HEALTH TRACKING SYSTEM AND ANALYSIS

SOFTWARE ENGINEERING LAB(CSE3001)

GUI PROTOTYPING DOCUMENT

WINTER 2020-21

Submitted by

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in partial fulfillment for the award of the degree of

B.TECH

in

Computer Science and Engineering



Vellore-632014, Tamil Nadu, India

School of Computer Science and Engineering

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1. ABSTRACT

In today's world of automation, the field of biomedical is no longer aloof. Application of engineering and technology has proved its significance in the field of biomedical. It not onlymade doctors more efficient but also helped them in improving total process of medication. The Patient monitoring system is also a new step in the automation of supervision for doctors. This paper presents a current invention for monitoring the patient health by continuous observation. The basic idea behind this project is, it implies that whether a person is at home, on a trip, or athis work place, he/she can stay connected with the doctor and he can take immediate action ifnecessary.

The health monitoring system is employed as the method to measure the observation data. The experimental modal analysis is one of the effective health monitoring systems for the case where the modal parameters such as natural frequencies are adopted as the observations. To provide awareness of symptoms and easy booking of appointments. The patients who got/ will get treatment in our hospital. This allows us to know the rate of increase/decrease of the illnesses. The overall idea of which disease is pervading and spreading more or which disease is eradicating can be understood. Pie charts are the best way to get conclusions.

2. INTRODUCTION

MOTIVATION:

The reality of modern medicine is that there are many more patients than doctors who are able to help them. The recent pandemic has proven that the world isn't ready for emergencies of that sort and that there is a global need for qualified doctors. The technology can support the medical staff available and lighten the burden. The remote health monitoring system is especially useful to monitor patients with chronic diseases. Most chronic diseases are incurable, so it is necessary to monitor the state of the patient while at home, and quickly respond if health indicators worsen.

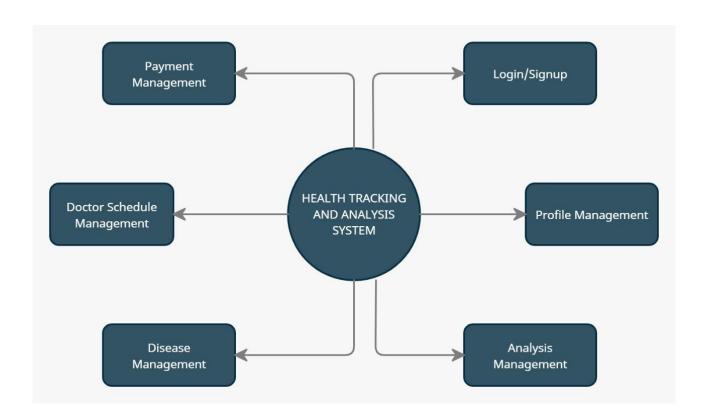
AIM:

To present the information of the diseases of the patients treated in the hospital

OBJECTIVES OF PROPOSED WORK:

The objective of this work is providing an effective application for Real Time Health Monitoring and Tracking. The system will track, trace, monitor patients and facilitate taking care of their health; so efficient medical services could be provided at appropriate time. This allows patients to book appointments online and patients can know about disease symptoms and precautions very clearly.

3. ARCHITECTURE



4. BACKGROUND STUDY

SURVEY OF EXISTING SYSTEMS:

Aging Population ratios are rising significantly. Health monitoring systems (HMS) in smart environments have evolved rapidly to become a viable alternative to traditional healthcare solutions. The aim of HMS is to not only reduce costs but to also provide timely e-health services to individuals wishing to maintain their independence. In this way, elderly people can avoid, for as long as possible, any interaction with healthcare institutions (e.g. nursing homes and hospitals), which in turn reduces pressure on the health system. To fully realise this vision of seamless e-health services supporting people in need of them, a number of challenges that need further investigation still exist. To this end, we provide an overview of the current state of the art for smart health monitoring systems.

A. HealthifyMe:

HealthifyMe is an Indian digital health and wellness platform that provides services such as calorie tracking, one-on-one nutrition and fitness coaching, and diet and workout plans. Developed for both android and ios platforms, the app takes a holistic lifestyle tracking approach to keep users engaged and motivated. HealthifyMe operates on a freemium model, providing nutritional and fitness advice from certified nutritionists and fitness coaches to users with premium subscription. The company claims to have access to the world's first and largest Indian food database. It has developed a calorie counter for regional foods and an exercise tracker for logging in physical activities. It also shows the count of proteins, carbohydrates, fats and fibre. The AI-driven digital nutritionist Ria can create personalised diet plans and workout routines. Ria reportedly handles 80% of user queries, and was integrated as an alexa skill for amazon echo speakers and Alexa built-in devices in 2019.

A. HEALTH MATE:

Withings's smart health mate you should consider for a healthy and happier future. It is the perfect partner in letting you take the right action to keep you healthy. From tracking your weight, sleeping patterns, heart rates, and much more, Withings comes with so many options to let you know every detail of your body. Set goals every week and make Withings remind you about it unless you attain it. You have once done reward yourself to keep yourself motivated. You can also look for inspiration by connecting with your friends or family through the app.

5. METHODOLOGY

MODULE SPLIT-UP:

Login and Signup

Just a normal Signup for patients to register and a separate hidden login for Doctor

Profile Management:

This Contains all info about the patient and all his medical history he has and his info like address etc

Appointment:

User can book an appointment to meet or consult the doctor

Payment:

after taking appointment patient should pay the fee for the doctor through any online payment portal(eg:-credit/debit card,upi etc)• Notification: if the appointment is confirmed the user will be notified 5 hrs before appointment so he can make him available for it.

Disease info and precautions:

The respective Doctor can write or suggest precautions and symptoms of the decease

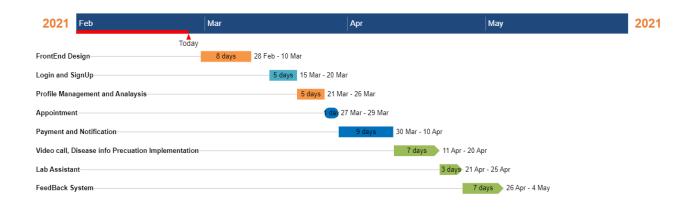
Lab assistant:

A lab assistant can upload the test results online so the patient can view his test report and it will also make online consultancy easy.

SCHEDULING DIAGRAMS:

GANTT CHART:

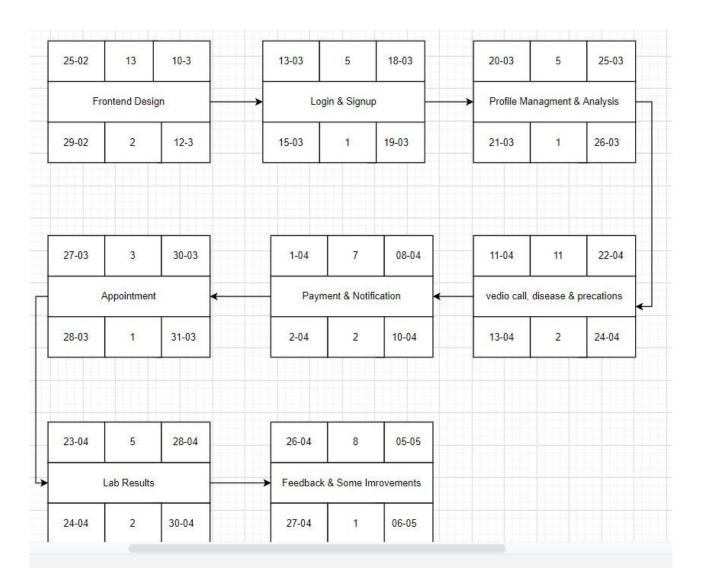
Gantt Chart



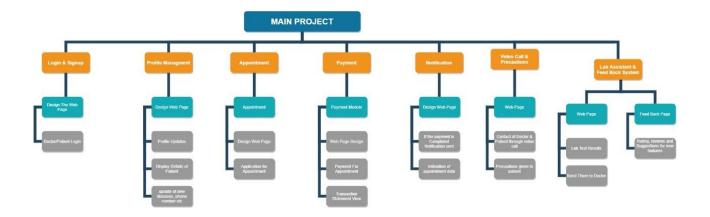
TIMELINE CHART:



PERT CHART:



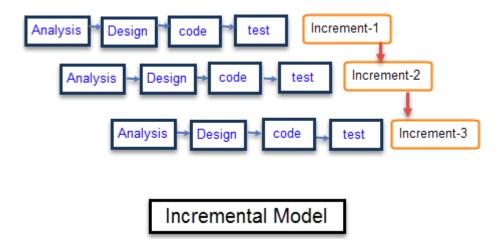
WORK BREAKDOWN STRUCTURE:



6. PROPOSED MODEL

For our Project we would like to use Incremental process model

We are using this because we will deploy a basic user and admin system first and then we will add features required options, and also if we want to add new features we can add it to by another increment.



Justification:

Incremental Model is a process of software development where requirements divided into multiple standalone modules of the software development cycle. In this model, each module goes through the requirements, design, implementation and testing phases. Every subsequent release of the module adds function to the previous release. The process continues until the complete system achieved.

REQUIRMENT ANALYSIS:

FUNCTIONAL REQUIREMENTS:

User Interfaces

- This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface.
- The protocol used shall be HTTP.
- The Port number used will be 80.
- There shall be logical address of the system in IPv4 format ask for.

Registration Process of SRS (Software Requirements Specification)

• Assigning an ID to the patients: The HMS enables the staff in the front desk to provide a unique ID for each patient and then add them to the record sheet of the patient. The patients can utilize the ID throughout their hospital stay.

? Check Out of SRS:

• Deleting Patient ID: The staff in the administration section of the ward can delete the patient ID from the system when the patient's checkout from the hospital.

Report Generation of SRS:

• Information of the Patient: The Hospital Management System generates a report on every patient regarding various information like patients name, Phone number the doctor's name whom its assigns.

Tatabase of SRS:

- Mandatory Patient Information: Every patient has some necessary data like phone number, their first and last name, personal health number, postal code, country, address, city, 'patient's ID number, etc.
- Updating information of the Patient: The hospital management system enables users to update the information of the patient as described in the mandatory information

included.

Software requirements:

- Video call :- patients should consult the recommended doctor by providing the link for the video call which is given by the software.
- Payment method: Any type of online payments are accepted by us. Nonfunctional Requirements

 Performance Requirements
- Response time-The system will give responses within 1 second after checking the patient information and other information.
- Repare the System must support 1000 people at a time
- (*) User interface- User interface screen will response within 5 seconds

Safety Requirements:

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed upto archival storage and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure. All the administrative and data entry operators have unique logins so system can understand who is login in to system right now no intruders allowed except system administrative nobody cannot change record and valuable data.

Software Quality Attributes

- AVAILABILITY: The system shall be available all the time.
- TORRECTNESS: A bug free software which fulfill the correct need/requirements of the client.
- MAINTAINABILITY: The ability to maintain ,modify information and update fix problems of the system
- (*) USABILITY: software can be used again and again without distortion.
- ACCESSIBILITY: Administrator and many other users can access the system but the access level is controlled for each user according to their work scope.
- ACCURACY: The reliability on the information/output. Can depend/be sure of the outcome. STABILITY: The system outcome/output won't change time to time. Same output Will be given always for a given input.

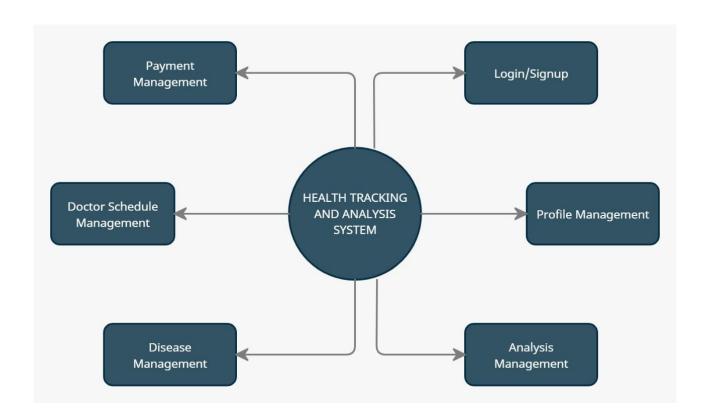
Security Requirements

- 1. Want take the responsibility of failures due to hardware malfunctioning.
- 2. Warranty period of maintaining the software would be one year.
- 3. Additional payments will be analysed and charged for further maintenance
- 4.If any error occur due to a user's improper use. Warranty will not be allocated to it.
- 5.No money back returns for the software.

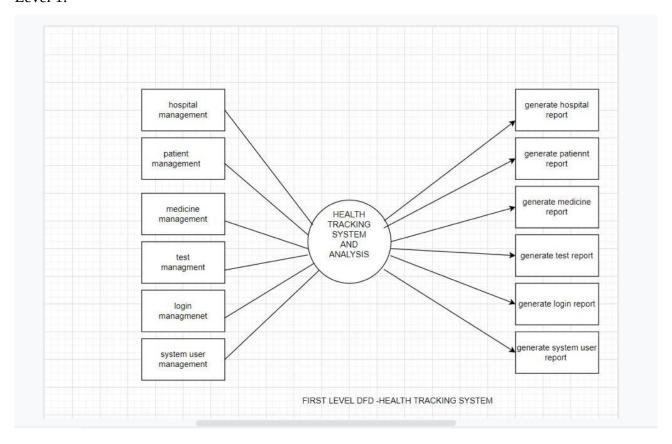
UML DIAGRAMS:

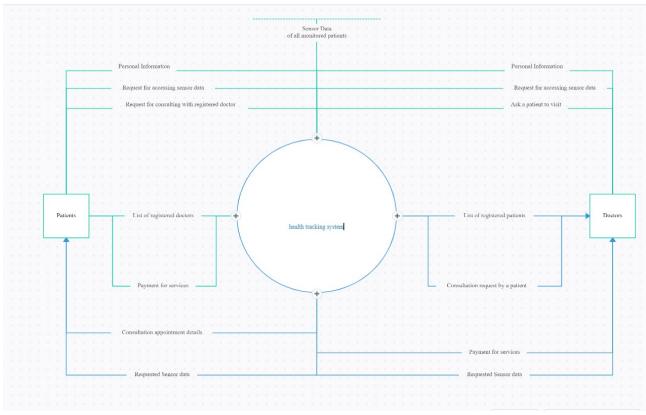
Data Flow diagram:

Level 0:

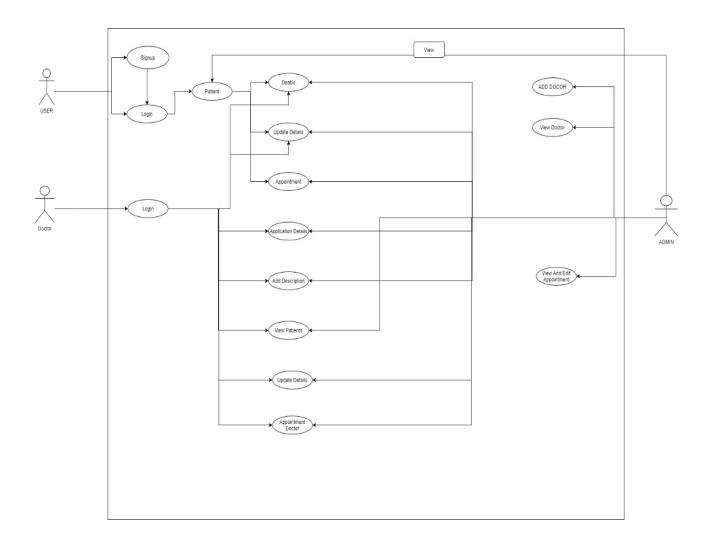


Level 1:

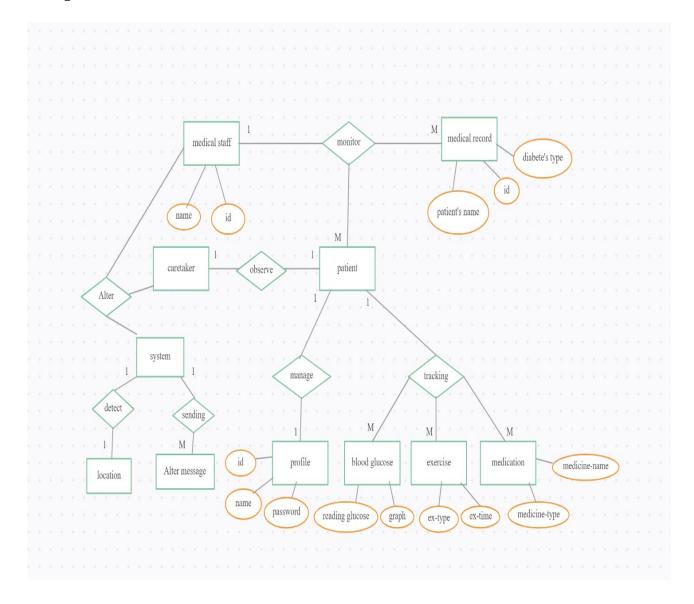




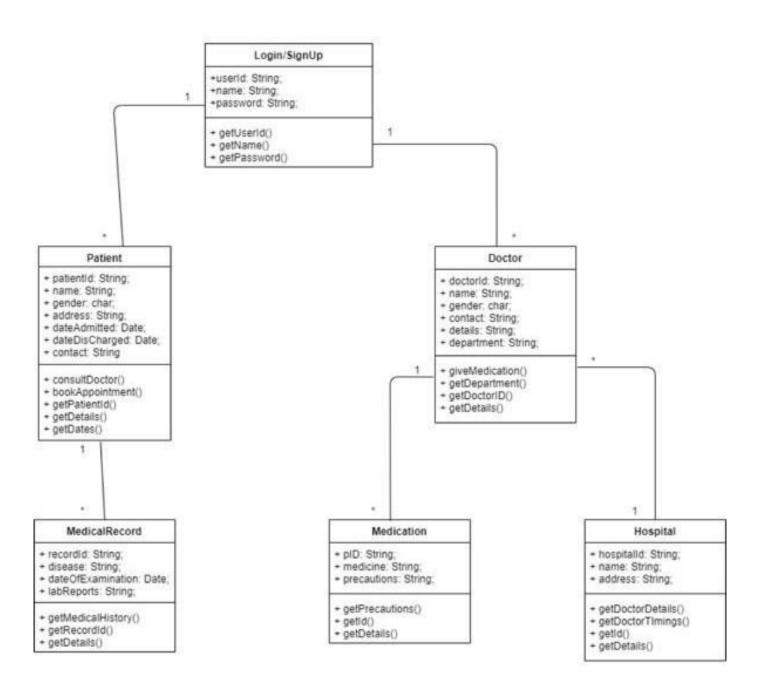
Use Case diagram:



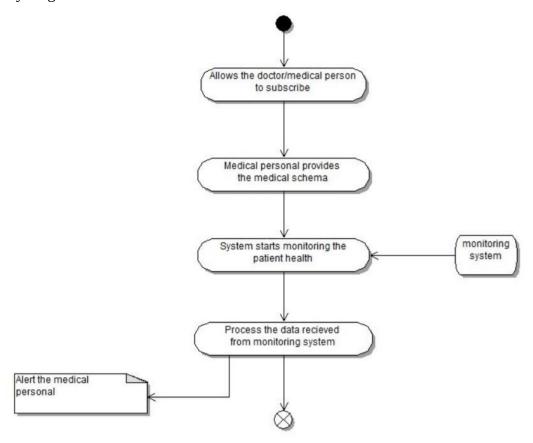
ER diagram:



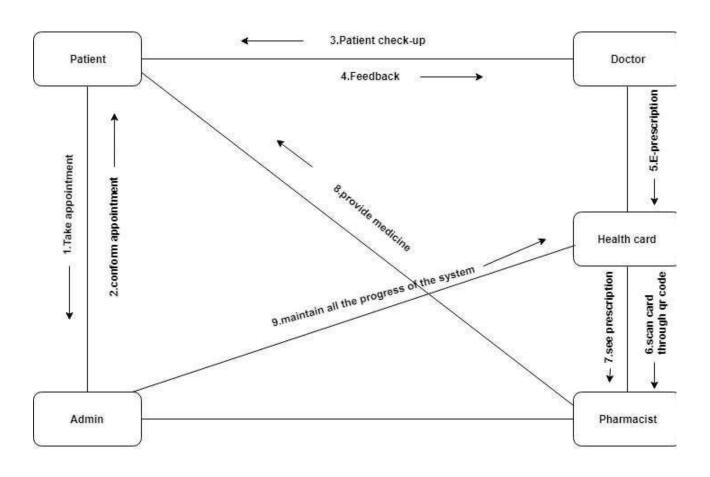
Class diagram:



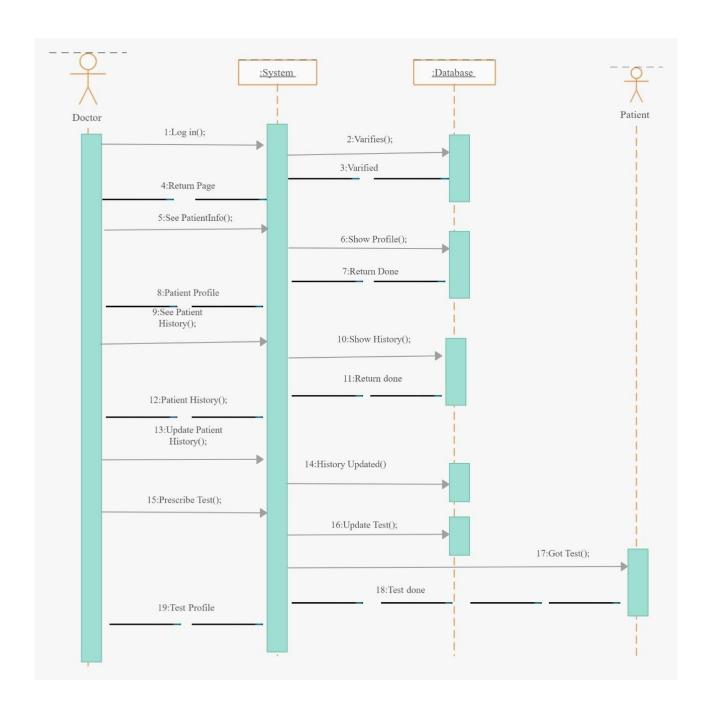
Activity diagram:



Collaboration diagram:



Sequence diagram:



7. RESULTS AND DISCUSSION

Test Case report:

Table-Test case Scenario name- Login:

Test case Id	Activity	Inputs	Expected Rusult	Actual Result	Status [Pass/ Fail]	Comments
TC-01	Luanch Application	http:// localhost:500 0/index.html	Home Page	Home Page	Pass	Launch Successful
	Enter invalid	Email:	The expected	The expected		
	email and any	invalid@abc.	address	address		Invalid login
TC-02	password and	com	entered	entered	Fail	attempt
	press login	Password:	doesn't match	doesn't match		stopped
	button	*****	any account	any account		
TC-03	Enter correct email and	Email:				
	password and	test@abc.com		Login	Pass	Login
	press login	Password:	Success	Success		successful
	button					

<u>Table-Test case Scenario name- SignUp:</u>

Test case Id	Activity	Inputs	Expected Rusult	Actual Result	Status [Pass/ Fail]	Comments
TC-01	Click Sign Up button	Click	Open SignUp page	As expected	Pass	Opened Signup page
TC-02	Leaving required fields	Blank in some required fields		SignUp button not disabling	Fail	Displaying errors
TC-03	Filling invalid email		Display message this is not a valid email	As expected	Fail	Email is invalid
TC-04	Password and Confirm password doesn't match	Password: ***** Confirm pass: ****	display message passwords doesn't match	As expected	Fail	displaying error passwords doesn't match
TC-05	Filling all reqiured fields and click Signup button	Name: testname email: test@abc.com password: ****** confirm pass: ******	Show pop up registerd successfully and redirect to appoint page	As expected	Pass	Signup Successfull

Table-Test case Scenario name- Making Appointment:

Test case Id	Activity	Inputs	Expected Rusult	Actual Result	Status [Pass/ Fail]	Comments
TC-01	Clicking Take Appointment link	Click	Open appointment page	As expected	Pass	Opened Appointment
TC-02	Leaving some required fields	Blank in some required fields	Disable fix button display message	Fix button not disabling	Fail	Displaying errors
TC-03	Filling all requird details and clicking fix appointment button	Name testname email: test@abc.com phone: 9876345983	Fix appointment as requested	As expected	Pass	Appointment fixed

Table-Test case Scenario name- Disease and Precuations:

Test case Id	Activity	Inputs	Expected Rusult	Actual Result	Status [Pass/ Fail]	Comments
TC-01	Clicking Disease button	click	Open Disease info page and display options Open	As expected	Pass	Opened disease info page
TC-02	Click on one disease name link	Click on Tuberculosis	respective disease page and display info about the disease and images if available	As expected	Pass	Displayed disease info

Table-Test case Scenario name- Logout:

Test case Id	Activity	Inputs	Expected Rusult	Actual Result	Status [Pass/ Fail]	Comments
TC-01	Click on logout	Click on loguot button	Redirect index page	As expected	Pass	Successfully logged out

Code:

Login page:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <meta name="description" content="">
    <meta name="author" content="">
    <title>Healtho Tracker</title>
    <!-- css -->
    <link href="css/bootstrap.min.css" rel="stylesheet" type="text/css">
    <link href="font-awesome/css/font-awesome.min.css" rel="stylesheet"</pre>
type="text/css" />
      <link rel="stylesheet" type="text/css"</pre>
href="plugins/cubeportfolio/css/cubeportfolio.min.css">
      <link href="css/nivo-lightbox.css" rel="stylesheet" />
      <link href="css/nivo-lightbox-theme/default/default.css" rel="stylesheet"</pre>
type="text/css" />
      <link href="css/owl.carousel.css" rel="stylesheet" media="screen" />
    <link href="css/owl.theme.css" rel="stylesheet" media="screen" />
      <link href="css/animate.css" rel="stylesheet" />
    <link href="css/style.css" rel="stylesheet">
      <!-- boxed bg -->
      <link id="bodybg" href="bodybg/bg1.css" rel="stylesheet"</pre>
type="text/css" />
      <!-- template skin -->
      <link id="t-colors" href="color/default.css" rel="stylesheet">
</head>
<body id="page-top" data-spy="scroll" data-target=".navbar-custom">
<div id="wrapper">
```

```
<nav class="navbar navbar-custom navbar-fixed-top" role="navigation">
          <div class="top-area">
                <div class="container">
                     <div class="row">
                           <div class="col-sm-6 col-md-6">
                           Monday - Sunday, 24 hour
service
                           </div>
                           <div class="col-sm-6 col-md-6">
                           Call us now +62 007 43
221
                           </div>
                     </div>
                </div>
          </div>
       <div class="container navigation">
           <!-- Collect the nav links, forms, and other content for toggling --
           <div class="collapse navbar-collapse navbar-right navbar-main-</pre>
collapse">
                  <a href="index.html">Home</a>
                     <a href="Login.html">Login</a>
                     <a href="IPloginpage.html">IPLogin</a>
                  </div>
           <!-- /.navbar-collapse -->
       </div>
       <!-- /.container -->
   </nav>
     <!-- Section: intro -->
     <section id="intro" class="intro">
          <div class="intro-content">
                <div class="container">
                     <div class="row">
                           <div class="col-lg-6">
                           <div class="wow fadeInDown" data-wow-offset="0"</pre>
data-wow-delay="0.1s">
                           <h2 class="h-ultra">Healtho Tracker Group</h2>
```

```
<div class="wow fadeInUp" data-wow-offset="0"</pre>
data-wow-delay="0.1s">
                              <div class="col-lg-9">
            <div class="form-wrapper">
            <div class="wow fadeInRight" data-wow-duration="2s" data-wow-</pre>
delay="0.2s">
                <div class="panel panel-skin">
                              <div class="panel-heading">
                                    <h3 class="panel-title"><span class="fa fa-
pencil-square-o"></span> You can login here</small></h3>
                              </div>
                        <div class="panel-body">
                              <form role="form" class="lead" method="POST"</pre>
action="login.php">
                                    <div class="row">
                                    <div class="col-xs-6 col-sm-6 col-md-6">
                                    <div class="form-group">
                                          <label>Username
                                          <input type="text" name="uname"</pre>
id="uname" class="form-control input-md">
                                    </div>
                                    </div>
                                    </div>
                                    <div class="row">
                                          <div class="col-xs-6 col-sm-6 col-md-
6">
                                                <div class="form-group">
                                                      <label>Password</label>
                                                            <input
type="password" name="pass" id="pass" class="form-control input-md">
                                                </div>
                                          </div>
                                    </div>
                                    <input type="submit" value="Login"</pre>
class="btn btn-skin btn-block btn-lg">
                                    Don't have an
account?
```

</div>

```
<a href="signup.html"><i>Signup
here</i></a>
                                   </form>
                       </div>
                 </div>
            </div>
      </div>
                             </div>
                       </div>
                 </div>
            </div>
    </section>
      <!-- /Section: intro -->
      <!-- /Section: testimonial -->
      <footer>
            <div class="container">
                 <div class="row">
                       <div class="col-sm-6 col-md-4">
                             <div class="wow fadeInDown" data-wow-delay="0.1s">
                             <div class="widget">
                                   <h5>About Healtho Tracker</h5>
                                   It is a best place to get the treatment.
                             </div>
                             </div>
                        </div>
                        <div class="col-sm-6 col-md-4">
                             <div class="wow fadeInDown" data-wow-delay="0.1s">
                             <div class="widget">
                                   <h5>Healtho Tracker center</h5>
                                   >
                                   This is present in many cities across the
globe
```

```
<l
                                          <1i>>
                                                <span class="fa-stack fa-lg">
                                                      <i class="fa fa-circle fa-</pre>
stack-2x"></i>
                                                      <i class="fa fa-calendar-o</pre>
fa-stack-1x fa-inverse"></i>
                                                </span> Monday - Sunday, 24 hour
service
                                          <1i>>
                                                <span class="fa-stack fa-lg">
                                                      <i class="fa fa-circle fa-</pre>
stack-2x"></i>
                                                      <i class="fa fa-phone fa-</pre>
stack-1x fa-inverse"></i>
                                                </span> +62 007 43 221
                                          <1i>>
                                                <span class="fa-stack fa-lg">
                                                      <i class="fa fa-circle fa-</pre>
stack-2x"></i>
                                                      <i class="fa fa-envelope-o</pre>
fa-stack-1x fa-inverse"></i>
                                                </span> hello@healthotracker.com
                                          </div>
                              </div>
                        </div>
                        <div class="col-sm-6 col-md-4">
                              <div class="wow fadeInDown" data-wow-delay="0.1s">
                              <div class="widget">
                                    <h5>Our location</h5>
      Mumbai<br>Hyderabad<br>Chennai<br>Delhi<br>Bengaluru
```

</div>

</div>

</div>

```
</div>
           <div class="sub-footer">
           <div class="container">
                 <div class="row">
                       <div class="col-sm-6 col-md-6 col-lg-6">
                             <div class="wow fadeInLeft" data-wow-delay="0.1s">
                             <div class="text-left">
                             ©Copyright 2021 - Health Tracker. All
rights reserved.
                             </div>
                             </div>
                       </div>
                 </div>
           </div>
           </div>
     </footer>
</div>
<a href="#" class="scrollup"><i class="fa fa-angle-up active"></i></a>
     <!-- Core JavaScript Files -->
   <script src="js/jquery.min.js"></script>
   <script src="js/bootstrap.min.js"></script>
   <script src="js/jquery.easing.min.js"></script>
     <script src="js/wow.min.js"></script>
     <script src="js/jquery.scrollTo.js"></script>
     <script src="js/jquery.appear.js"></script>
     <script src="js/stellar.js"></script>
     <script
src="plugins/cubeportfolio/js/jquery.cubeportfolio.min.js"></script>
      <script src="js/owl.carousel.min.js"></script>
     <script src="js/nivo-lightbox.min.js"></script>
    <script src="js/custom.js"></script>
</body>
</html>
```

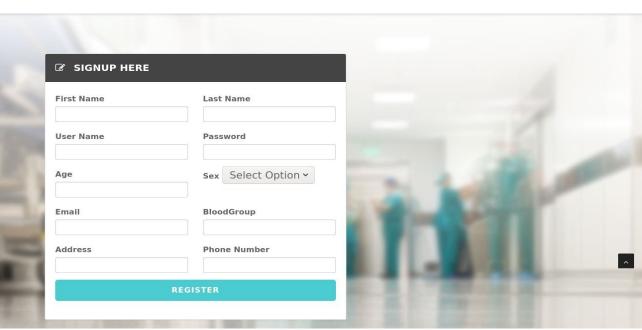
GUI Screenshots:

HOME LOGIN IPLOGIN **Healtho Tracker Group** Username Password Don't have an account? Signup here ABOUT HEALTHO TRACKER HEALTHO TRACKER CENTER **OUR LOCATION** It is a best place to get the treatment. This is present in many cities across the Mumbai Hyderabad Chennai Monday - Sunday, 24 hour service Delhi Bengaluru +62 007 43 221 hello@healthotracker.com

Monday - Sunday, 24 hour service

Call us now +62 007 43 221

HOME LOGIN IPLOGIN



HOME LOGIN IPLOGIN

Healtho Tracker Group
Provide best quality healthcare for you

✓ Choose your favourite doctor
Get a very cool and amazing doctors

✓ Only use friendly environment
Best Interaction for you with the doctors



Make an appoinment

This website helps you to take the appoinment from your favorite doctors



Help by specialist

Doctors prescribed in this site are professionals and are very friendly towards the patients

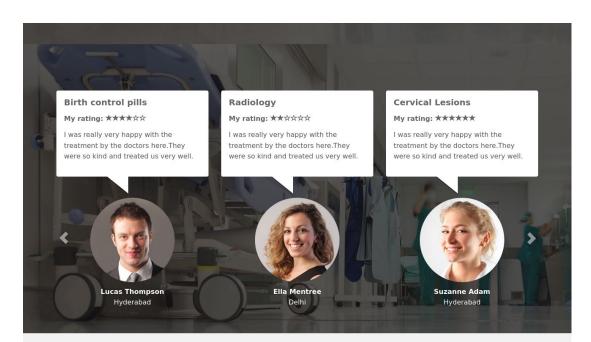
Our facilities











ABOUT HEALTHO TRACKER

It is a best place to get the treatment.

HEALTHO TRACKER CENTER

This is present in many cities across the globe

Monday - Sunday, 24 hour service +62 007 43 221

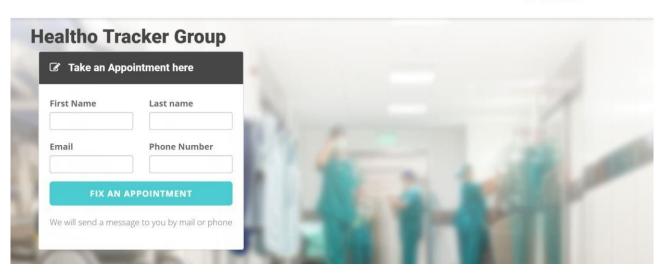
hello@healthotracker.com

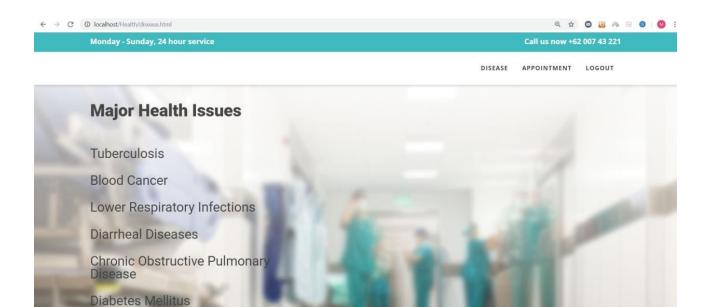
OUR LOCATION

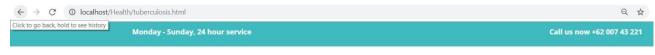
Mumbai Hyderabad Chennai Delhi Bengaluru



DISEASE APPOINTMENT LOGOUT

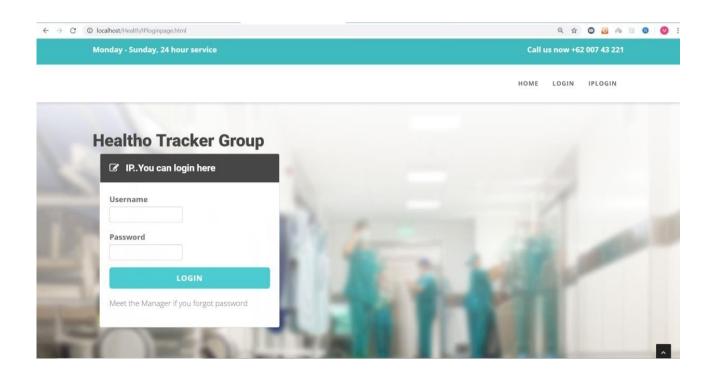


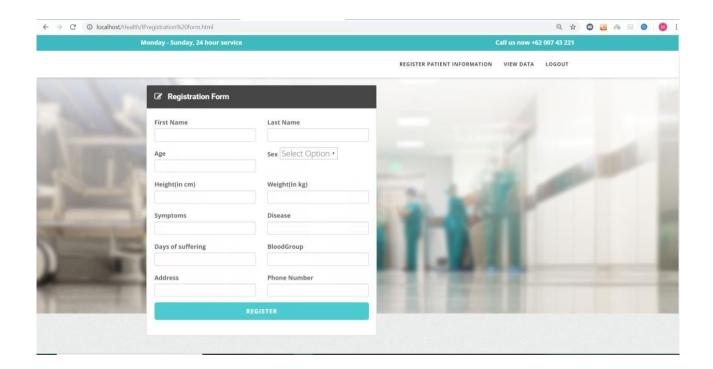




DISEASE APPOINTMENT LOGOUT

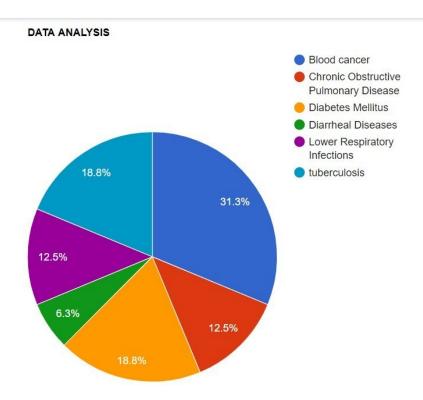
Tuberculosis (TB) is an infectious disease usually caused by Mycobacterium tuberculosis (MTB) bacteria. Tuberculosis generally affects the lungs, but can also affect other parts of the body. Most infections do not have symptoms, in which case it is known as latent tuberculosis. About 10% of latent infections progress to active disease which, if left untreated, kills about half of those affected. The classic symptoms of active TB are a chronic cough with blood-containing sputum, fever, night sweats, and weight loss. It was historically called "consumption" due to the weight loss. Infection of other organs can cause a wide range of symptoms.



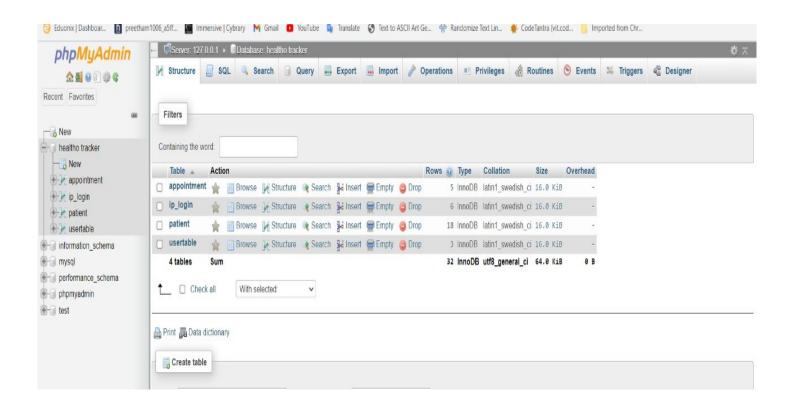


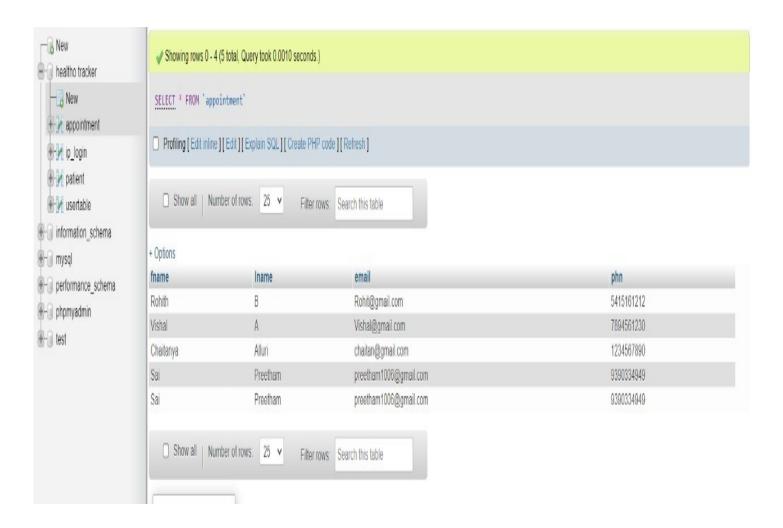
Monday - Sunday, 24 hour service

REG

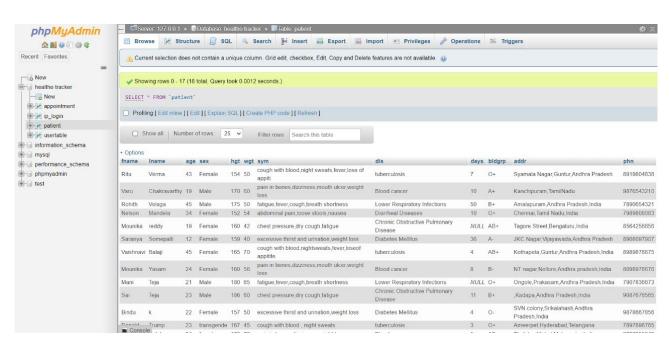


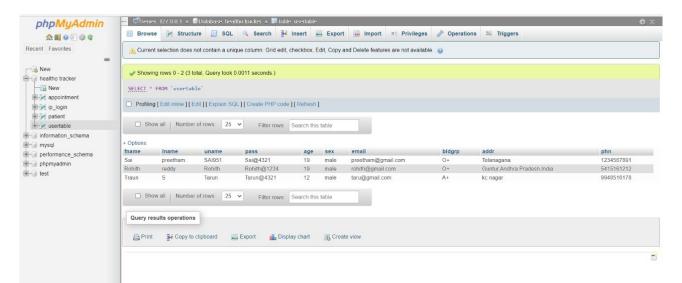
Database screenshots:











8. CONCLUSION

The system developed patient monitoring based on Internet of things, is an alternative that can be used to help patients with chronic diseases. Likewise with this set of solutions the aim is to improve the quality of life of patients, not just monitoring them, but also to enable direct them to improve their eating habits and workout routines.

The context model developed for the system proved to be efficient when making inferences related to the context, such as recommendations for taking measures through sensors, as well as recommendations and workout routines tips to improve the eating habits of patients.

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