CONTAINMENT ZONE ALERTING APPLICATION

ELECTRONICS AND COMMUNICATION ENGINEERING

In partial fulfillment of the requirement for the award of the Degree of

BACHELOR OF ENGINEERING

Submitted by

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(An Autonomous Institution Approved by AICTE, New Delhi, Affiliated to Anna university, Chennai, Accredited with "A" Grade by NAAC, Pulloor, Kariapatti – 626115)

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CHAPTER 1

INTRODUCTION

A containment zone alerting application is a mobile application that sends alerts to users when they enter or exit a containment zone. The app uses GPS to track the user's location and sends an alert if the user enters or leaves a containment zone. The app also allows users to set up alerts for specific containment zones.

1.1 PROJECT OVERVIEW

The World Health Organization has declared the outbreak of the novel coronavirus, COVID-19 as pandemic across the world. With its alarming surge of affected cases throughout the world, lockdown and awareness (social distancing, use of masks etc) among people are found to be the only means for restricting the community transmission. In a densely populated country like India, it is very difficult to prevent the community transmission even during lockdown without social awareness and precautionary measures taken by the people. Recently, several containment zones had been identified throughout the country and divided into red, orange and green zones, respectively. The red zones indicate the infection hotspot, orange zones denote some infection and green zones indicate an area with no infection. This paper mainly focuses on development of an Android application which can inform people of the COVID-19 containment zones and prevent trespassing into these zones.

1.2 PURPOSE

Provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individual's location. This Android application updates the locations of the areas in a Google map which are identified to be the containment zones. The application also notifies the users if they have entered a containment zone and uploads the user’s info to the online database. To achieve all these functionalities, many tools and APIs from Google like Firebase and Geofence are used in this app. Therefore, this application can be used as a tool for creating further social awareness about the arising need of precautionary measures to be taken by the people of India.

CHAPTER 2

LITERATURE SURVEY

1. Social Distance Alert System to Control Virus Spread using UWB RTLS incorporate Environments

The author proposed a method to develop a real-time location system (RTLS) based on ultrawideband (UWB) wireless technology that gives the most accurate locations of approximately 10cm using methods like trilateration and TDOA (Time Difference of Arrival). Coordinates of the location can be obtained by installing RTLS in predefined areas which are used to calculate the distance between Mobile UWB Devices (MUD's). An alert triggered by a system to maintain distance if distance between the employees is less than the prescribed social distance can keep the work premises safe and control the spread of coronavirus. This can be a great solution to control the spread of corona virus. This study can be a great solution to control the spread of virus in corporate working environments which are mostly confined in size and indoor in nature.

2. A Detection, Tracking and Alerting System for Covid-19 using Geo-Fencing and Machine Learning

The author proposed a complete Covid-19 Detection, Tracking and Alerting Mobile Application Kit which helps people to defend against Covid-19 spread. This is a first of its kind application that uses Geofencing and Machine learning together to combat the spread of Coronavirus. This app is a threefold app. The first fold is a Detection System for a user to undergo a Symptomatic Quiz based on a Risk Assessment ML Model to detect the presence of Covid in the user's body. The second fold is an efficient Tracking system that uses Geofencing technology to keep track of all the people who come into contact with the user. And the third fold is an Alerting system that sends the alert message to all those people who came into contact with the user if the user is tested as Corona positive. Thus, by using the technology, Geofencing allows to perform contact tracing of potential patients and alerts the possible network of people who might be infected by coronavirus.

3. Android Application based Smart Bus Transportation System for Pandemic Situations

Smart Bus Transportation System was introduced which guides the passengers in booking the bus tickets using the Android Application and it also helps the passengers to

keep an update on bus location based on their request. This system also sends alert message few minutes in advance to the passengers before the bus reaches the passengers boarding point. This system also sends the precautionary instruction priory the passengers that have to be followed while traveling in the bus. In order to provide additional safety to the passengers the temperature of the passengers is monitored and intimated to the bus in change before they are permitted into the bus.

4. Social Distancing Inspection to Mitigate COVID-19 Using K-Nearest Neighbour

In this paper, a model is recommended where the total number of people presenting the frame is detected using the YOLO object detection algorithm, and distance between each individual is measured Using K-Nearest Neighbour. If the distance between any two individual less than 6 feet or 2 meters then a red bounding box pops around them indicating that they are violating the rule of social distancing. This model is implemented on Raspberry Pi with a buzzer system for alert.

5. Social Distancing and Face Mask Monitoring System Using Deep Learning Based onCOVID-19 Directive Measures

The author proposed a system consisting of data processing, data augmentation, image classification using mobilenetv2 and object detection. The modules are developed using TensorFlow and open-cv python programming to detect faces with masks. If a person wears a mask they will be in a safe zone and the system shows a green box where if the person doesn't wear a mask, then it will be shown in a red box and with the message of alert as well. Social distancing detection will detect that two or more person in a single frame are walking with maintaining social distancing with at least 2 meters of range with each other using the Euclidean distance method, it will work in a Reliable manner with accurate results during this current situation which will easily help to track the person and collect fine if they violate any government directive guidelines so our system, will prevent the spread of the disease. Every Automation process reduces manual inspection to inspect the people which can be used in public places to control the spread of the virus and this prototype could be used in many places like park, hospital, airports, temples, railway station etc. to control this pandemic situation.

6. Application of Face Recognition in Tracing COVID-19 Fever Patients and close Contacts

The author developed a face recognition system to detect patients with fever symptoms and to trace close contacts. A real-time alert is sent to the account manager on a web or mobile app to enable further actions to quarantine the patients and close contacts. The RGB camera is used to detect a face and locate the forehead. The thermal image of the face is used to measure the temperature of the skin in the forehead. A black body is optional to improve the temperature measurement accuracy. After a patient is confirmed, his identification can be recognized using face recognition. By face recognition clustering, all face images of this person in the past given period of time (e.g., 14 days) can be retrieved. Furthermore, close contacts of this patient can also be retrieved from saved frame images or the camera ID and time stamp. The work [2] proposed a similar idea of using face recognition to trace fever patients and close contacts but did not give an algorithm on how to trace them. These retrieved results are displayed in an account console, and a notification is sent to the personnel (account manager) on duty in real time, and safety action can be taken to quarantine the persons, achieving the goals of stopping the virus spreading.

2.1 EXISTING SYSTEM

There are a number of applications that exist to alert people of containment zones. One such application is the Aarogya Setu app, which was developed by the Indian government. The app uses GPS to track the location of the user and sends alerts if the user enters a containment zone. Other apps that provide similar functionality include the Covid-19 India app and the Corona Kavach app.

2.2 REFERENCES

1.https://ieeexplore.ieee.org/document/9432254
2.https://www.expresscomputer.in/interviews/moveinsyncs-containment-zone-tracker-aims-at-democratising-information-flow/55826/
3.https://www.aarogyasetu.gov.in/
4.https://link.springer.com/article/10.1007/s41403-020-00137-3
5.https://covid19jagratha.kerala.nic.in/home/containmentZoneList

2.3 PROBLEM STATEMENT DEFINITION

Problem Statement (PS)	I am (USER)	I'm tryingto	But	Because	Which makes mefeel
PS-1	Is it belonging all the age groups	Share my status to Everyone	Is it any compulsion to do that	It makes me embarrasse d	As an influence person by spreading an irrelevant content to my native areas
PS-2	If a mobile app user whether we give all personal details what the app expecting from us.	The Given details should be verified by an admin side.	There are many apps cannot securethe data in a proper manner	The updating of an app cannot be prolonged.	Unsecured to give my personal data's.
PS – 3	Whether the updating of containment zone is plotted in a really affected area.	There is any way to share the alerted zone to others	It has an any constraint to share the location within the particular distance.	I am trying to reach beyond the areas.	Niche intimate to our others.

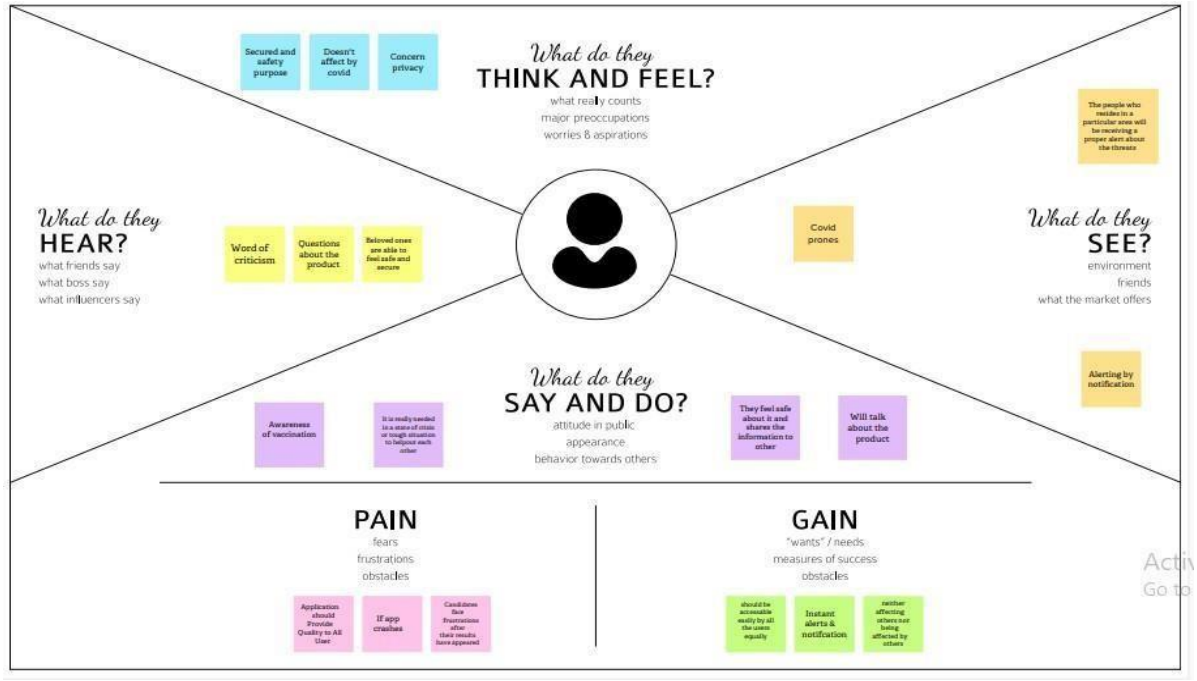
PS – 4	The alert messages are received by where only entered into the alerted zone	To stay awake from the alerted zone	Usage of mobile phone are taken out frequently to check out the messages	Just to check out whetherI entered in tothe containment zone or not.	Phone Holder for the frequent usage.
PS – 5	There is any feature to connect the Emergency Service.	When there is a helpless situation appeared.	The connections to helpline response as much earlier	On that hectic moment it was an only hope.	Pulled down into the Blinded mind

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviors and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

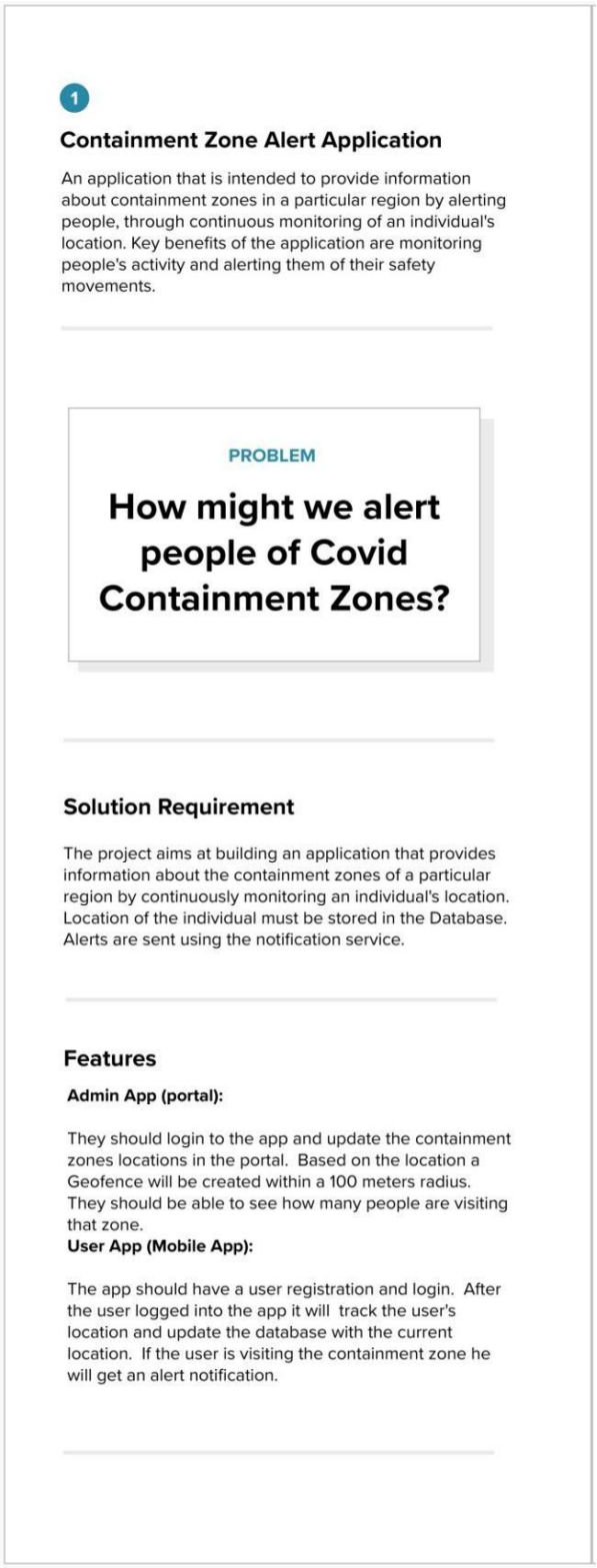


3.2 IDEATION & BRAINSTORMING

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

STEP – 1: Team Gathering, Collaboration and Select the Problem Statement



1

Containment Zone Alert Application

An application that is intended to provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individual's location. Key benefits of the application are monitoring people's activity and alerting them of their safety movements.

PROBLEM

How might we alert people of Covid Containment Zones?

Solution Requirement

The project aims at building an application that provides information about the containment zones of a particular region by continuously monitoring an individual's location. Location of the individual must be stored in the Database. Alerts are sent using the notification service.

Features

Admin App (portal):

They should login to the app and update the containment zones locations in the portal. Based on the location a Geofence will be created within a 100 meters radius. They should be able to see how many people are visiting that zone.

User App (Mobile App):

The app should have a user registration and login. After the user logged into the app it will track the user's location and update the database with the current location. If the user is visiting the containment zone he will get an alert notification.

STEP-2 Brainstorm, Idea Listing and Grouping

Brainstorming, Idea Listing and Grouping

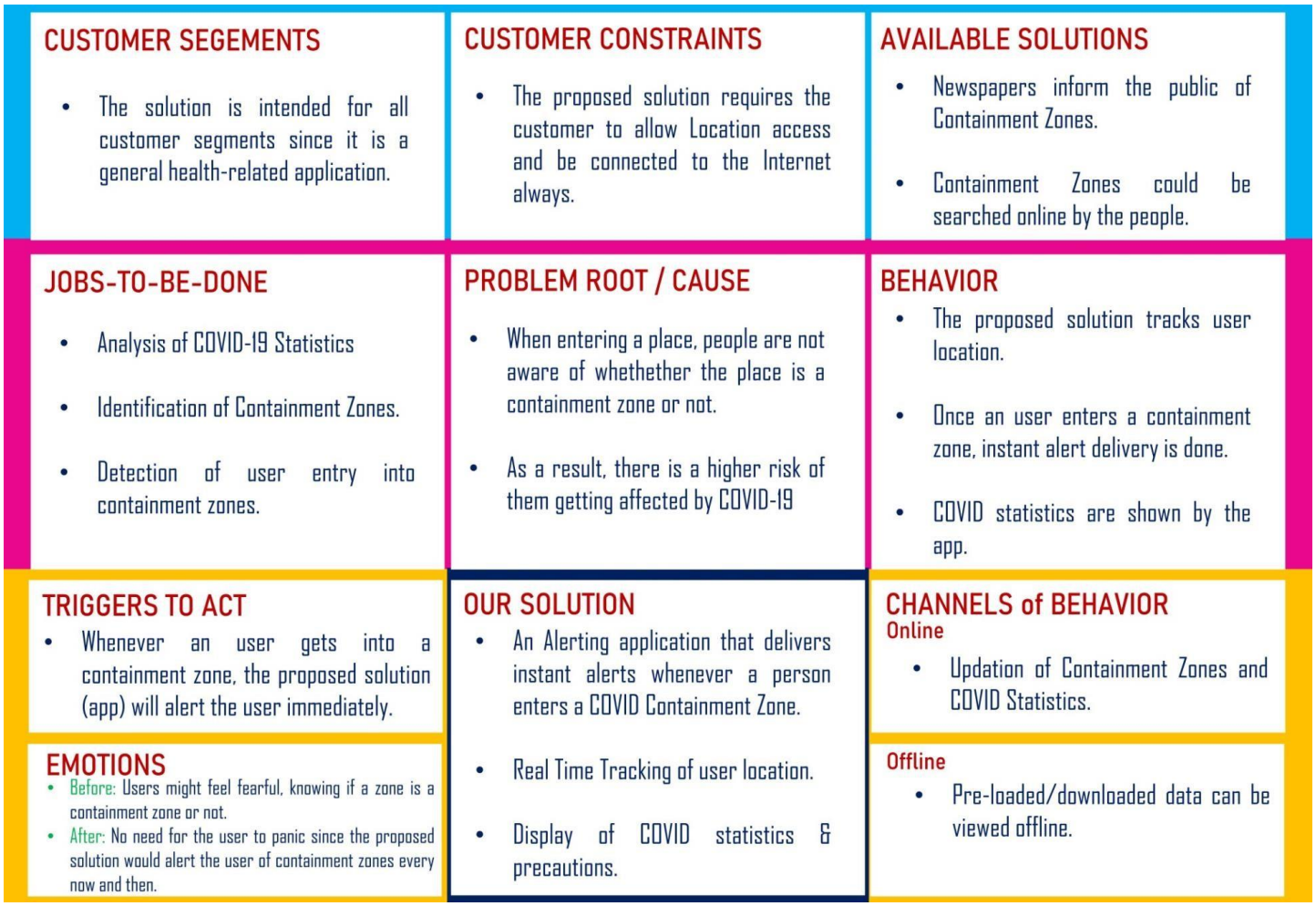
STEP -3 Grouping of Ideas

STEP-4 Idea Prioritization

3.3 PROPOSED SOLUTION

Parameter	Description
Problem Statement (Problem to be solved)	The main objective of this project is to provide virtual assistance to user about the containment zone. It also provides updated data base about the affected area.
Idea / Solution description	Constant updation of result collected from the testing center about the affected people can be merged with the application.We intend to collaborate our application with google map to locate the containment zone.
Novelty / Uniqueness	It will alert the user before reaching the place using the current location of the user ,whether the place is affected or not . If affected it will enroute alternate way.
Social Impact / Customer Satisfaction	This project will satisfy the customer need . For example: Suppose if we travel to a place where a specific area is affected by covid this application will alert the user(customer) which intern reduces the cause of infection by the affected people.
Business Model (Revenue Model)	1.No.of users downloading the application 2.In association with pharmacy(telemedicine) 3.Internet usage
Scalability of the Solution	we use this application for covid emergency situation. In future it can be used for other emerging pandemic condition.

3.4 PROBLEM SOLUTION FIT



CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form using Mail or Phone number
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Alert message via Notification	GPS tracking and notification services
FR-4	Show infected zones	Geo-fence sketching
FR-5	Track alternate routes	Using Google Maps API

4.2 NON - FUNCTIONAL REQUIREMENT

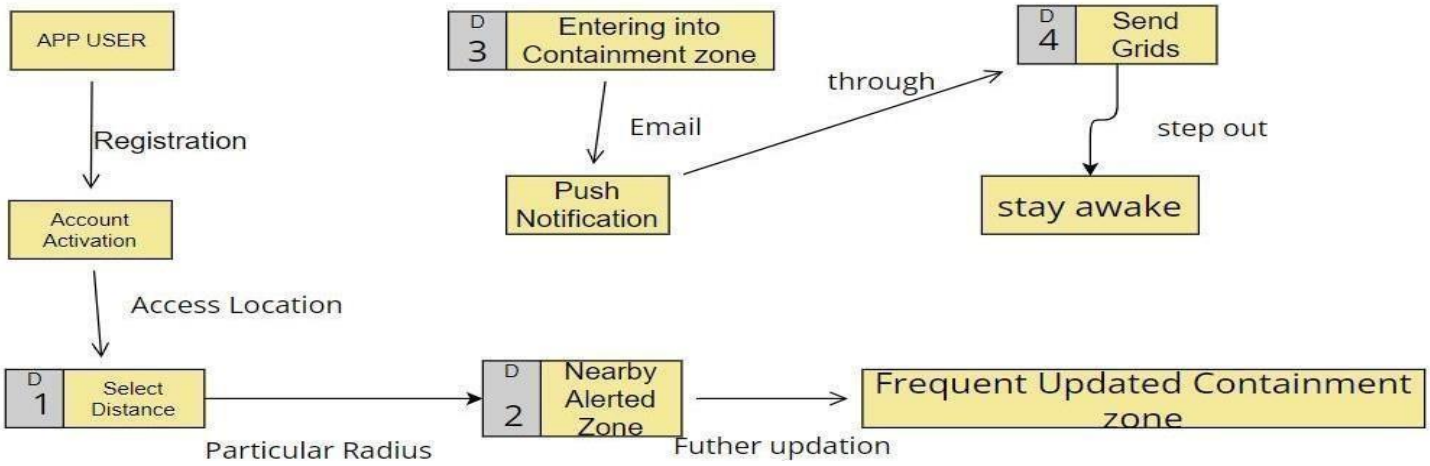
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	GUI is easier to interact with.
NFR-2	**Security**	The data collected from the user will be stored securely.
NFR-3	**Reliability**	The user can trust the results and navigate safely.
NFR-4	**Performance**	Accurate results can be achieved due to real-time location sharing.
NFR-5	**Availability**	Available if the network bandwidth of the user is of good range.
NFR-6	**Scalability**	The application can be used from anywhere and can also be implemented for both mobile and web apps for the user to interact.

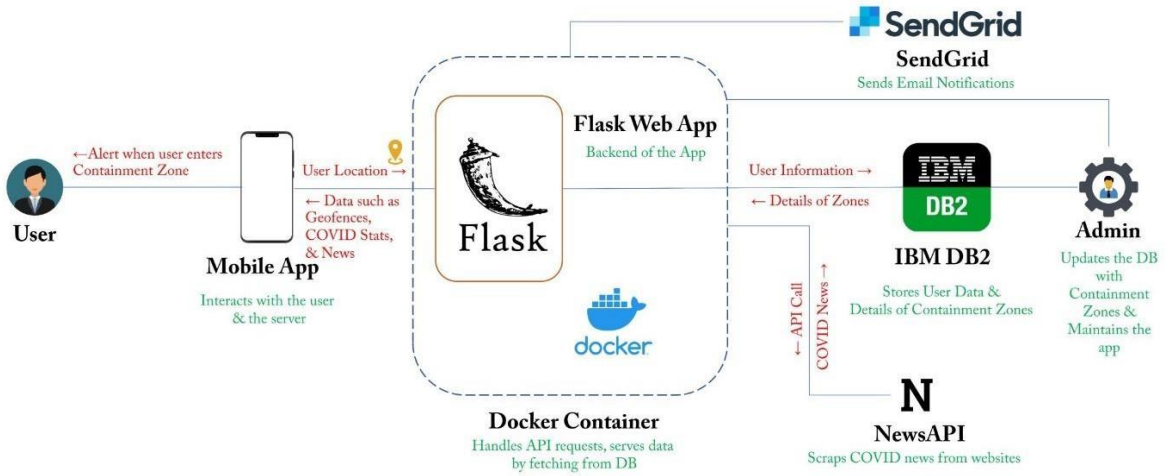
CHAPTER 5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS



5.2 SOLUTION & TECHNICAL ARCHITECTURE



5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-4
		USN-4	As a user, I can register for the application through Gmail	I can register & access the dashboard with Google login	Medium	Sprint-1
		USN-5	As a user, I can register for the application through Twitter	I can register & access the dashboard with Twitter login	Low	Sprint-4
	Login	USN-6	As a user, I can log into the application by entering my email & password	I can access it whenever I want.	High	Sprint-1
	Dashboard	USN-7	As a user, I need to give permission to access my contacts, location and storage	I get access to their services.	High	Sprint-2
		USN-8	As a user, I get access to the dashboard which shows a map with marked zones.	I can see the zone information on the dashboard.	High	Sprint-2
Administrator	Services	USN-9	As an admin, I need to provide valid information	I can get the pandemic	High	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
			about the pandemic out there.	updates out there.		
		USN-10	As an admin, I need to provide medical advice through a chat bot.	I get medical recommendation through a chatbot.	Medium	Sprint-3
		USN-11	As an admin, I need to provide medical recommendations by collaborating with top hospitals.	I get medical instruction through chief doctors.	Low	Sprint-3
		USN-12	As an admin, I need to alert the user when they enter pandemic zones.	I got a notification when I was in the pandemic area.	Medium	Sprint-4

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

TITLE	DESCRIPTION	DATE
Literature Survey &Information Gathering	Literature survey on the selected project & gathering information by referring the, technical papers, research publications etc.	19OCTOBER2022
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains &Gains, Prepare list of problem statements	18OCTOBER2022
Ideation	List the by organizing the brain storming session andprioritizethetop3ideas based on the feasibility & importance.	18OCTOBER2022
Proposed Solution	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution, etc.	18OCTOBER2022
Problem Solution Fit	Prepare problem - solution fit document.	18OCTOBER2022

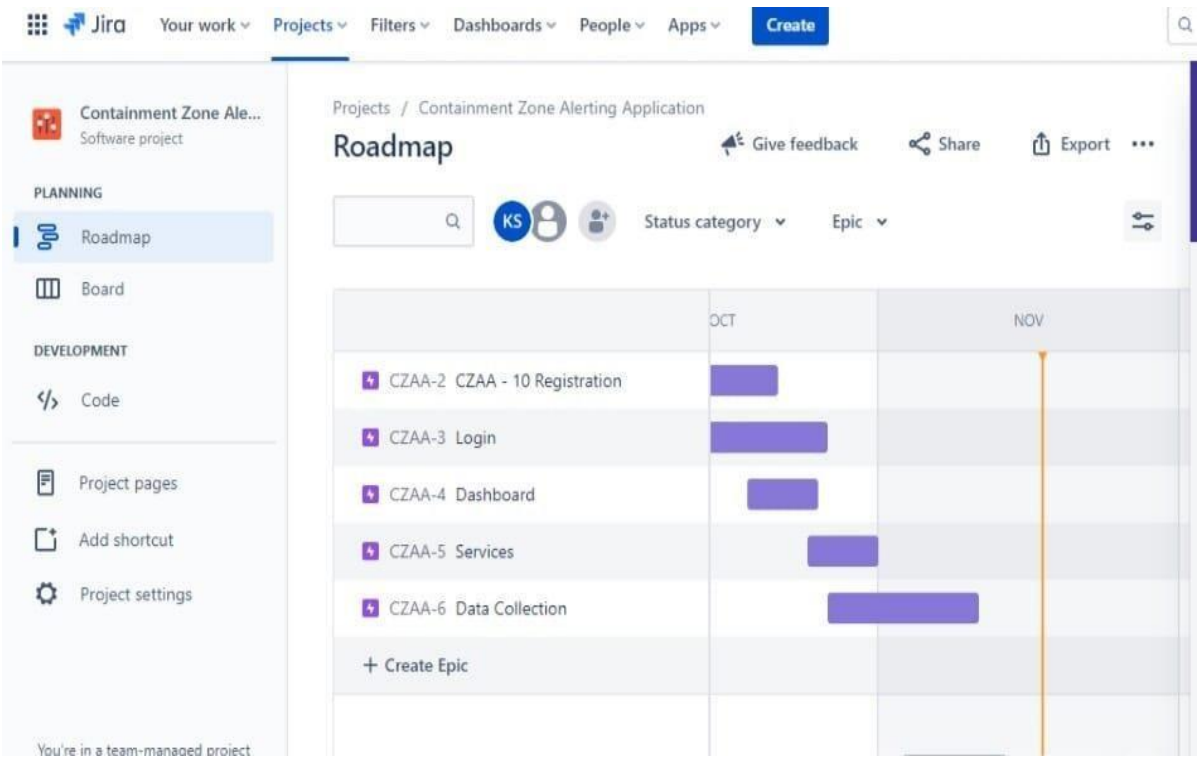
Solution Architecture	Prepare solution architecture document.	150CTOBER 2022
Customer Journey	Prepare the customer journey maps to understand the user interactions & experiences with the application (entry to exit).	24OCTOBER2022
Functional Requirement	Prepare the functional requirement document.	22OCTOBER2022
Data Flow Diagrams	Draw the data flow diagrams and submit for review.	26OCTOBER2022
Technology Architecture	Prepare the technology Architecture diagram.	22OCTOBER2022
Prepare Milestone & ActivityList	Prepare the milestones &activity list of the project.	31OCTOBER2022
Project Development - Delivery of Sprint-1,2,3&4	Develop & submit the developed code by testing it.	28OCTOBER2022

6.2 SPRINT DELIVERY SCHEDULE

Sprint	Functional Requirement (Epic)	User Story Number	User Story/Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	User: I can register for the application by entering my email, password and verifying password.	3	High	Natesh Krishnan
		USN-2	User: I will receive a confirmation email once I have registered for the application.	2	High	Jesonantojoy
		USN-3	User: I can register for the application through Gmail.	5	Medium	Pranav Kumar
		USN-4	Management: I need to register my hospitals on the site.	2	High	Karthiksaran
	Login	USN-5	User:I can login to the application by Entering my email & password	3	High	Natesh Krishnan
		USN-6	Management: I need to login into my dashboard with my given hospital id and password.	5	Medium	Jesonantojoy
	Dashboard	USN-7	User: I need to give permission to access my Contacts, Location, and Storage	5	High	Pranav Kumar

Sprint	Functional Requirement (Epic)	User Story Number	User Story/Task	Story Points	Priority	Team Members
Sprint-2		USN-8	User: I get access to the dashboard which shows a map with Containment zones	5	High	Karthiksaran
		USN-9	Management: I need to enter the case information of the patient that visits our hospital.	5	High	Jesonantojoy
	Services	USN-10	Admin: I need to provide valid information about the pandemic out there.	5	High	Natesh Krishnan
Sprint-3	Dashboard	USN-11	Management: I need to store all the patient information on the cloud.	5	High	Pranav Kumar
	Services	USN-12	Admin: I need to provide medical advice Through a chatbot.	5	Medium	Jesonantojoy
		USN-13	Admin: I need to provide medical Recommendations by collaborating with top hospitals.	5	Low	Karthiksaran
		USN-14	Admin: I need to provide preventive Measures when they travel through it.	5	High	Pranav Kumar
Sprint-4	Registration	USN-15	User: I can register for the application through Facebook.	2	Low	Natesh Krishnan
		USN-16	User: I can register for the application Through Twitter.	2	Low	Jesonantojoy
	Services	USN-17	Admin: I need to alert the user when They enter pandemic zones.	3	Medium	Natesh Krishnan
		USN-18	Admin: I need to provide special services for premium users by giving services like monitoring health by their smart bands.	3	Low	Jesonantojoy
	Data Collection	USN-19	Admin: I need to store all the user Information on the cloud	5	Medium	Pranav kumar

6.3 REPORTS FROM JIRA



CHAPTER 7

CODING & SOLUTIONING

7.1 FEATURE-1

In this page, the user can add the zone list, remove zone and add zone.

CODING:

```
<!DOCTYPE html>
<html lang="en">
<head>

</head>
<body>
   <style>
html, body {
  overflow-x: hidden;
  overflow-y: hidden;
  height: 100%;
  width: 100%;
  position: absolute;
  background-color: black;
  background-image: url('https://wallpapercave.com/wp/5KLTq1z.jpg');
  background-repeat: no-repeat;
  background-size: cover;
  background-position: top;
  z-index: -2;
}

#display {
     color: white;
     font-size: 2.9em;
     top: 10px;
  border-bottom: thin solid;
```

```
  padding-bottom: 20px;
  opacity: 0.80;
  filter: alpha(opacity=80); /* For IE8 and earlier */
}

#date {
  color: white;
  font-size: 1.3em;
  font-family: Georgia, "Times New Roman", Times, serif;
  font-weight: normal;
  letter-spacing: 0.2em;
  opacity: 0.6;
  filter: alpha(opacity=60); /* For IE8 and earlier */
}

#footer {
  width: 100%;
  height: 40px;
  position: fixed;
  bottom: -1px;
  background-color: white;
  text-align: center;
  opacity: 0.5;
  filter: alpha(opacity=50); /* For IE8 and earlier */
}

#line {
  width: 100%;
  bottom: 4em;
  position: fixed;
  border-bottom: solid white;
```

```
  padding: 15px;
  opacity: 0.5;
  filter: alpha(opacity=50); /* For IE8 and earlier */
}

.navbar {
  position: fixed;
  width: 100%;
  opacity: 0.6;
  filter: alpha(opacity=60); /* For IE8 and earlier */
}

.wrapper {
  background-color: red;
}

span {
  border-radius: 100px;
  opacity: 0.75;
  filter: alpha(opacity=75); /* For IE8 and earlier */
}

#content {
  height: 45em;
} p {
  max-width: 30em;
  color: white;
  font-family: "Adobe Caslon Pro", "Hoefler Text", Georgia, Garamond, Times, serif;
  letter-spacing:0.1em;
  text-align:center;
  margin: 40px auto;
```

```
  text-transform: lowercase;
  line-height: 145%;
  font-size: 2em;
  font-variant: small-caps;
}

p :hover {
  text-decoration: none;
}

.container {
  padding-top: 6em;
  text-align: center;
}

#b-nav {
  padding-bottom: 5em;
  position: fixed;
  width: 100%;
  bottom: 2em;
}

#b-nav ul {
  margin: 0;
  padding: 0.5em;
  list-style-type: none;
  text-align: center;
}

#b-nav ul li {
  display: inline;
```

```
}

#b-nav ul li a {
  text-decoration: none;
  padding: .2em 1em;
  background-color: black;
  opacity: 0.4;
  filter: alpha(opacity=40); /* For IE8 and earlier */
}

.hold {
  width: 100%;
  text-align: left;
}

#gen {
  outline: none;
  padding-top: 5px;
  text-decoration: none;
  opacity: 0.6;
  background-color: black;
  color: white;
  border: thin solid white;
  height: 40px;
  width: 100px;
  border-radius: 2px;
  transition: 0.5s;
  padding-bottom: 5px;
}

#gen:hover {
```

```
  background-color: white;
  color: black;
  border: thin solid black;
  opacity: 0.8;
}

#gen a {
  text-decoration: none;
}

#date {
  color: white;
}

@media screen
 and (max-device-width: 800px)
  and (max-device-height: 640px)
  and (-webkit-device-pixel-ratio: 2)
  and (orientation: portrait) {
    p {
      font-size: 1em;
    }
}

.fa-twitter {
  font-size: 30px !important;
  margin-left: 20px;
}

    </style>
   <link rel="stylesheet" type="text/css" href="https://cdnjs.cloudflare.com/ajax/libs/font-
```

```
    awesome/4.7.0/css/font-awesome.min.css">
  <body onload="startTime(); startDate()">
   <div class="container">
    <div id="date"></div>
    <div id="display"></div>
    <div id="content">

    <div class="logged"> </div></p>
     <p id="quote">"SUCCESSFUL!"</p>
     <a href="\table"><button type="button">ZONE LIST</button></a>
     <a href="\addzone"><button type="button">ADD ZONE</button></a>
     <a href="\removezone"><button type="button">REMOVE ZONE</button></a>
   </div>
  </div>
  </body>
   </html>
```

7.2 FEATURE-2

The users get alerted from entering the contaminated zone by geofencing the location and sending it as notification.

CODING:

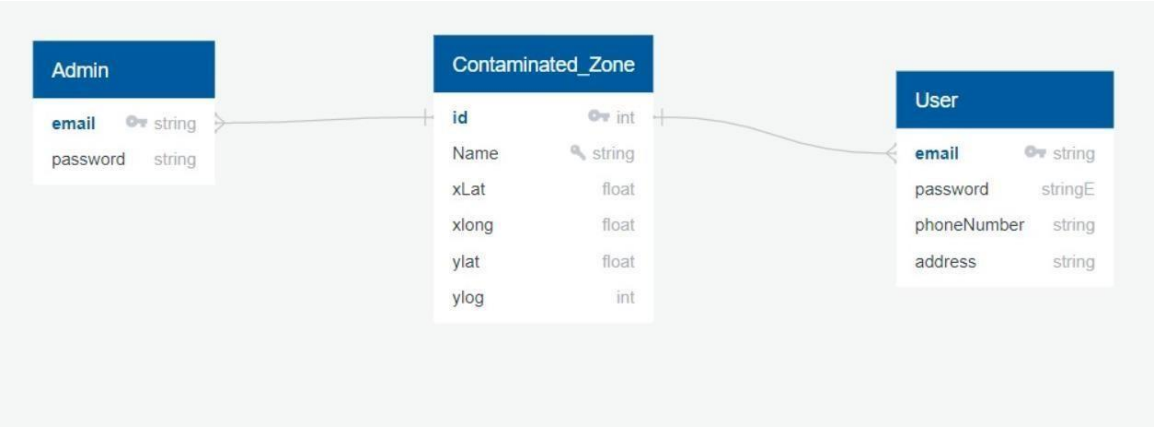
```
<!DOCTYPE html>
<html lang="en">
<head>


</head>
<body>
<style>
html, body {
```

```
  background: #333;
  height: 100%;
  overflow: hidden;
  text-align: center;
}

.svg-wrapper {
  height: 60px;
          margin: 0 auto;
  position: relative;

  transform: translateY(-50%);
  width: 320px;
}

.shape {
  fill: transparent;
  stroke-dasharray: 140 540;
  stroke-dashoffset: -474;
  stroke-width: 8px;
  stroke: #19f6e8;
}

.text {
```

```
  color: #fff00;
  font-family: 'Roboto Condensed';
  font-size: 22px;
  letter-spacing: 8px;
  line-height: 32px;
  position: relative;
  top: 300px;
}

@keyframes draw {
  0% {
    stroke-dasharray: 140 540;
    stroke-dashoffset: -474;
    stroke-width: 8px;
  }
  100% {
    stroke-dasharray: 760;
    stroke-dashoffset: 0;
    stroke-width: 2px;
  }
}

.svg-wrapper:hover .shape {
  -webkit-animation: 0.5s draw linear forwards;
```

```
  animation: 0.5s draw linear forwards;
}

</style>
 <form action="/loc" method="POST">
 <br>
 <br>
 <input type="text" name="mail" class="input" id="mail" style="position: absolute; left: 20%; margin-left: 180px; width: 400px; height: 25px; background:grey ; border: 8px solid black; top:250px" placeholder="Enter email-id" required>

<div class="svg-wrapper">

        <div>
   <button type="submit" id="button" class="text" style="color:yellow; top:300px;background-color:#99ffff"><a href="/loc"> Notify me </a></button>
<p style="color:yellow;font-size:18px;top:300px">Enter email address to be notified on and Click on Notify me to get alert message if you are in Containment Zone</p>
</div>
 </form>

</div>
</body>
</html>
```

7.3 DATABASE SCHEMA



CHAPTER 8

TESTING

8.1 TEST CASES

1. Login button click with wrong credentials entered.
2. Signup with already registered mail ID.
3. Signup with wrong form data entered.
4. Entering home page with logged out session.
5. Clicking home page buttons with logged out session.
6. Invalid data entered in change password page and requested for change in password.

8.2 USER ACCEPTANCE TESTING

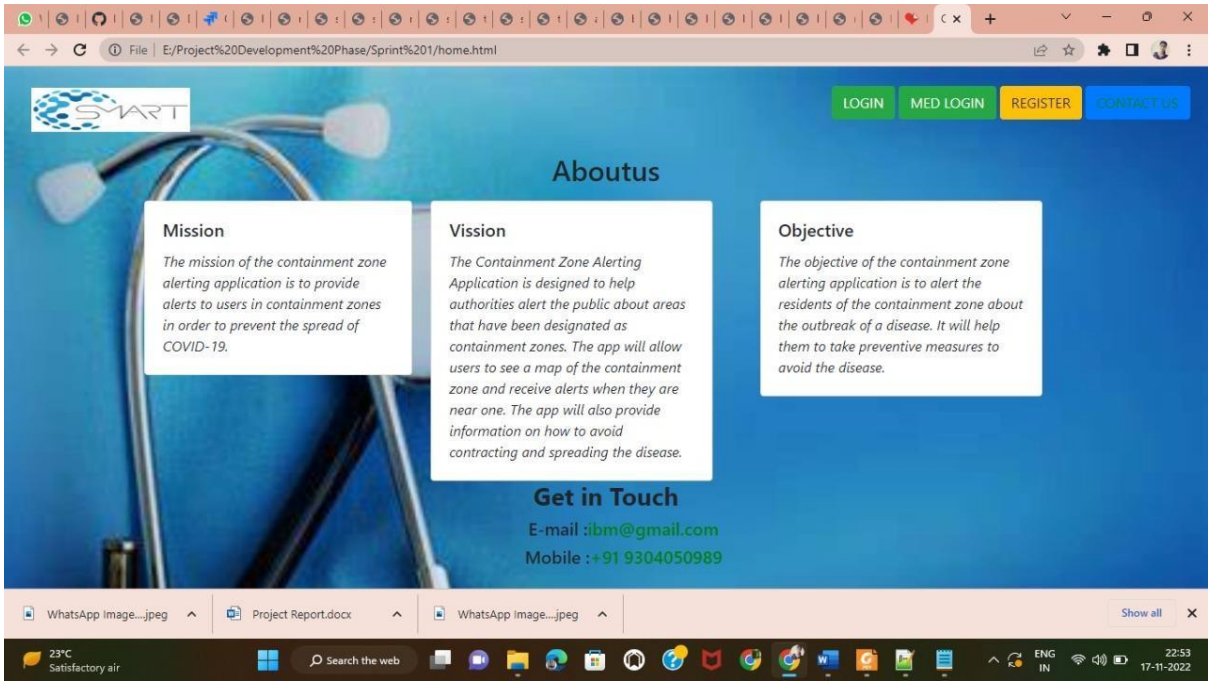
S.NO	TEST CASE	REQUIRED OUTPUT	RESULT OUTPUT	STATUS
1	Login button click with wrong credentials	Wrong credentials entered notification	Wrong credentials entered notification	ACCEPTED
2	Signup with already registered mail ID.	Email already registered notification	Email already registered notification	ACCEPTED
3	Signup with wrong form data entered.	Wrong credentials entered notification	Wrong credentials entered notification	ACCEPTED
4	Entering home page with logged out session.	Take user to login page	Take user to login page	ACCEPTED
5	Clicking home page buttons with logged out session.	Take user to login page	Take user to login page	ACCEPTED
6	Invalid data entered in change password page and requested for change in password.	Wrong form data entered notification	Wrong form data entered notification	ACCEPTED

CHAPTER 9

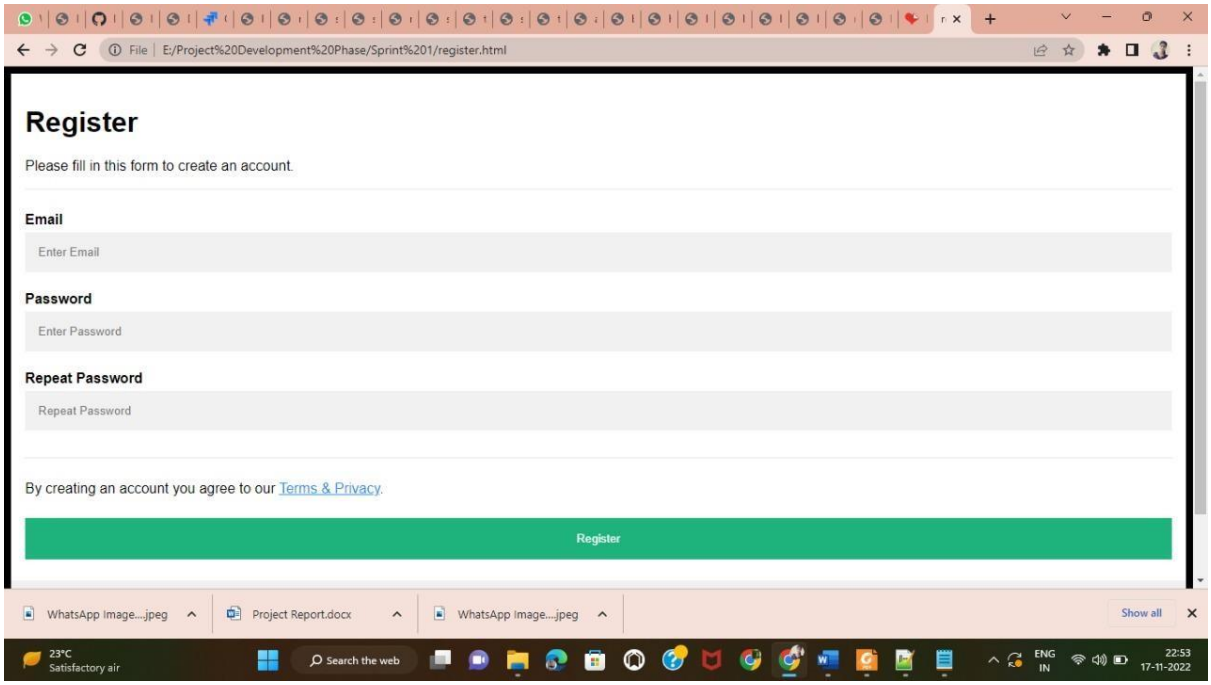
RESULTS

9.1 PERFORMANCE METRICS

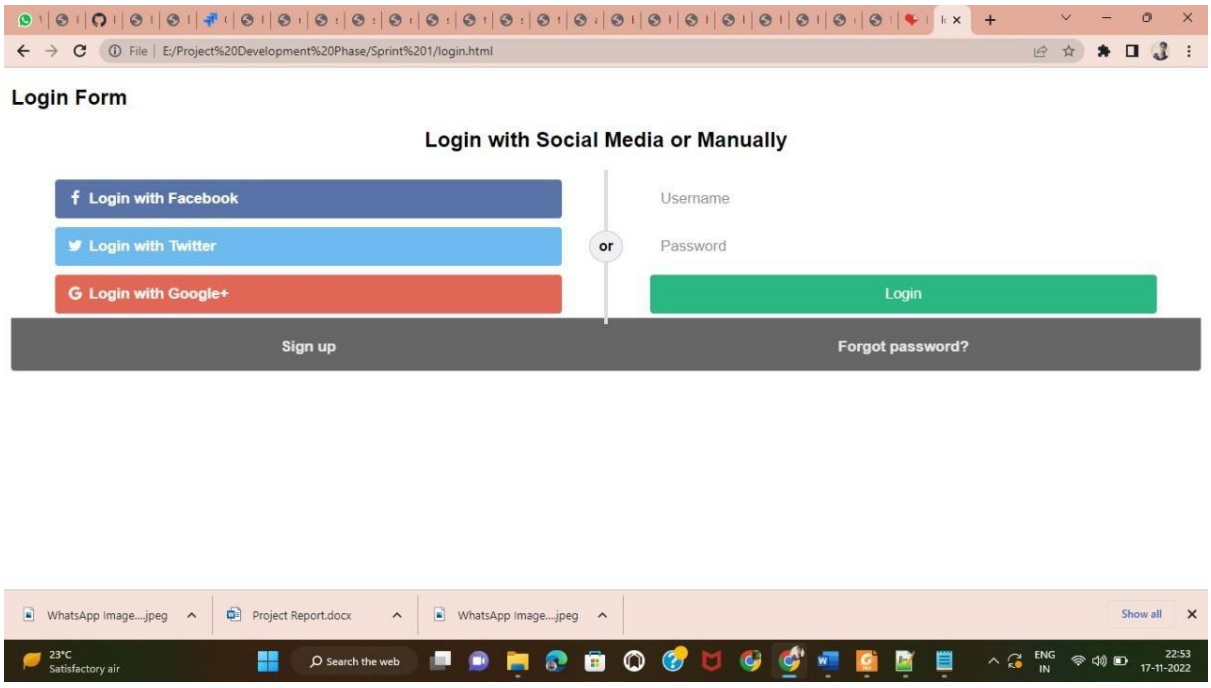
This app service monitors the location and provide information about the contaminated zones near a particular user and send notification to the user. It displays the contaminated zone area by geofencing the particular location.



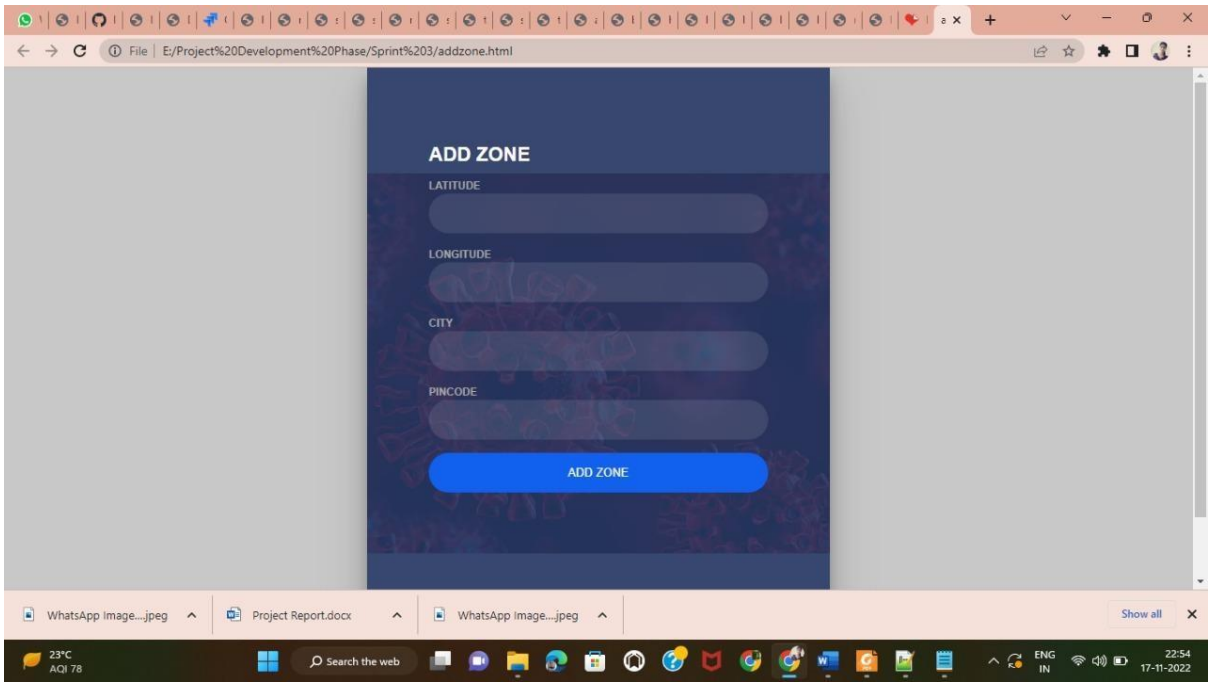
Main Page



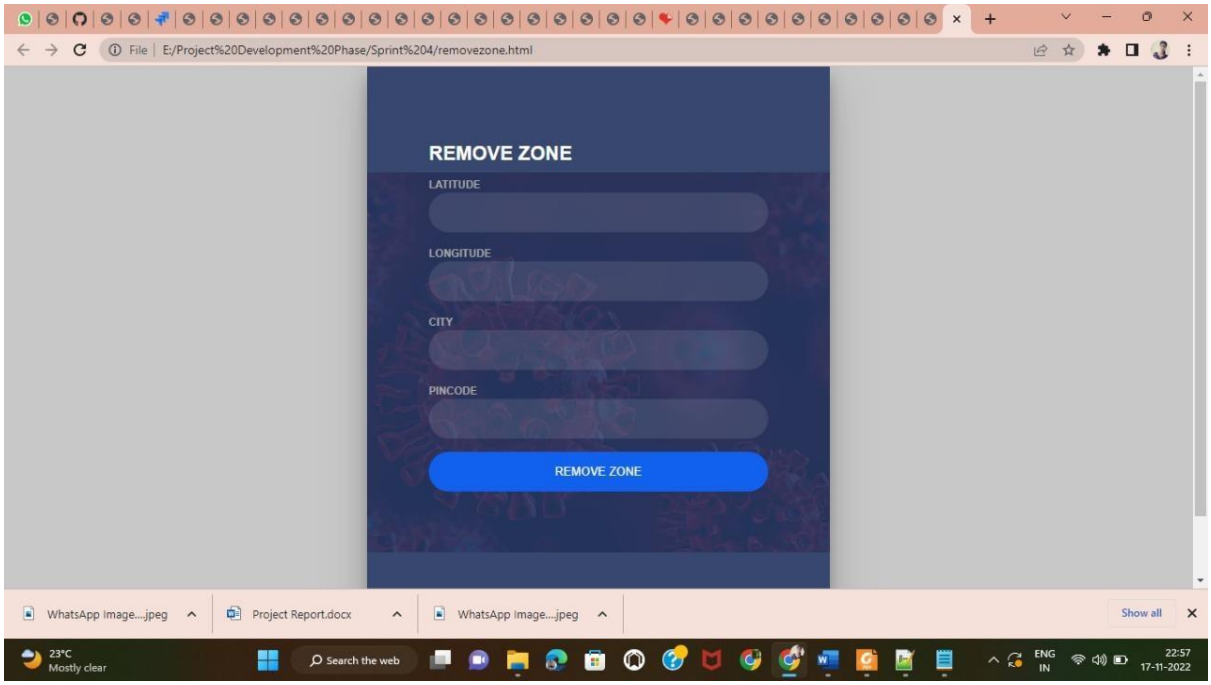
Registration Form



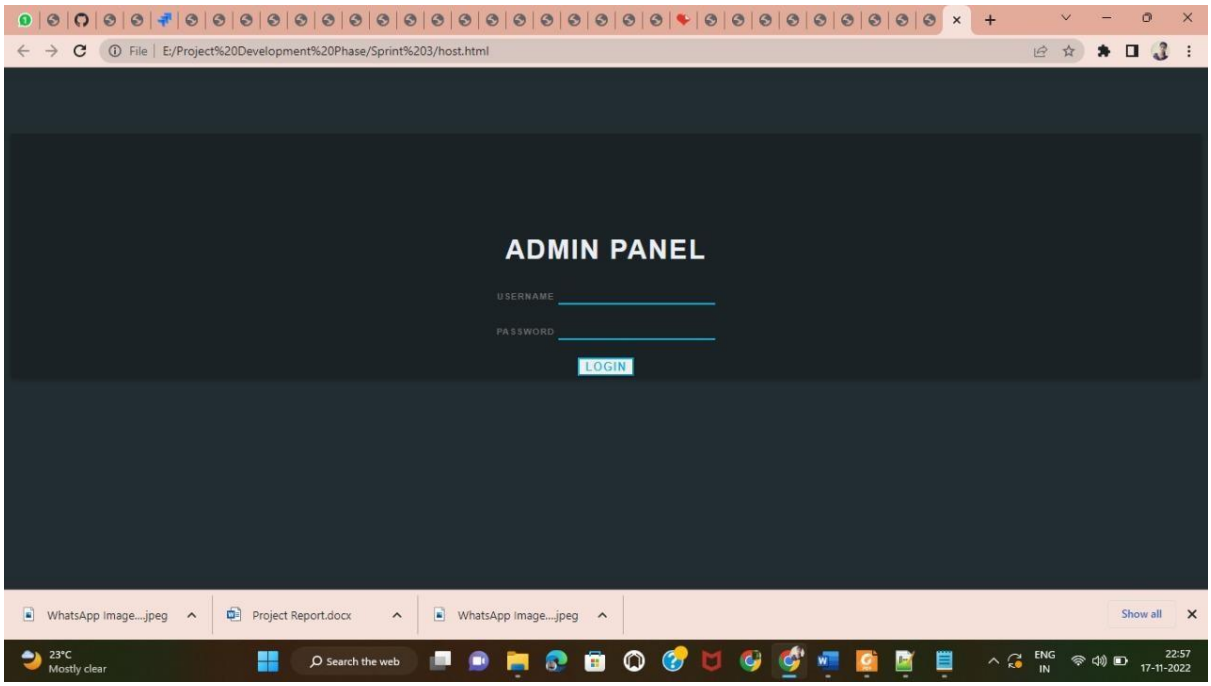
Login Form



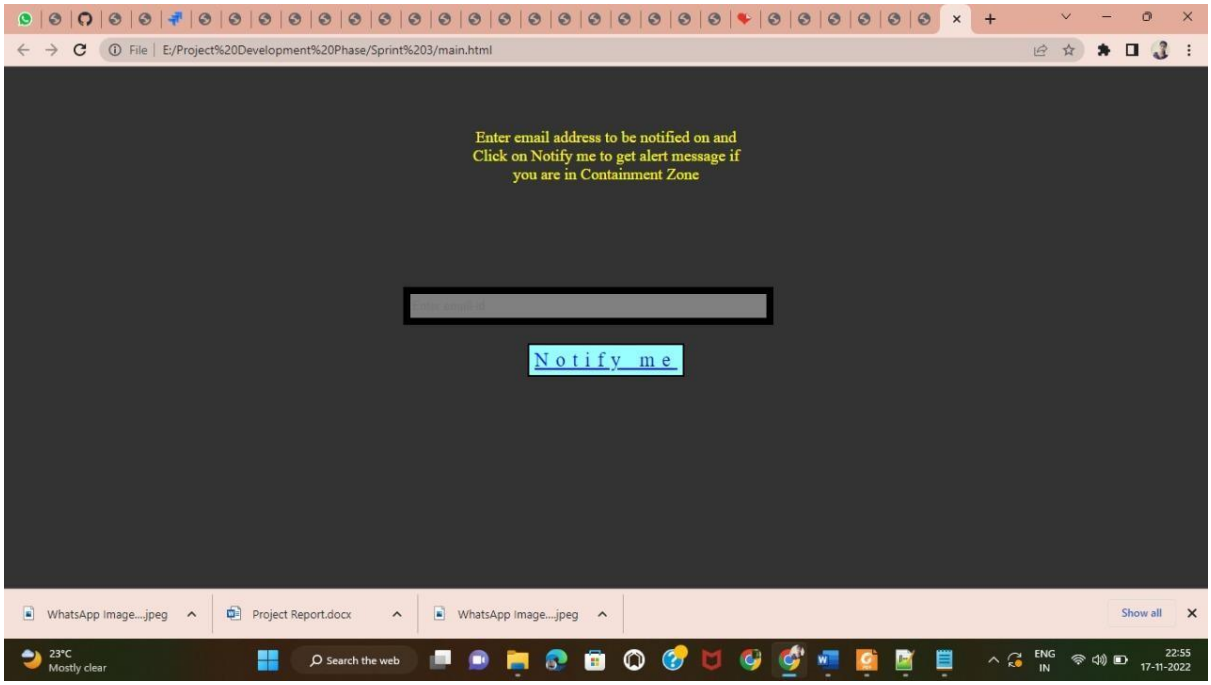
Add Zone



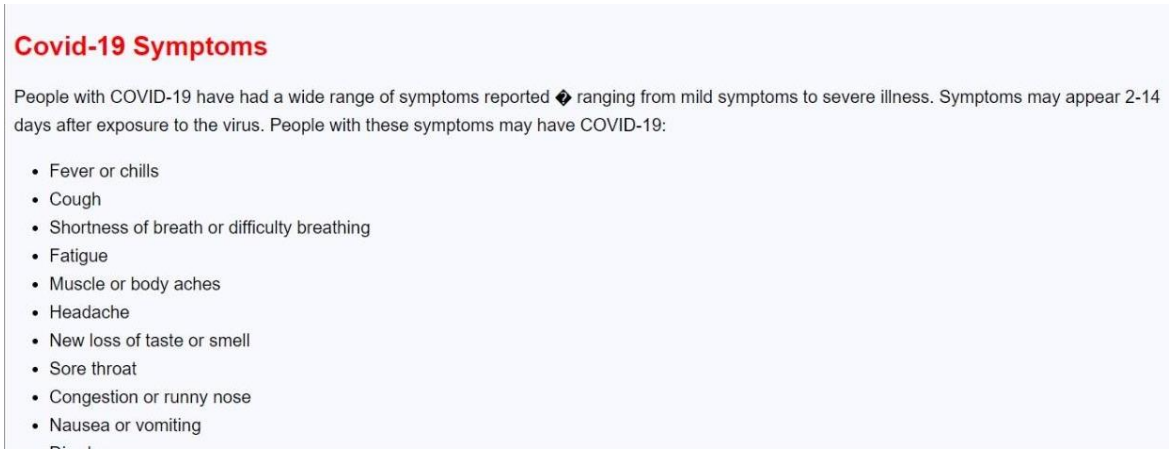
Remove Zone



Admin Login Page



Notify the Containment Zone



About COVID-19

CHAPTER 10

ADVANTAGES & DISADVANTAGES

10.1 ADVANTAGES & DISADVANTAGES

The main advantage of containment zone alerting applications is that they can help to prevent the spread of diseases by alerting people to areas where there is a risk of infection. However, there are also some disadvantages to these applications, including the potential for false alarms and the possibility that people may ignore the warnings. This application is intended to provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individual's location. Key benefits of the application are monitoring people's activity and alerting them of their safety movements.

CHAPTER 11

CONCLUSION

We proposed a framework for identifying the contaminated zone areas and store it in database for future use. Then using the database, information is provided to the user about contaminated zone areas and alerting them by sending notification and geofencing the location. From the above information, it can be concluded that the Containment zone Alerting Application, in which we have successfully developed is a mobile application that sends alerts to users when they enter or exit a containment zone. The app uses GPS to track the user's location and sends an alert if the user enters or leaves a containment zone. The app also allows users to set up alerts for specific containment zones. It has successfully demonstrated the application. In this project, we alert users about the containment zone area by that they are aware and realize of high containment zone area.

CHAPTER 12

FUTURE SCOPE

The application provides an efficient way of showing the identified COVID-19 containment zones to the users in a Google map. With the alarming increase of COVID-19 affected cases throughout the world, this developed application can be employed as a tool for creating further social awareness among the people. This application further tracks the user's location and checks whether it is present in the list of identified containment zones. It sends separate notification alerts to the user on entering and exiting the containment areas. The developed android application further extracts the IMEI Number of the trespasser in the containment zones which can be useful to the local police to track and identify people who are frequently trespassing the containment zones. Thereby this application identifies the containment zones and highlights the need for taking further precautionary measures for combating COVID-

19. The application has been tested in various locations and has been found to yield accurate results. The application can be further used for many purposes like maritime and forest safety to prevent users from entering restricted areas.

CHAPTER 13

APPENDIX

The Containment zone alerting application is a mobile application that sends alerts to users when they are in close proximity to a containment zone. The app uses the user's location to determine if they are in close proximity to a containment zone, and if so, sends an alert to the user. The app also allows users to view a map of containment zones in their area, and provides information on how to avoid contracting the virus.

HOME.HTML

```
<!DOCTYPE html>

<html lang="en">

<style>

body {

  background-image: url('E:/background.jpg');

  background-repeat: no-repeat;

  background-attachment: fixed;

  background-size: cover;

}

a:link {

  color:green;

}

</style>

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>CZAA| HOME</title>
```

```
    <meta charset="UTF-8">
        <!-- favicon -->
        <!-- <link rel="shortcut icon" href="/assets/img/favicon.ico" type="image/x-icon"> -->
        <!-- <link rel="icon" href="/assets/img/favicon.ico" type="image/x-icon"> -->
        <link rel="icon" type="image/jpg" sizes="16x16" href="E:\nature.jpg">
        <!-- bootstrap css cdn -->
        <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css" integrity="sha384-JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnIxN0hoP+VmmDGMN5t9UJ0Z" crossorigin="anonymous">
        <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.css">
        <!-- css stylesheet -->
        <link rel="stylesheet" href="css/style.css">
        <!-- font styles cdn -->
        <link rel="preconnect" href="https://fonts.gstatic.com">
        <link href="https://fonts.googleapis.com/css2?family=Alegreya&display=swap" rel="stylesheet">
        <link href="https://fonts.googleapis.com/css2?family=Alegreya:wght@600&display=swap" rel="stylesheet">
    </head>
    <body>
        <!-- bootstrap navbar -->
        <nav class="navbar sticky-top navbar-expand-lg navbar-dark">
            <div class="container-fluid">
```

```
<a class="main-logo-img mt-3" href="#"><img src="E:/smart intern.jpg" alt="sheep-logo" height="50px" width="180px">
<!-- <a class="navbar-brand" href="index.html">JobPortal</a> -->
</a>

<div class="row donate-sponsor">
<a type="button" class="btn btn-success mr-1" id="donate" href="login.html">LOGIN</a>
<a type="button" class="btn btn-success mr-1" id="donate" href="medreg.html">MED LOGIN</a>
<a type="button" class="btn btn-warning mr-1" id="sponsor" href="register.html">REGISTER</a>
<a type="button" class="btn btn-primary mr-1" id="sponsor" href="contact.html">CONTACT US</a>
</div>
</div>
</nav>
<!-- navbar ends -->

<!-- what we focus on -->
<section class="our-focus">
<div class="container">
<h2 class="text-center mt-3">Aboutus</h2>
<div class="row ml-3 mt-3">
<div class="col-lg-3 mr-5" id="focus-first">
<div class="card" style="width: 19rem;">
```

<h5 class="card-title">Mission</h5>

The mission of the containment zone alerting application is to provide alerts to users in containment zones in order to prevent the spread of COVID-19.

<h5 class="card-title">Vission</h5>

The Containment Zone Alerting Application is designed to help authorities alert the public about areas that have been designated as containment zones. The app will allow users to see a map of the containment zone and receive alerts when they are near one. The app will also provide information on how to avoid contracting and spreading the disease.

<h5 class="card-title">Objective</h5>

The objective of the containment zone alerting application is to alert the residents of the containment zone about the outbreak of a disease. It will help them to take preventive measures to avoid the disease.

```
            </div>
          </div>
        </div>
      </div>
    </section>

    <footer>
     <center>
        <div class="col-xs-2 col-md-4">
          <h3> <b> Get in Touch <b> </h3>
          <ul class="footer-links">
            <h5> E-mail :<a href="mailto:test@gmail.com">ibm@gmail.com</a></h5>
            <h5> Mobile :<a href="9304050989">+91 9304050989</a></h5>
          </ul>
        </div>
                    </center>
  </footer>


    </body>
</html>
```

LOGIN.HTML

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">
<style>
body {
  font-family: Arial, Helvetica, sans-serif;
}

* {
  box-sizing: border-box;
}

/* style the container */
.container {
  position: relative;
  border-radius: 5px;
  background-color: #f2f2f2;
  padding: 20px 0 30px 0;
}

/* style inputs and link buttons */
input,
.btn {
  width: 100%;
  padding: 12px;
  border: none;
  border-radius: 4px;
```

```
  margin: 5px 0;
  opacity: 0.85;
  display: inline-block;
  font-size: 17px;
  line-height: 20px;
  text-decoration: none; /* remove underline from anchors */
}

input:hover,
.btn:hover {
  opacity: 1;
}

/* add appropriate colors to fb, twitter and google buttons */
.fb {
  background-color: #3B5998;
  color: white;
}

.twitter {
  background-color: #55ACEE;
  color: white;
}

.google {
  background-color: #dd4b39;
  color: white;
}

/* style the submit button */
```

```
input[type=submit] {
  background-color: #04AA6D;
  color: white;
  cursor: pointer;
}

input[type=submit]:hover {
  background-color: #45a049;
}

/* Two-column layout */
.col  {
  float: left;
  width: 50%;
  margin: auto;
  padding: 0 50px;
  margin-top: 6px;
}

/* Clear floats after the columns */
.row:after {
  content: "";
  display: table;
  clear: both;
}

/* vertical line */
.vl {
  position: absolute;
  left: 50%;
```

```
  transform: translate(-50%);
  border: 2px solid #ddd;
  height: 175px;
}

/* text inside the vertical line */
.vl-innertext {
  position: absolute;
  top: 50%;
  transform: translate(-50%, -50%);
  background-color: #f1f1f1;
  border: 1px solid #ccc;
  border-radius: 50%;
  padding: 8px 10px;
}

/* hide some text on medium and large screens */
.hide-md-lg {
  display: none;
}

/* bottom container */
.bottom-container {
  text-align: center;
  background-color: #666;
  border-radius: 0px 0px 4px 4px;
}

/* Responsive layout - when the screen is less than 650px wide, make the two columns stack on top of each other instead of next to each other */
@media screen and (max-width: 650px) {
```

```
  .col {
    width: 100%;
    margin-top: 0;
  }
  /* hide the vertical line */
  .vl {
    display: none;
  }
  /* show the hidden text on small screens */
  .hide-md-lg {
    display: block;
    text-align: center;
  }
}
</style>
</head>
<body>

<h2><b>Login Form<b></h2

<div class="container">
  <form action="/action_page.php">
    <div class="row">
      <h2 style="text-align:center">Login with Social Media or Manually</h2>
      <div class="vl">
        <span class="vl-innertext">or</span>
      </div>

      <div class="col">
        <a href="#" class="fb btn">
```

```
        <i class="fa fa-facebook fa-fw"></i> Login with Facebook
       </a>
       <a href="#" class="twitter btn">
        <i class="fa fa-twitter fa-fw"></i> Login with Twitter
       </a>
       <a href="#" class="google btn"><i class="fa fa-google fa-fw">
        </i> Login with Google+
       </a>
      </div>

      <div class="col">
       <div class="hide-md-lg">
        <p>Or sign in manually:</p>
       </div>

       <input type="text" name="username" placeholder="Username" required>
       <input type="password" name="password" placeholder="Password" required>
       <input type="submit" value="Login">
      </div>

    </div>
  </form>
</div>

<div class="bottom-container">
  <div class="row">
    <div class="col">
      <a href="#" style="color:white" class="btn">Sign up</a>
    </div>
    <div class="col">
```

```
    <a href="#" style="color:white" class="btn">Forgot password?</a>
   </div>
  </div>
</div>

</body>
</html>
```

REGISTER.HTML

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
body {
  font-family: Arial, Helvetica, sans-serif;
  background-color: black;
}

* {
  box-sizing: border-box;
}

/* Add padding to containers */
.container {
  padding: 16px;
  background-color: white;
}

/* Full-width input fields */
input[type=text], input[type=password] {
```

```
  width: 100%;
  padding: 15px;
  margin: 5px 0 22px 0;
  display: inline-block;
  border: none;
  background: #f1f1f1;
}

input[type=text]:focus, input[type=password]:focus {
  background-color: #ddd;
  outline: none;
}

/* Overwrite default styles of hr */
hr {
  border: 1px solid #f1f1f1;
  margin-bottom: 25px;
}

/* Set a style for the submit button */
.registerbtn {
  background-color: #04AA6D;
  color: white;
  padding: 16px 20px;
  margin: 8px 0;
  border:  none;
  cursor: pointer;
  width: 100%;
  opacity: 0.9;
}
```

```
.registerbtn:hover {
  opacity: 1;
}

/* Add a blue text color to links */
a {
  color: dodgerblue;
}

/* Set a grey background color and center the text of the "sign in" section */
.signin {
  background-color: #f1f1f1;
  text-align: center;
}
</style>
</head>
<body>

<form action="/action_page.php">
  <div class="container">
    <h1>Register</h1>
    <p>Please fill in this form to create an account.</p>
    <hr>

    <label for="email"><b>Email</b></label>
    <input type="text" placeholder="Enter Email" name="email" id="email" required>

    <label for="psw"><b>Password</b></label>
    <input type="password" placeholder="Enter Password" name="psw" id="psw" required>
```

```
    <label for="psw-repeat"><b>Repeat Password</b></label>
    <input type="password" placeholder="Repeat Password" name="psw-repeat" id="psw-repeat" required>
    <hr>
    <p>By creating an account you agree to our <a href="#">Terms & Privacy</a>.</p>

    <button type="submit" class="registerbtn">Register</button>
  </div>

  <div class="container signin">
    <p>Already have an account? <a href="#">Sign in</a>.</p>
  </div>
</form>

</body>
</html>
```

GITHUB ACCOUNT:

https://github.com/IBM-EPBL/IBM-Project-35687-1660287615

DEMO VIDEO LINK:

https://youtu.be/c2vJkG9R2AI