A Project Report on

India Health - Clinical Laboratory Report Generation System

**Developed By** 

Smit Bosamiya [210511214006]

Jishan Bhatti [210511214002]

Manisha Karma [210511207024]

as

Partial Fulfillment of Semester III of

Master of Computer Applications /

Master of Science in information Technology

for A.Y. 2022 - 2023

Under the Guidance of Prof. Ravi Nimavat

**Submitted To** 

Department of MCA
Faculty of IT & Computer Science
PARUL University





## **CERTIFICATE**

This is to certify that Mr. Smit Bosamiya, Enrollment No. 210511214006, Mr. Jishan Bhatti, Enrollment No. 210511214002 and Ms. Manisha Karma, Enrollment No. 210511207024 students of Master of Computer Applications and/or Master of Science in Information Technology has satisfactorily completed the Minor Project on "India Health - Clinical Laboratory Report Generation System" at Faculty of IT & Computer Science, Parul University as partial fulfillment of MCA and/or M.Sc. (IT) Semester III.

Seat No	Date of Submission:	
Internal Guide	Dean - FITCS	

Faculty of IT & Computer Science PARUL University, Vadodara

#### India Health - Clinical Laboratory Report Generation System

### Acknowledgement

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and guidance, although she had busy schedule managing the academic affairs.

We would not forget to remember **Prof. Vivek Dave**, HOD, MCA department for her encouragement and more over for her timely support and guidance till the completion of our project work.

We owe our deep gratitude to our project guide **Prof. Ravi Nimavat**, who took keen interest on our project work and guided us all along, till the completion of our project work by providing all the necessary information for developing a good system.

We are thankful to and fortunate enough to get constant encouragement, support and guidance from our Parents, all Teaching staffs of MCA Department which helped us in successfully completing our project work. Also, we would like to extend our sincere esteems to all staff in laboratory for their timely support.

Smit Bosamiya (210511214006) Jishan Bhatti (210511214002) Manisha Karma (210511207024)

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# 1. About Department of MCA

#### **PARUL University**

Parul University is a legitimate university established under Gujarat Private University Act 2009, after legislation passed by the Government of Gujarat on 26<sup>th</sup> March 2015 giving University status to Parul Group of Institutes functioning under the aegis of Parul Arogya Seva Mandal Trust.

#### **Faculty of IT & Computer Science**

Faculty of IT and Computer Science, Parul University has materialized as one of the prime IT education providers at global level. Various departments under Faculty of IT and Computer Science strive in preparing IT-industry ready professionals by means of various skill development courses, vocational courses, co-curricular & extra-curricular activities, industry visits and expert lectures.

#### **MCA Department**

The Department of Master of Computer Application and Master of Science in Information Technology at Parul University emphasizes on building professionals in the domain of computer applications by providing necessary environment by means of facilitating suitable blend of technical and non-technical learning experience. The department cultivates students in various curricular, co-curricular and extra-curricular activities in order to produce future system analysts, system designers, system programmers, application programmers, testing professionals, system managers, project managers, researchers and other leading positions in systems/IT department.

The departments offers various subjects from diversified technical/non-technical areas such as — core IT domain, management, communication skills, mathematics & logic building and rich pool of elective subjects.

The department of MCA and M.Sc. (IT) focuses on project-based learning, and hence students are motivated to 0000work on tiny hands-on projects in practical oriented subjects to get better exposure. Moreover, throughout their MCA studies, students are required to work on around 3 mini/major projects in individual/team to get enough confidence on software-development and thereby become industry-ready.

### 2. Introduction

#### 2.1 **Project Definition**

"India Health" is a web application where the user can login, registration and view their clinical reports, his/her health data and nearby doctors and laboratory etc.

#### 2.2 **Project Description**

India Health is platform where user can view their clinical reports, doctors can create a new query for a report towards the patient, laboratories can fill details to the new report or the query created by the doctors, this all reports are stored in this system and accessible any time by patient, doctors and laboratories.

#### 2.3 **Existing System**

In earlier, all clinical reports are printed by laboratories, and patient needs to carry those hard copy to the doctors. Sometimes patient lose those report and need to reprint them. But nowadays many laboratory management system are available and creating reports. But it's doesn't full fill all requirements

#### 2.4 **Problem Statements**

Generating and storing reports digitally.

Connecting Patient, Doctors and Laboratories together on single platform.

#### 2.5 **Need for New System**

"India Health" is a web application. The purpose of online report generation system to automate the existing manual system by the help of computerized equipment's and full flag computer software fulfilling their requirements so that their valuable data information can be stored for a longer period with easy accessing and manipulation of the same the required Software and Hardware are easily available and easy to work with.

#### 2.6 **Proposed System & Features**

India Health is web application and it is very helpful for the patient, doctors and laboratories to generate and store clinical reports. Patient can access their reports form anywhere any time.

#### 2.7 Scope

Provides a Registration Form for filling up new users' details.

Provides a facility to view and print his/her clinical report.

Provides a facility to register as doctor/laboratory.

Provides a facility to generate report query by doctors.

Provides a facility to fill/print report by laboratory.

### 2.8 **Outcomes**

It will run on web browser. Online portal where patient's can access their report from anywhere anytime.

### 2.9 **Tools & Technology Used**

Frontend: HTML, CSS, JS, Bootstrap.

Backend: PHP & MySQL with Apache Server.

## 3. Requirement Analysis

#### 3.1 **Feasibility Study**

#### Operational Feasibility

It defines how well a solution works for the problem and how the system is usable for the end-users. As far our study is concerned the end-users are comfortable and happy as the system has cut down their loads and doing.

#### **Technical Feasibility**

This included the study of function, performance and constraints that my affect the ability to achieve an acceptable system, as described in the System Requirement Specification (SRS), and checked if everything was possible using different type of frontend and backend platforms.

#### **Economic Feasibility**

This is a very important aspect to be considered while developing a project. We decided the technology based on minimum possible cost factor.

#### **❖** Implementation Feasibility

Implementation Feasibility deals with the study of whether the service is environment available with all association members and will be managed according to the system or not.

#### 3.2 **Users of the System**

There will be Five types of Members (Admin, Helper, Doctor, Laboratory, Patient).

#### **Patient**

Log in/Log out/Update-Password

Register and log in with their credentials.

Find Laboratory/Doctor by Pin code

View his/her Clinical Reports.

View Clinical Health Analysis.

Generate Query for help/issue.

Apply to get role as laboratory/doctor

#### Admin

Log in/Logout.

Manage Users/Doctors/Laboratory

Manage View Reports

Manage Queries

Manage Templates, Groups and Units

### • Helper

Manage Users/Doctors/Laboratory Manage Queries

#### • Doctor

View Reports
Generate Report Query

### • Laboratory

Fill and Manage Reports

#### 3.3 **Modules**

Login/Register

Templates/Groups/Units

**Doctors** 

Laboratories

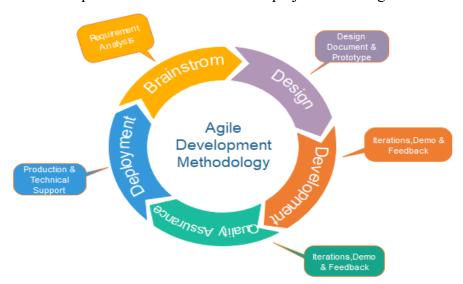
Reports

Contact Form

Queries

#### 3.4 **Process Model**

The Software process model chosen for the project is the "Agile Model".



#### **Hardware & Software Requirements** 3.5

- Server-Side Requirements
  - > Hardware

RAM	8 GB
SSD	Needed

#### > Software

Operating System	Windows 10
Database	MySQL
Backend	PHP
Frontend	HTML, CSS, JS & BS\$
Tool	Visual Studio Code

### Client-Side Requirements

#### > Hardware

RAM	4 GB
SSD	Smart Device

#### > Software

Operating System	Any OS
Application Software	Any Web Browser
System Connected	Internet

#### 3.6 **Use Cases**

#### 1. Actor: User

- Actions
  - 1. Signup
  - 2. Login
  - 3. Switch Role
  - 4. View Health
  - 5. View Report
  - 6. Edit Profile
  - 7. Submit Contact Form

### 2. Actor: Admin

- Actions
  - 1. View Report
  - 2. Add Patient
  - 3. Manage Users
  - 4. Manage Laboratory

- 5. Manage Doctors
- 6. Manage Reports
- 7. Manage Queries
- 8. Manage Contact form Submissions

#### 3. Actor: Helper

- Actions
  - 1. View Report
  - 2. Add Patient
  - 3. Manage Users
  - 4. Manage Laboratory
  - 5. Manage Doctors
  - 6. Manage Reports
  - 7. Manage Queries

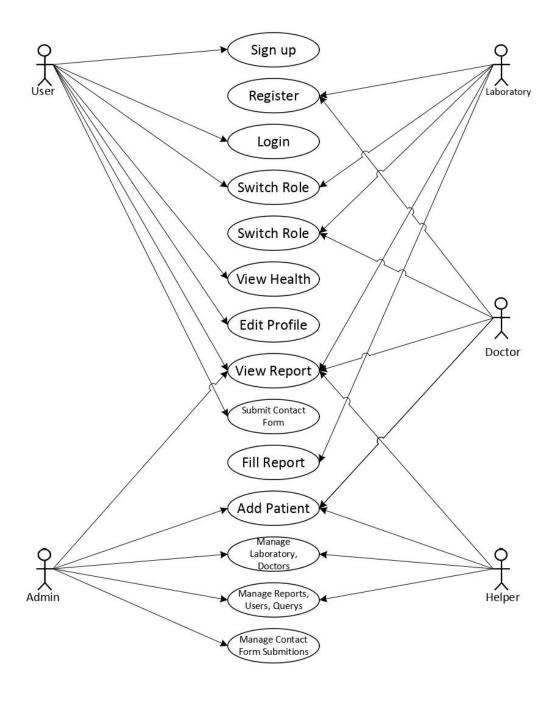
#### 4. Actor: Doctor

- Actions
  - 1. Register
  - 2. Add Patient
  - 3. Create Report
  - 4. View Report

#### 5. Actor: Laboratory

- Actions
  - 1. Register
  - 2. Add Patient
  - 3. Create Report
  - 4. View Report
  - 5. Fill Report

#### **Use Cases Diagram 3.7**



# 4. Design

#### **Use Case Scenarios** 4.1

### 1. User Sign up.

Use Case ID	UC001
Primary Actor	User
Precondition	Email must be not Resisted in our
	System.
Basic Flows of Events.	User Fill the signup form and click on
	signup button.
Alternative Way	There is no alternative way.

## 2. User Sign in

Use Case ID	UC002
Primary Actor	User
Precondition	Username and password should be
	match with database.
Basic Flows of Events.	User Fill the sign in form and click on
	signup button.
Alternative Way	There is no alternative way.

### 3. View Report

Use Case ID	UC003
Primary Actor	User, Doctor, Laboratory, Admin,
	Helper
Precondition	Report ID need to exist and the user
	role must be authorized to view that
	report
Basic Flows of Events.	User go to report page and click on
	view report page.
Alternative Way	Link Received via mail to the user's
	email address.

## 4. Register for Doctor

Use Case ID	UC004
Primary Actor	User
Precondition	No Precondition for this.

Basic Flows of Events.	User fills Doctor Registration form and
	click on register.
Alternative Way	There is no alternative way.

## 5. Register for Laboratory

Use Case ID	UC005
Primary Actor	User
Precondition	No Precondition for this.
Basic Flows of Events.	User fills Laboratory Registration form
	and click on register.
Alternative Way	There is no alternative way.

### 6. Add Patient

Use Case ID	UC006	
Primary Actor	Admin, Helper, Doctor, Laboratory	
Precondition	Email must be not Resisted in our	
	System.	
Basic Flows of Events.	User Fill the Add patient form and click	
	on add button.	
Alternative Way	There is no alternative way.	

## 7. Create Report

Use Case ID	UC007
Primary Actor	Doctor, Laboratory
Precondition	User ID, and DOB must be present in
	database
Basic Flows of Events.	User Fill the Create Report form and
	click on Create.
Alternative Way	There is no alternative way.

## 8. Fill Report

Use Case ID	UC008	
Primary Actor	Laboratory	
Precondition	Need to Present in Fill Report Section.	
Basic Flows of Events.	Laboratory Technician will Click on	
	Fill Report Button and Fill the Report.	
Alternative Way	There is no alternative way.	

# 9. Manage Queries

Use Case ID	UC009
Primary Actor	Admin, Helper
Precondition	No Precondition for this.
Basic Flows of Events.	Go to Queries Section and Manage
Alternative Way	There is no alternative way.

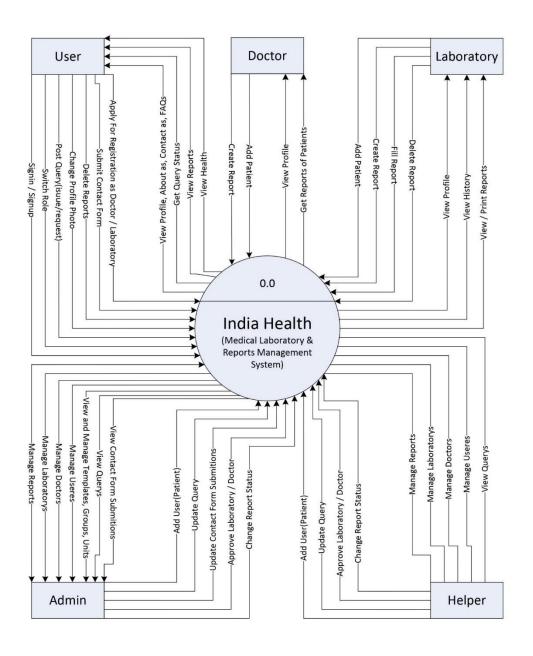
## 10. Manage Contact Form

Use Case ID	UC001	
Primary Actor	Admin	
Precondition	No Precondition for this.	
Basic Flows of Events.	Go to Contact form section and	
	manage.	
Alternative Way	There is no alternative way.	

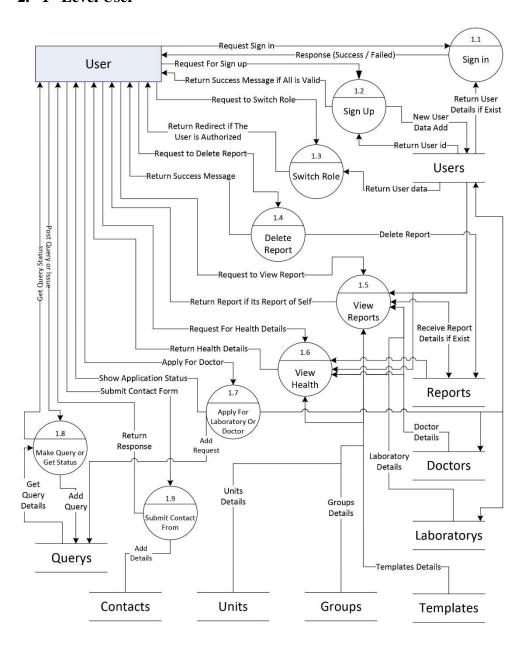
### 4.2 Diagrams

#### 4.2.1 DFD

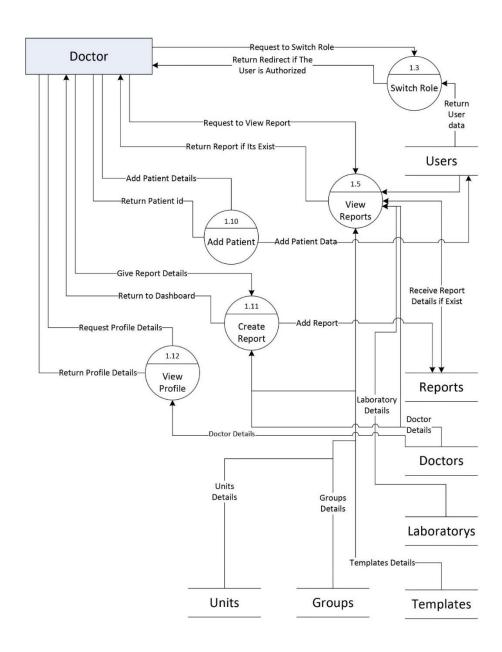
### 1. Context Level (0 Level)



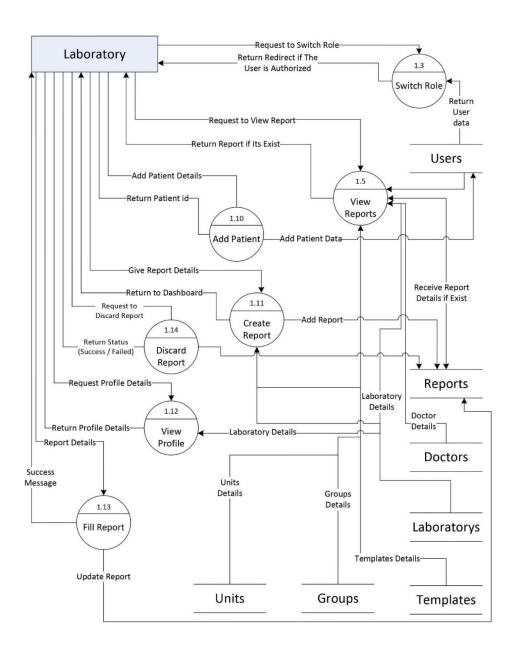
### 2. 1st Level User



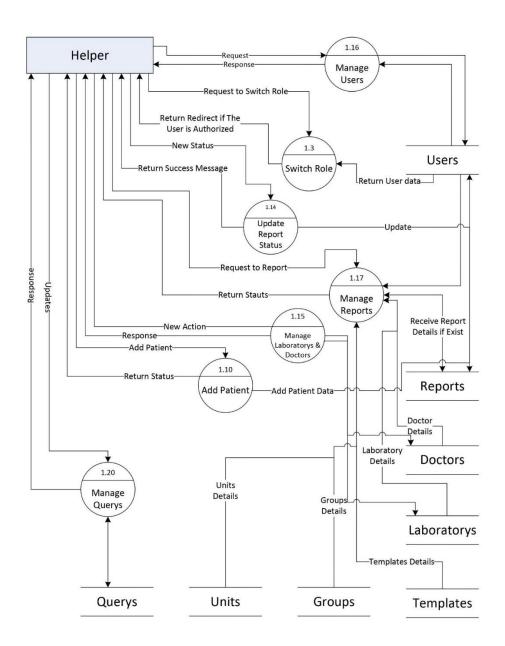
### 3. 1st Level Doctor



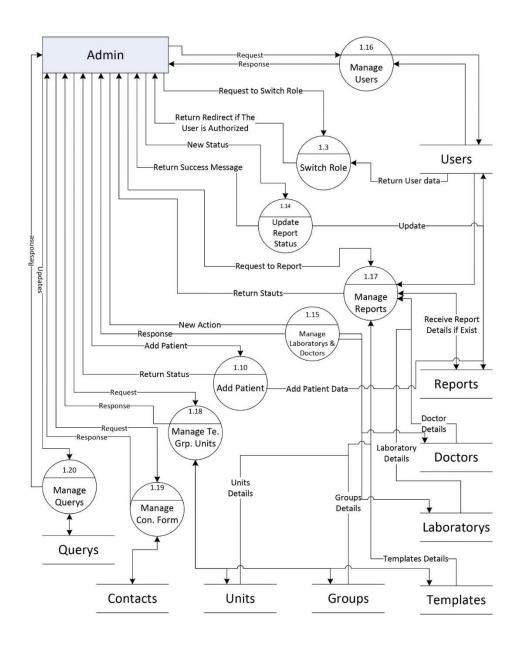
### 4. 1st Level Laboratory



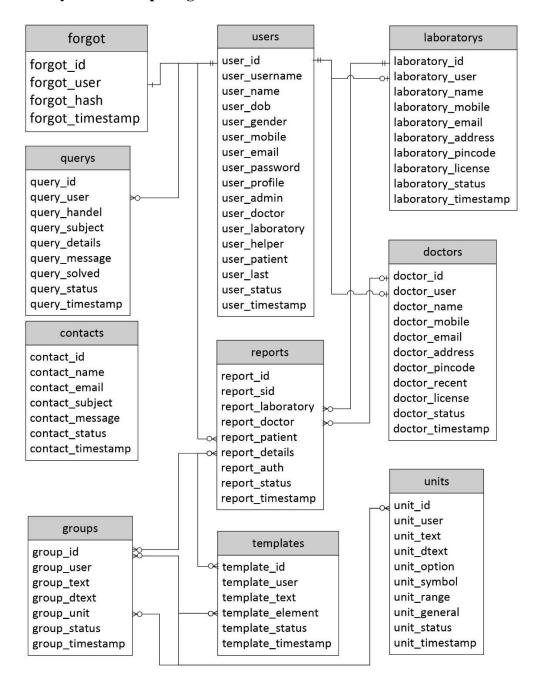
## 5. 1st Level Helper



### 6. 1st Level Admin



#### 4.2.2 Entity Relationship Diagram



## 4.3 Data Dictionary

### **4.3.1** Users – Store User Information

Field	Туре	Default	Attributes
user_id	int(11)	None	AUTO_INCREMENT
user_username	varchar(100)	None	
user_name	varchar(1000)	None	
user_dob	date	None	
user_gender	varchar(10)	None	
user_mobile	varchar(10)	None	
user_email	varchar(100)	None	
user_password	varchar(200)	None	
user_profile	varchar(200)	None	
user_admin	int(11)	0	
user_doctor	int(11)	0	
user_laboratory	int(11)	0	
user_helper	int(11)	0	
user_patient	int(11)	1	
user_last	varchar(30)		
user_status	int(11)	1	
user_timestamp	timestamp	current_timestamp()	

### 4.3.2 Forgots – Password Forgot Request

Field	Туре	Default	Attributes
forgot_id	int(11)	None	AUTO_INCREMENT
forgot_user	int(11)	None	
forgot_hash	varchar(500)	None	
forgot_timestamp	timestamp	current_timestamp()	

### **4.3.3 Doctors – Store Doctors Information**

Field	Туре	Default	Attributes
doctor_id	int(11)	None	AUTO_INCREMENT
doctor_user	int(11)	None	
doctor_name	varchar(100)	None	
doctor_mobile	varchar(10)	None	
doctor_email	varchar(200)	None	
doctor_address	varchar(500)	None	
doctor_pincode	int(11)	None	
doctor_recent	varchar(200)		
doctor_license	int(11)	0	
doctor_status	int(11)	0	
doctor_timestamp	timestamp	current_timestamp()	

## **4.3.4** Laboratorys – Store Laboratorys Information

Field	Туре	Default	Attributes
laboratory_id	int(11)	None	AUTO_INCREMENT
laboratory_user	int(11)	None	
laboratory_name	varchar(100)	None	
laboratory_mobile	varchar(10)	None	
laboratory_email	varchar(200)	None	
laboratory_address	varchar(500)	None	
laboratory_pincode	int(11)	None	
laboratory_license	int(11)	0	
laboratory_status	int(11)	0	
laboratory_timestamp	timestamp	current_timestamp()	

# **4.3.5** Querys – Store Patient Querys and Issues

Field	Туре	Default	Attributes
query_id	int(11)	None	AUTO_INCREMENT
query_user	int(11)	None	
query_handel	int(11)	None	
query_subject	varchar(300)	None	
query_details	varchar(1000)	None	
query_message	varchar(500)	None	
query_solved	int(11)	None	
query_status	int(11)	None	
query_timestamp	timestamp	current_timestamp()	

## **4.3.6** Template – Store Report Template

Field	Туре	Default	Attributes
template_id	int(11)	None	AUTO_INCREMENT
template_user	int(11)	None	
template_text	varchar(200)	None	
template_element	varchar(5000)	None	
template_status	int(1)	1	
template_timestamp	timestamp	current_timestamp()	

## 4.3.7 Groups – Store Report Groups

Field	Туре	Default	Attributes
group_id	int(11)	None	AUTO_INCREMENT
group_user	int(11)	None	
group_text	varchar(200)	None	
group_dtext	varchar(200)	None	
group_unit	varchar(1000)	None	
group_status	int(11)	1	
group_timestamp	timestamp	current_timestamp()	

## 4.3.8 Units – is's a Small Element of any report

Field	Туре	Default	Attributes
unit_id	int(11)	None	AUTO_INCREMENT
unit_user	int(11)	1	
unit_text	varchar(100)	None	
unit_dtext	varchar(100)	None	
unit_option	varchar(500)	None	
unit_symbol	varchar(25)	None	
unit_range	varchar(400)	None	
unit_general	int(11)	0	
unit_status	int(11)	None	
unit_timestamp	timestamp	current_timestamp()	

## **4.3.9** Reports – Store All Medical Reports

Field	Туре	Default	Attributes
report_id	int(11)	None	AUTO_INCREMENT
report_sid	varchar(20)	None	
report_laboratory	int(11)	NULL	
report_doctor	int(11)	NULL	
report_patient	int(11)	None	
report_details	mediumtext	None	
report_auth	varchar(1000)	None	
report_status	int(11)	1	
report_timestamp	timestamp	current_timestamp()	

### **4.3.10** Contact – Store All Contact Form Submissions

Field	Туре	Default	Attributes
contact_id	int(11)	None	AUTO_INCREMENT
contact_name	varchar(100)	None	
contact_email	varchar(100)	None	
contact_subject	varchar(100)	None	
contact_message	varchar(500)	None	
contact_status	int(11)	None	
contact_timestamp	timestamp	current_timestamp()	

# 5. Implementation

### 5.1 Form Layouts

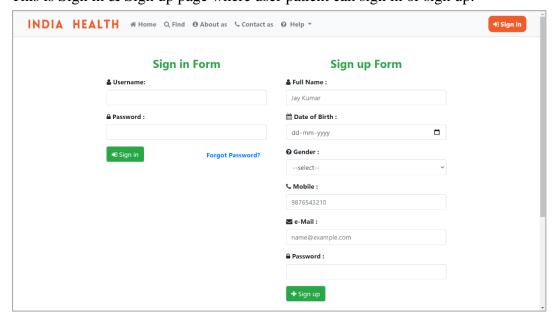
#### 1. Home

This is Home Page



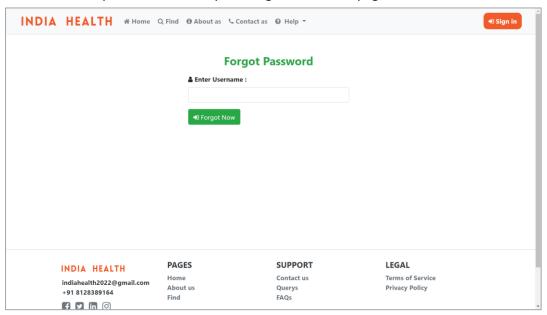
### 2. Sign in & Signup

This is Sign in & Sign up page where user patient can sign in or sign up.



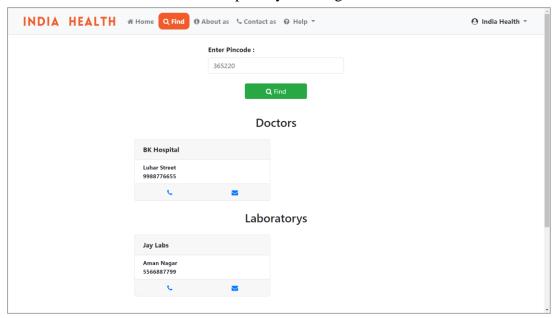
#### 3. Forgot Password

If user loss their password then they can forgot it from this page



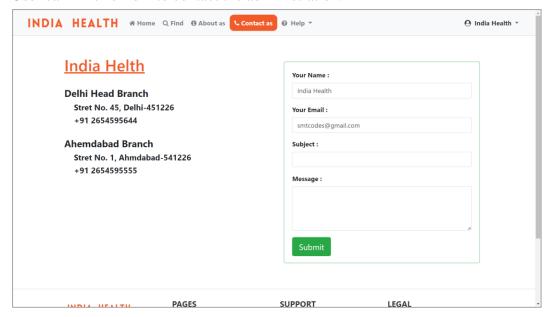
#### 4. Find

User can find near Doctors and Hospital by Entering Pincode



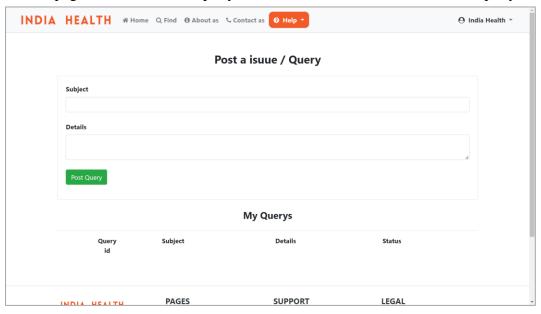
#### 5. Contact

User can fill this from to contact the administration.



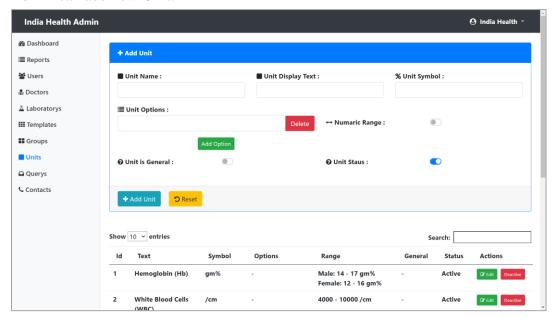
## 6. Query

On this page user can create a query and the administration will solve this query.

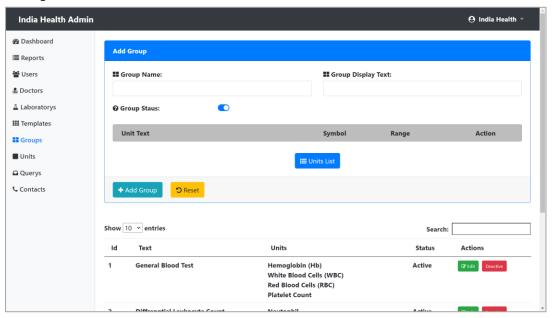


#### 7. Unit Add

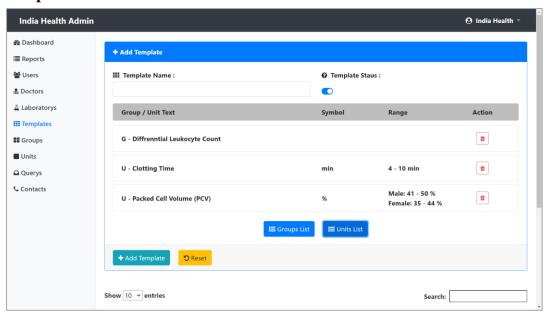
Admin can add new Unit.



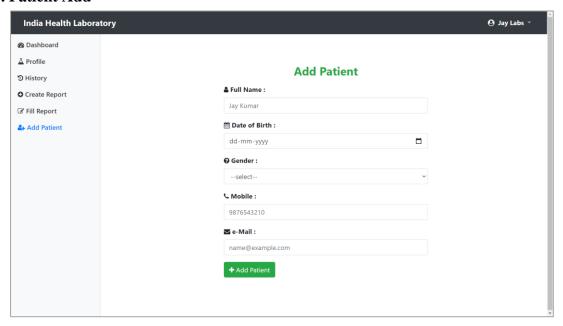
### 8. Group Add



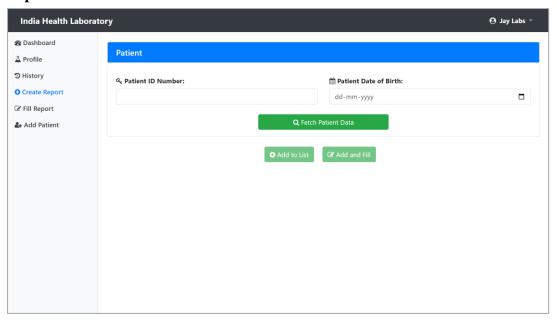
### 9. Template Add



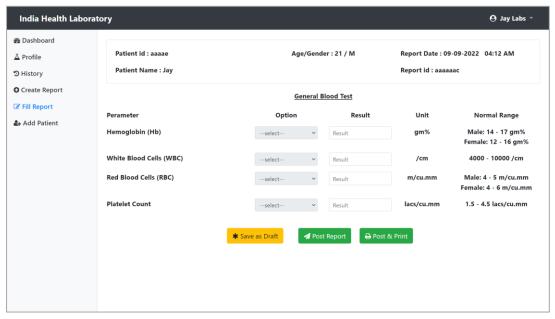
#### 10. Patient Add



### 11. Report Create

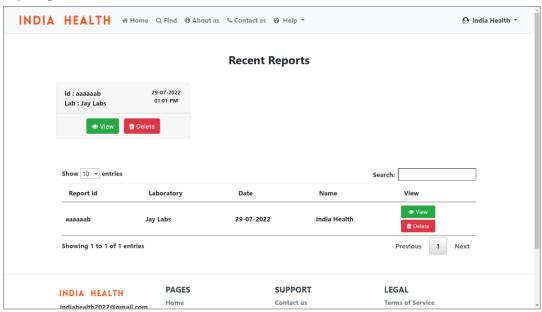


### 12. Fill Report

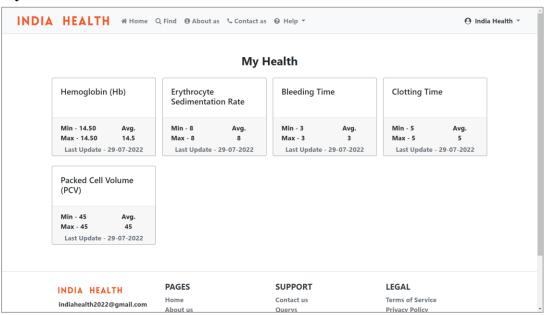


### 5.2 Report Layouts

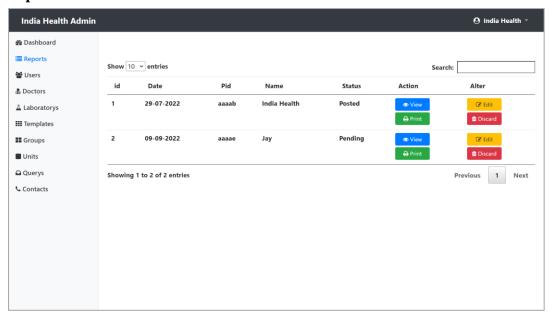
### 1. My Reports



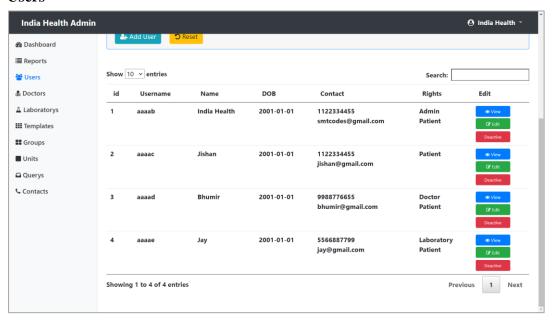
### 2. My Health



### 3. Reports



#### 4. Users



#### 5. Doctors



## 6. Laboratory



# 6. Testing

### 6.1 Test Strategy

- In our scenario testing is going to be done at individual module level and final at system level. Each module is going to be done testing individually and it is supposed to output the expected result
- Our main focus was on individual module testing, integration testing and system testing.
- As we have hosted this site so black box testing also conducted in order to test end user's functionality.

#### 6.2 Test Cases

### 1. User Sign up

Test Case ID	TC001
Test Case Summary	User Signup.
Prerequisites	No Prerequisites
Test Data	Full Name: Smit Bosamiya
	Date of Birth: 01-01-2001
	Gender: Male
	Mobile: 4466998877
	e-Mail: smit@gmail.com
	password: smitsmit
Expected Result	Sign up Successfully
Actual Result	Sign up Successfully
Created By	Smit Bosamiya
Date of Creation	01-09-2022
Executed By	Smit Bosamiya
Date of Execution	01-09-2022
Test Environment	OS: Windows 10, Browser: Chrome
Status	Pass

## 2. User Sign in

Test Case ID	TC002
Test Case Summary	User Sign in.
Prerequisites	No Prerequisites
Test Data	Username: aaaad
	password: smitsmit
Expected Result	Sign in Successfully
Actual Result	Sign in Successfully
Created By	Smit Bosamiya
Date of Creation	01-09-2022
Executed By	Smit Bosamiya
Date of Execution	01-09-2022
Test Environment	OS: Windows 10, Browser: Chrome
Status	Pass

# 7. Future Enhancement

- In future we will add online payment option.
- Expand this Service to World Wide
- Generate More Reports like Health Analysis, Most Accruing Report Etc.

# 8. Bibliography

https://stackoverflow.com/

https://www.google.com/

https://www.php.net/manual/en/index.php

https://www.w3schools.com/

https://getbootstrap.com/