale-down&page-id=0%3A1&mode=design>
* **Initial page: This will be the first welcome page and after that welcome page will appear.**

**A red and white logo with a person in a circle

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* **Registration page: Here doctors will be able register themselves by entering their details.**

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* **Login page: After registration doctor or nurse will be able to login using this page or there this an option where they can go to registration page.**

**A screenshot of a login screen

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* **Home page: Here healthcare providers will be able to see the list where they can redirect to the list of all patients or critical patients and all clinical tests.**

**A collage of a doctor and an old person

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* **Patient lists: From homepage after clicking on patients list, it will redirect to this page where list of all patients will be there and with that there will be options to edit patients details, delete patients information, or view all of their details.**

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* **Add patients: Here healthcare providers will be able to add patients details using this form.**

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* **View patient details: This is the page where healthcare providers will be able to see the patients details and they will have a button from which they can edit/update or delete the patients information.**

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* **Edit patient details: This is form for editing/updating the patients details.**

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* **Clinical test list: This page will contain the clinical test data of patients and doctor will be able to delete, edit/update, view the patients data. It will also have the details like case number and last test date.**

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* **Add clinical test: Using this page, doctor will be able add the test details of specific patient and the patient name and case number will be auto generated.**

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* **Edit patient tests: This form will be used for updating the patients clinical test data.**

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* **Critical patient list: This list will be generated by filtering the blood pressure, respiratory rate, blood oxygen or heartbeat rate if any of these is high then that patients name and all details will appear here so that doctor can monitor critical patients.**

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* **Critical patient details: This is how critical patients data will be show to the doctor.**

A close up of a list

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