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    b. Purpose
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    b. References
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    g. Proposed Solution
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    b. Non-Functional requirements
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Source Code
GitHub & Project Demo Link

chapter 1

INTRODUCTION

A containment zone alerting application is a mobile application that sends alertsto userswhen they enter or exit a containment zone. The app uses GPS to track the user's location andsends an alert if the user enters or leaves a containment zone. The app also allows users to setup alertsfor specific containment zones.

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 casesthroughout the world, lockdown and awareness (social distancing, use ofmasks etc)among people are found to be the only means for restricting the communitytransmission.

In a densely populated country like India, it is very difficult to prevent the communitytransmission even during lockdown without social awareness and precautionarymeasures taken by the people. Recently, several containment zones had been identifiedthroughout the country and divided into red, orange and green zones, respectively. Thered zones indicate the infection hotspot, orange zones denote some infectionand greenzones indicate an area with no infection. This paper mainly focuseson development ofan Android application which can inform people of the COVID-19 containment zones and prevent trespassing into these zones.

PURPOSE:

Provide information about containment zones in a particular regionby alerting people,through continuous monitoring of an individual's location. This Android applicationupdates the locations of the areas in a Google map which are identified tobe thecontainment zones. The application also notifies the users if they have enteredacontainment zone and uploads the user’s info to the online database. To achieve all theseFunctionalities, many tools and APIs from Google like Firebase and Geofence are used inthis app. Therefore, this application can be used as a tool for creatingfurther socialawareness about the arising need of precautionary measures to be takenby the people of India.

CHAPTER 2

LITERATURE SURVEY

Introduction:

cloud application is software that runs its processing logicand datastorage between 2 different systems: client-side and server-side. The cloudalso processing to create a containment zone alerting application topreventive the people from COVID -19 cases. To informingpeople about the location of the containment zones can help thembypassand avoid these zones and thereby reduce the chanceof spreading. The application also provides daily Covid-19case statistics to the usersto keepthemupdated.

Problem Statement:

Containment Zone Alerting Application is the process that alert a people of theCovid-19 containment zones and prevent trespassing into these zones. This application updates the locations of the areas in a Google map which are identified tobe the containment zones.Recently, several containment zones had been identifiedthroughout thecountry and divided into red, orange and green zones. The red zones indicate theinfection hotspots, orange zones denote some infection and green zones indicateanarea with no infection.The application also notifies the users if they have entered acontainment zone and uploads the user’s IMEI number to the online database.So,people can get awareness about a current containment zone throughout thenotification.

Seri alno:	Application name:	Details from playstore:	Comments:
1.	Aarogya Setu	Aarogya Setu is a mobile application developed by the Government of India toconnect essential health services withthe people of India in our combined fight against COVID-19. The app is aimed at augmenting the initiatives of the Government of India, particularly the Department of Health, in proactively reaching out to and informing the users of the app regarding risks, best practices and relevant advisories pertaining to the containment of COVID-19 (Aarogya Setu 2020)	The application is developed by the government of India. It uses contact tracing technology with the help of bluetooth to check if a user comes near a Covid-19patient

2.	Corona watch	This app is for showing the locations of Corona Affected Patients and their movement history of 14 days. General Public can use this to identify their movements in those areas. If found to bein such locations, they are requested to call helpline numbers 104, 0846848600, 080 66692000. The app also facilitates citizens to identify the nearesthospitals whichcan treat for coronavirusincluding the sample collection centres and testing labs. Please visit: https://kgis.ksrsac.in/covid/ for other information (Corona watch 2020)	The application presents the locations of Covid-19 activeand cured cases Karnataka in a map emergency helpline numbers, helps in locating medicinal facilities, home quarantined locations and spots visited byCovid-19 positive patients in the last 14days

3.	COVID CARE	COVID CARE-Quarantine and ContactHealth Tracing for Covid Suspects in ArunachalPradesh (COVID CARE 2020)	The application provides means of self-updating body temperatureand Covid-19 symptoms by people of Arunachal Pradesh, thereby helping to monitorthem remotely
4.	COVID-19 Care Tamil Nadu-(Official)	COVID-19 Care is a mobile application developed by Bhishma Technology Private Limited for the Government of Tamil Nadu to connect essential health services with the people of Tamil Nadu in our combined fight against COVID- 19. This app is aimed to reach out to people informing about the bestpracticesand official updates pertaining to the containment of COVID-19 (COVID-19 Care Tamil Nadu-(Official) 2020)	The application shows the districtwise COVID-19 cases in Tamil Nadu. It also shows the containment zones of the state. It provides help line numbers and bed availability of

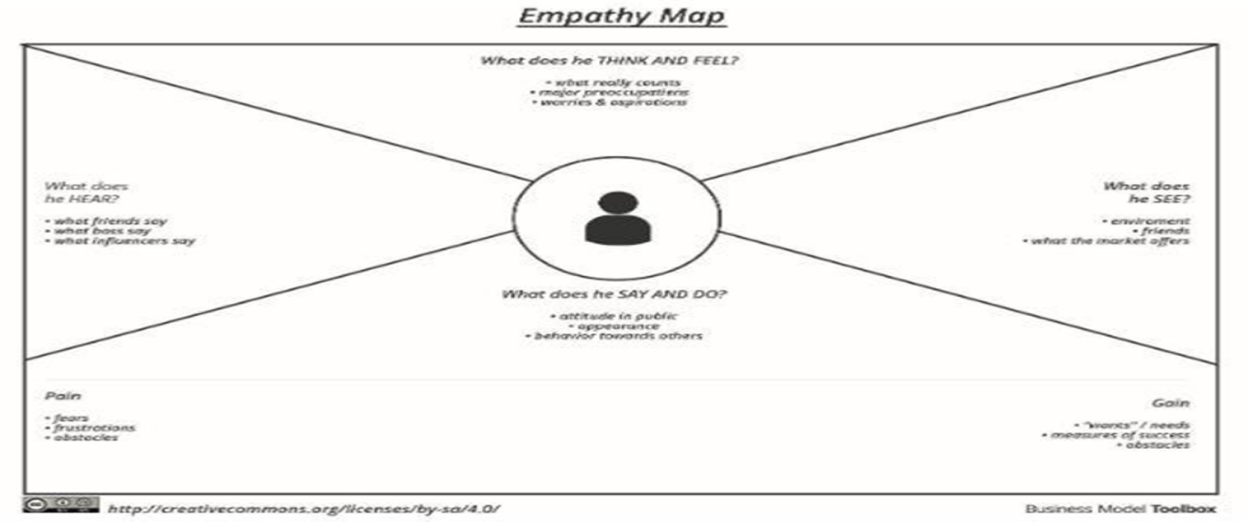
			Covid-19 hospitals in all the districts.
5.	COVID19 feedback	This apphas been madein public interestto give information and capture feedbackon any treatment undergone by individuals. The data will be used to highlight efficiencies, issues and process related changes that need to be undertaken (COVID19 feedback 2020)	The application provides a platform for getting feedback regarding Covid-19 testsand medical treatmentfrom people who have undergoneit

CHAPTER 3

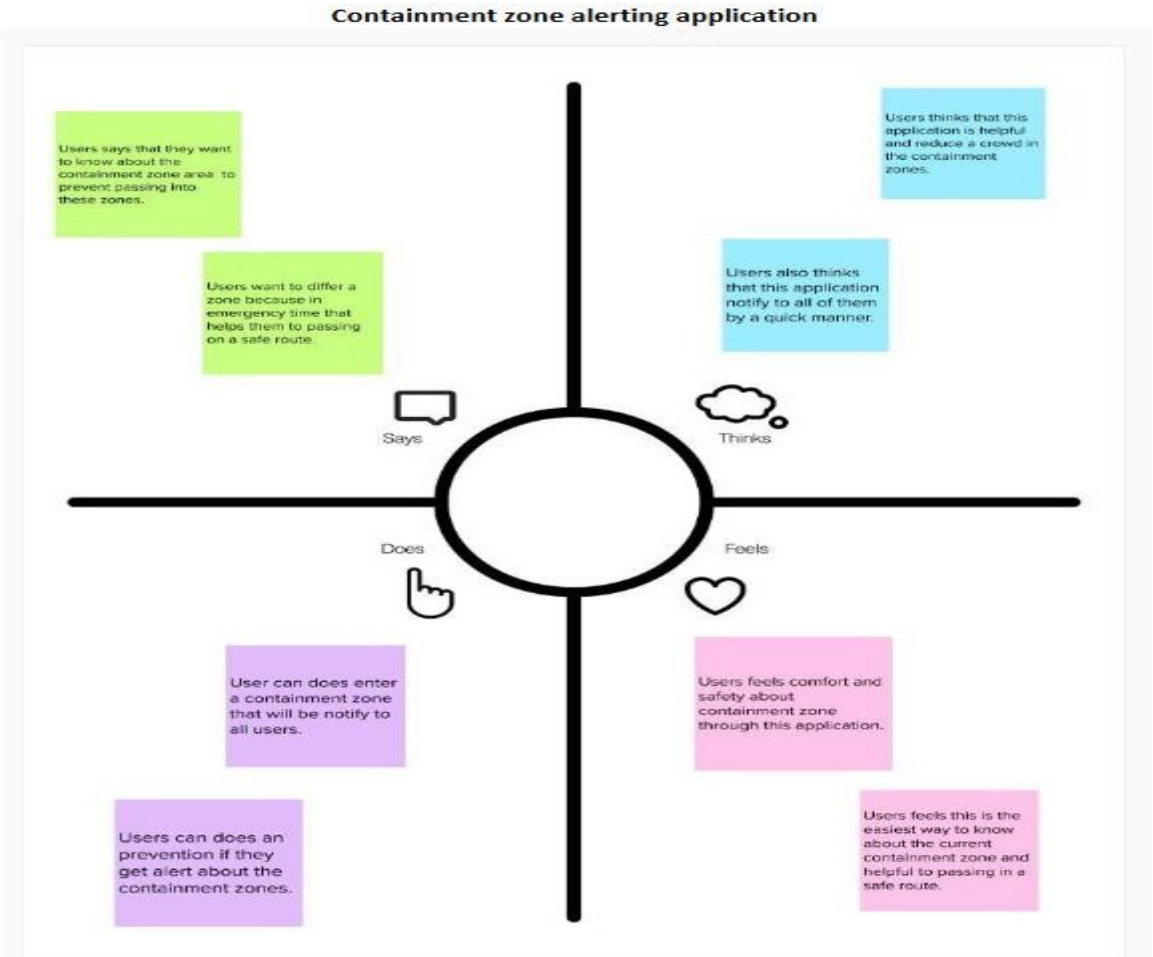
IDEATION & PROPOSED SOLUTION

EMPATHY MAP CANVAS:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user’sbehaviours and attitudes.It is a usefultool to helps teams better understand theirusers.Creating an effective solution requires understanding the true problem and the person whois experiencing it. The exercise of creating the map helps participants considerthings fromthe user’s perspective along with his or her goals and challenges



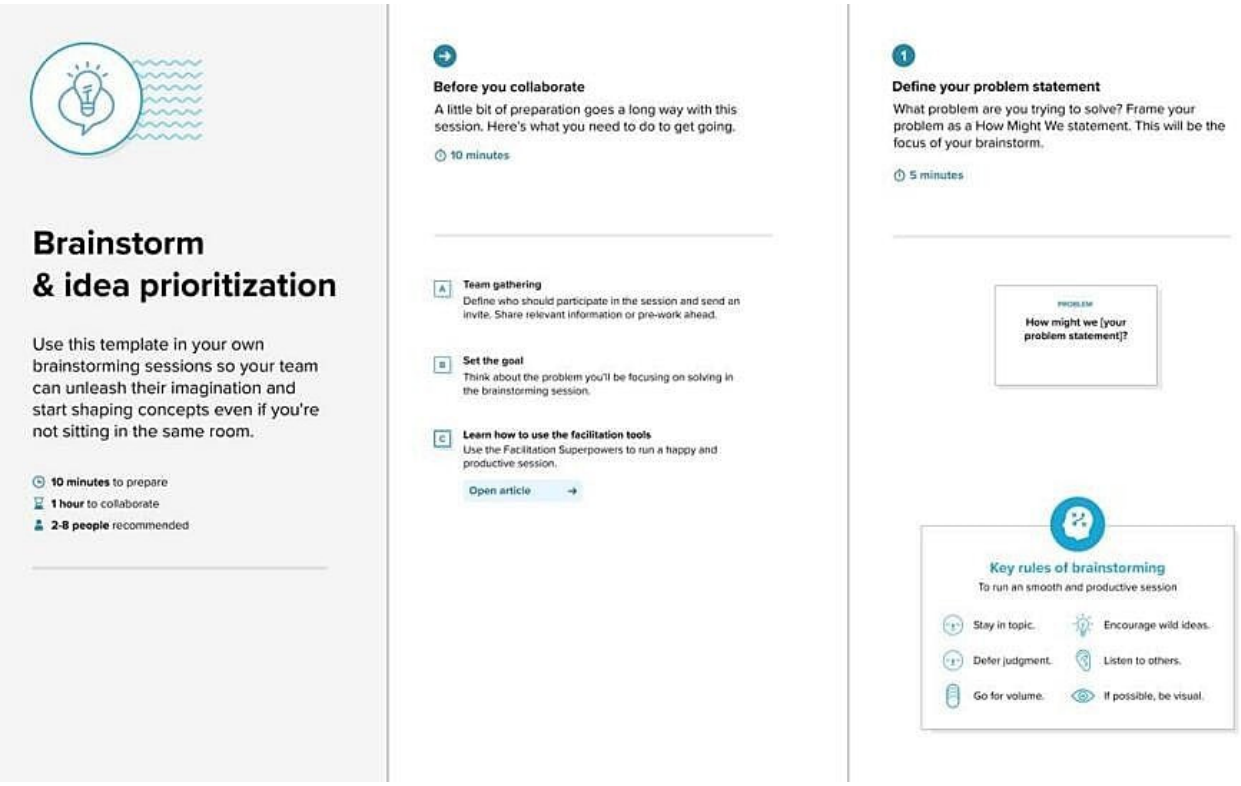
Reference: https://www.mural.co/templates/empathy-map-canvas



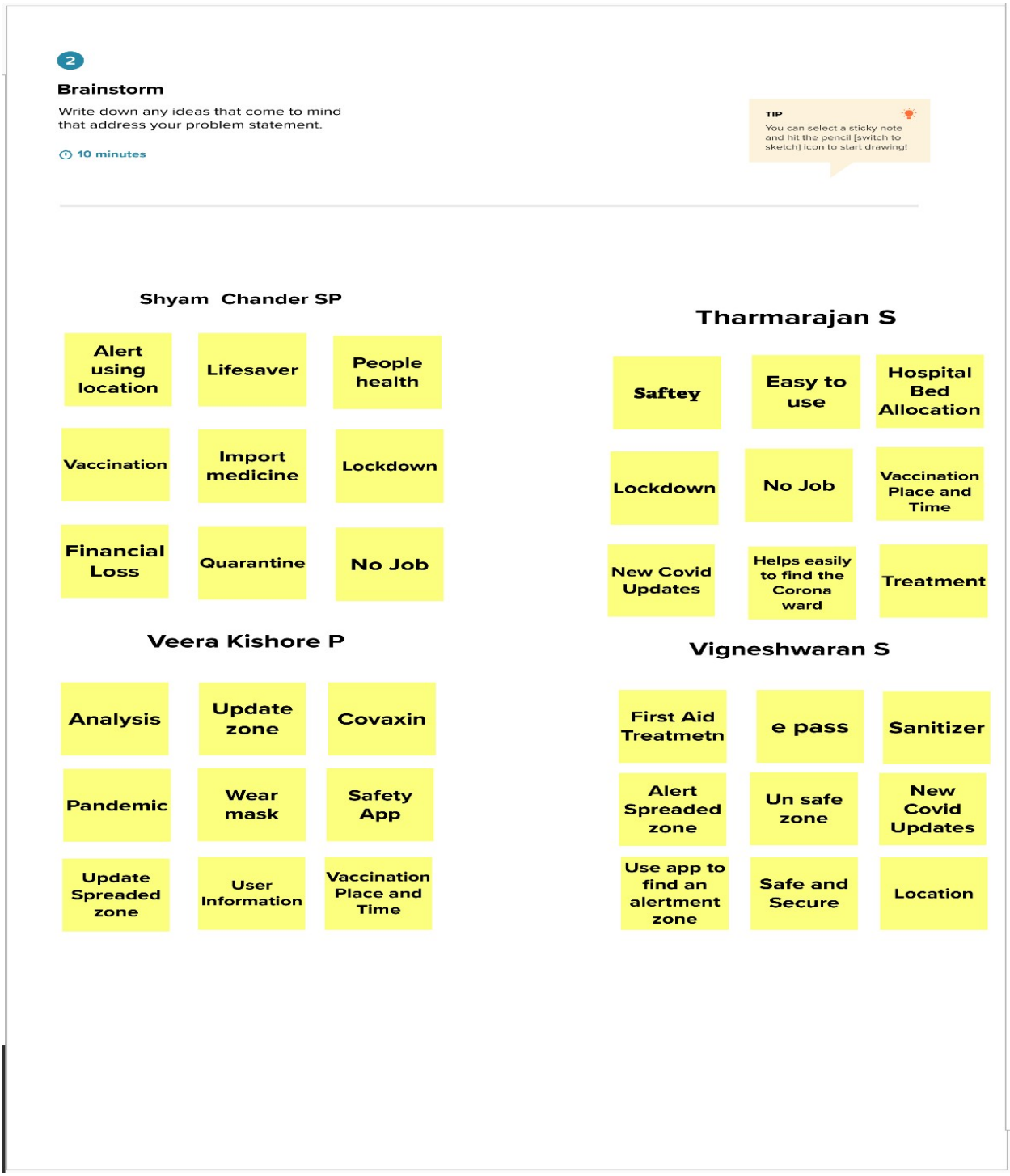
IDEATION & BRAINSTORMING:

Brainstorming provides a free and open environment that encourages everyonewithin a team to participate in the creativethinking process that leadstoproblem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, andall participants are encouraged to collaborate, helping each other developa rich Amount of eativesolutions.Use this templateinyour own brainstorming sessionsso your team can unleash their imagination and start shapingconcepts even if you're not sitting in thesame room.

Step-1: Team Gathering, Collaboration and Select the ProblemStatement



Step-2: Brainstorm, Idea Listing and Grouping



3

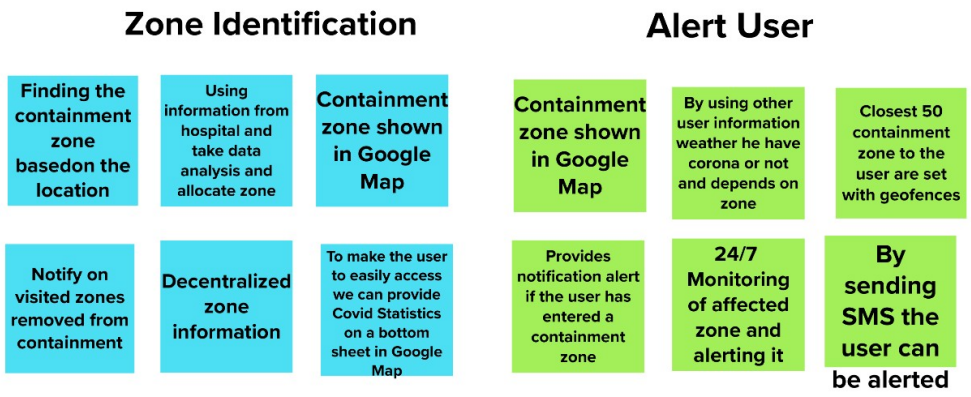
Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

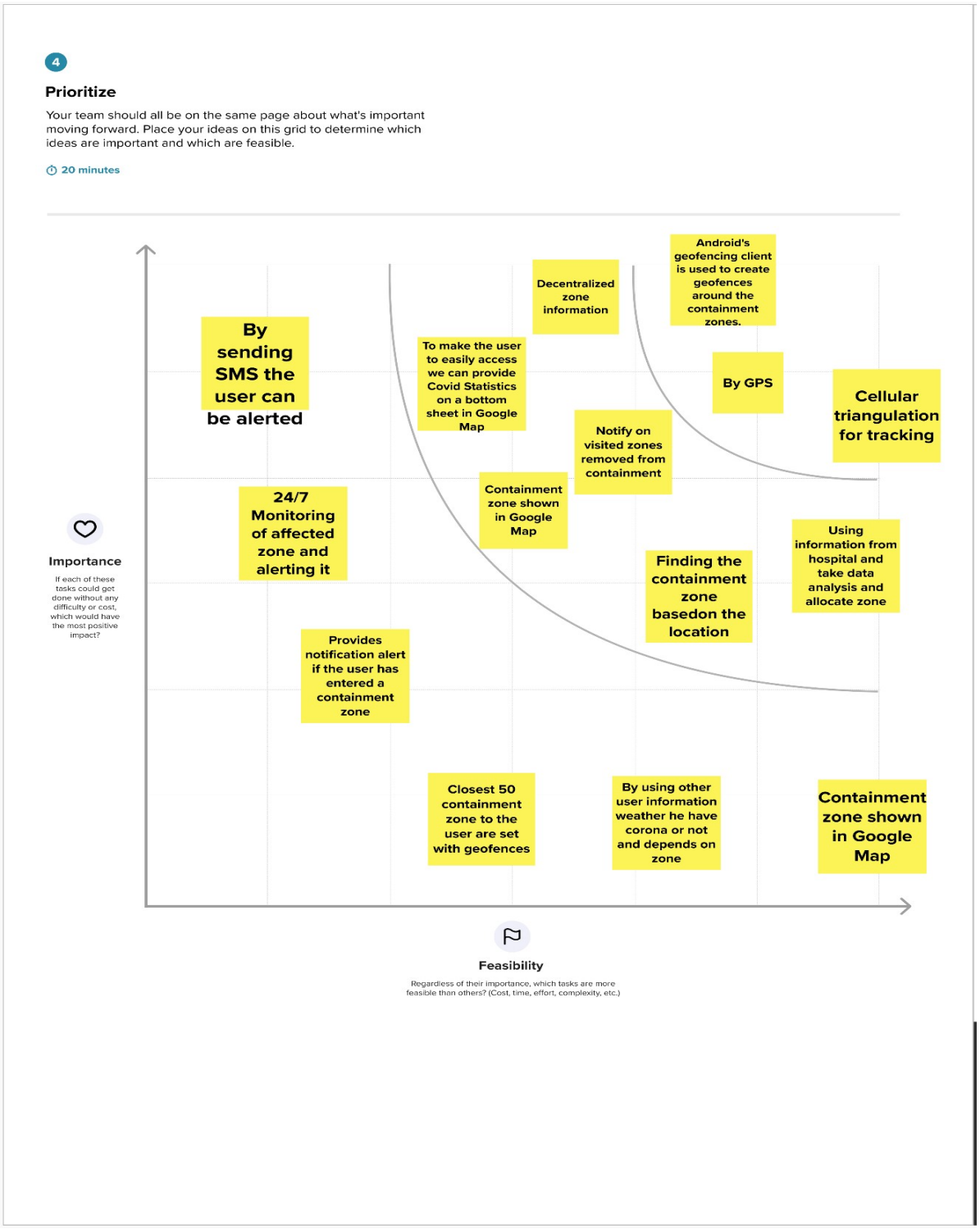
20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.



Step-3: Idea Prioritization



PROPOSED SOLUTION:
Proposed Solution Template:

Project team shall fill the followinginformation in proposedsolution template.

Parameter Description:

Problem Statement (Problemto besolved)

To Provideinformation about the containmentzones in a particular region by alertingthepeople trespassing the region throughcontinuous monitoring of their location.

Idea / Solution description

The projectaims at building an application thatprovides information about thecontainmentzones of a particular region by continuouslymonitoring an individual's locationof theindividual must be stored in the Database Alerts are sent using the notification service.

Novelty / Uniqueness

The uniqueness of containment zone alertingapp is it shows the particular areaof the districtbefore the 100 meter, and the user's location history is stored in database and this appprovides the precautionsmeasurements, listofimmunity boosters,location of the vaccination providing placesit also gives the list of theaffected and admitted patientsanddischargedpatients percentage of affecting by covid19.

Social Impact/ Customer Satisfaction

Social Stigmais discrimination againstaparticular group of people,a place, or anation inthe form of a negative attitude.Public health emergencies (such as COVID 19 pandemic) arestressful situations for people andcommunities.Fear and anxiety with a lack of knowledgeabout the disease can leads to social stigma.The containment zone alerting app users are100%satisfied because of its immediatenotification of a particular area it providestheprecautions and awareness about COVID-19.

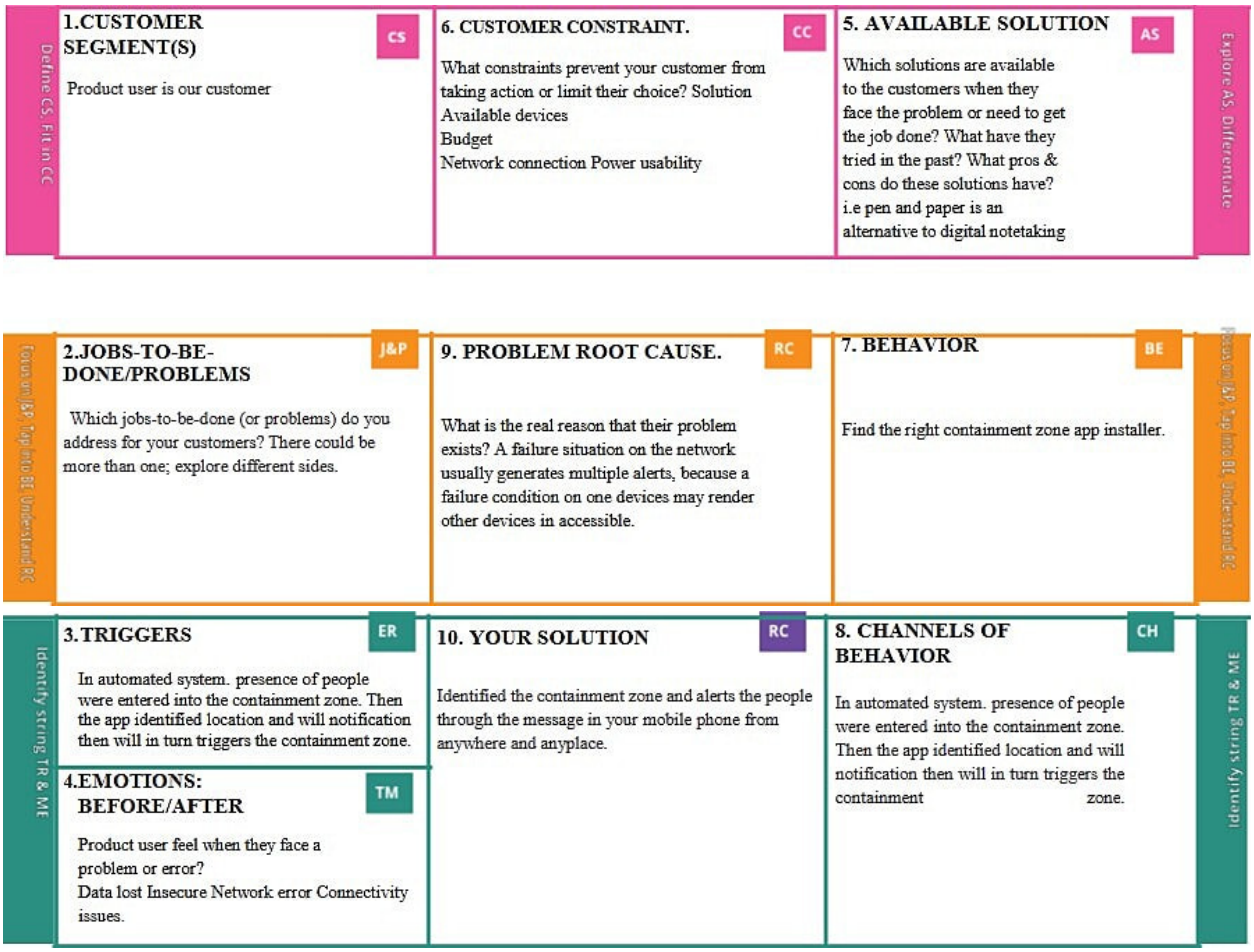
Business Model (Revenue Model)

When User enters some other region which isnot the user's home region, user hastosubscribe in order to view the containmentzones in the new region, in addition subscribingto personal health trackerallows the user to manage his healthefficiently.

Scalability of the Solution

In this modem world even though the covidpandemic threat is about to end there are highchance of pandemic or endemic. So, thisapplication is very usefulin that situationand wecan use this application in seasonal diseases.

PROBLEM SOLUTION FIT:



CHAPTER 4

REQUIREMENT ANALYSIS

Project Description:

Project Idea:

This application is intended to provide information about containment zones in a particular regionby alerting people,through continuous monitoring of an individual'slocation Key benefits of theapplication are monitoring people's activity and alerting them of their safety movements.

Solution Requirements:

The project aims at building an application that provides information about the containment zonesof a particularregion by continuously monitoring an individual'slocation. Location of the individualmust be stored in the Database. Alerts are sent using the notification service.

FUNCTIONAL REQUIREMENTS:

Following are the functional requirements of the proposedsolution.

FR No.	FunctionalRequirement(Epic)	SubRequirement(Story/Sub-Task)
FR-1	UserRegistration	Registration through Mobile number.RegistrationthroughGmail.
FR-2	UserConfirmation	Confirmation via Email.Confirmationv ia OTP.

F R-3	AppPermissions	EnablinglocationAccess(Mandatory) Permission to Media AccessPermissionto Camera.
F R-4	Connectivity	The userand server were connected through theInternet.
F R-5	Datafetching	The UsersPersonal data and a result of self analysisupdatedwithappserver.
F R-6	Supportfunctions	The Usersgets teleconsultation usinghelpline andsupportsbychatbot.
F R-7	Enduserbenefits	Toprotectthepeoplefromthediseasespreadbyknowingcontainmentzones usingcontacttracing.

NON-FUNCTIONALREQUIREMENT:

Followingarethe non-functional requirementsoftheproposed solution

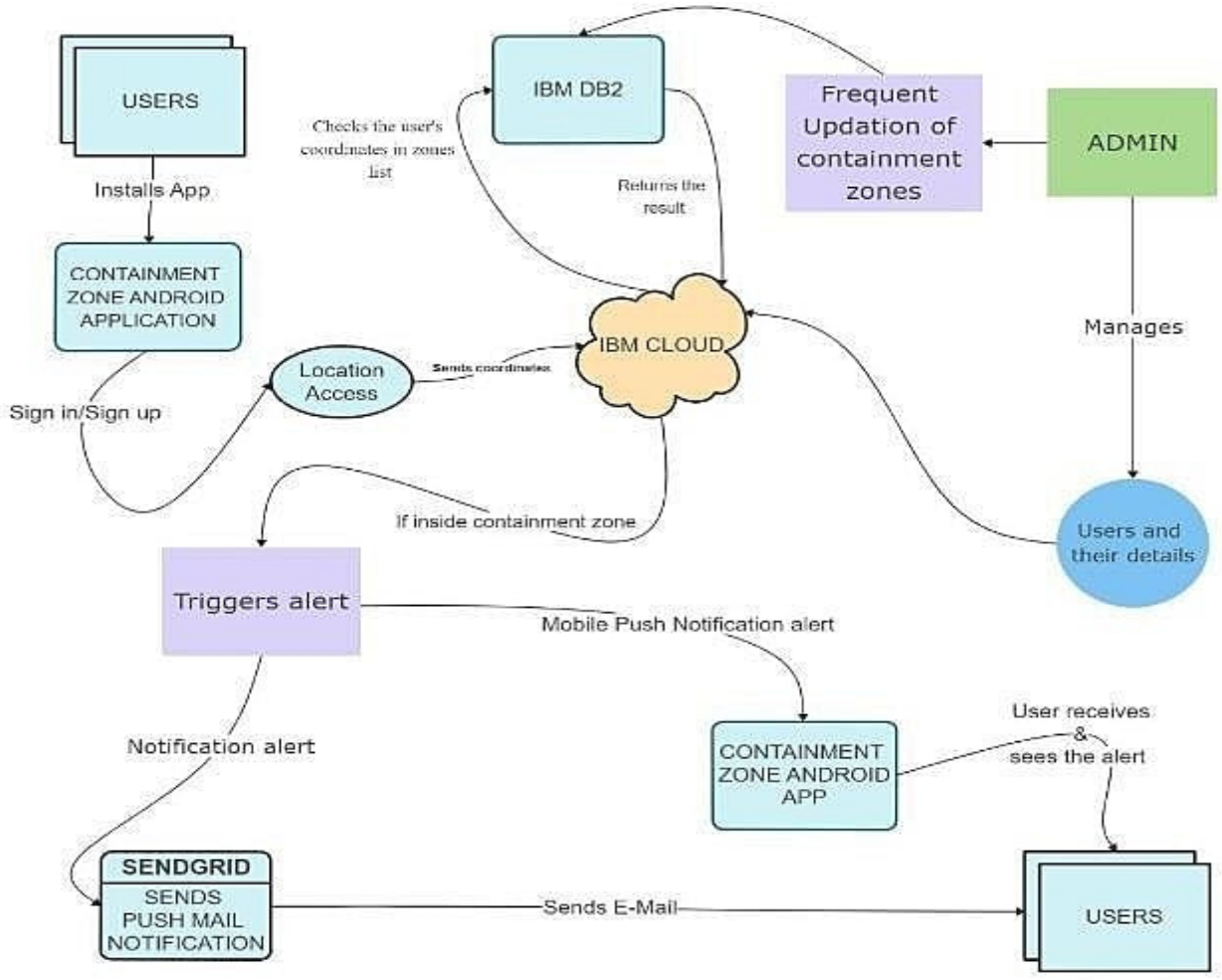
FR No.	Non-FunctionalRequirement	Description
NFR-1	**Usability**	It is an effective way to find a containment zone.Itcaneasilyaccessby everyone.
NFR-2	**Security**	It is secured becauseconfirmation through User ownEmail or OTP and also the data werestoredinencrypted formattomainanonymity.
NFR-3	**Reliability**	It is a highreliability based on developmentanddeployment.
NFR-4	**Performance**	High efficiency outcomes with respectto simpleuserInterface.
NFR-5	**Availability**	Anyonefromanywherecanaccessitthroughinternet.
NFR-6	**Scalability**	It has ability to handle a growing user basewithoutaffectingtheuserexperience andappperformance.

CHAPTER 5
PROJECT DESIGN

DATA FLOW DIAGRAMS:

DataFlowDiagrams:

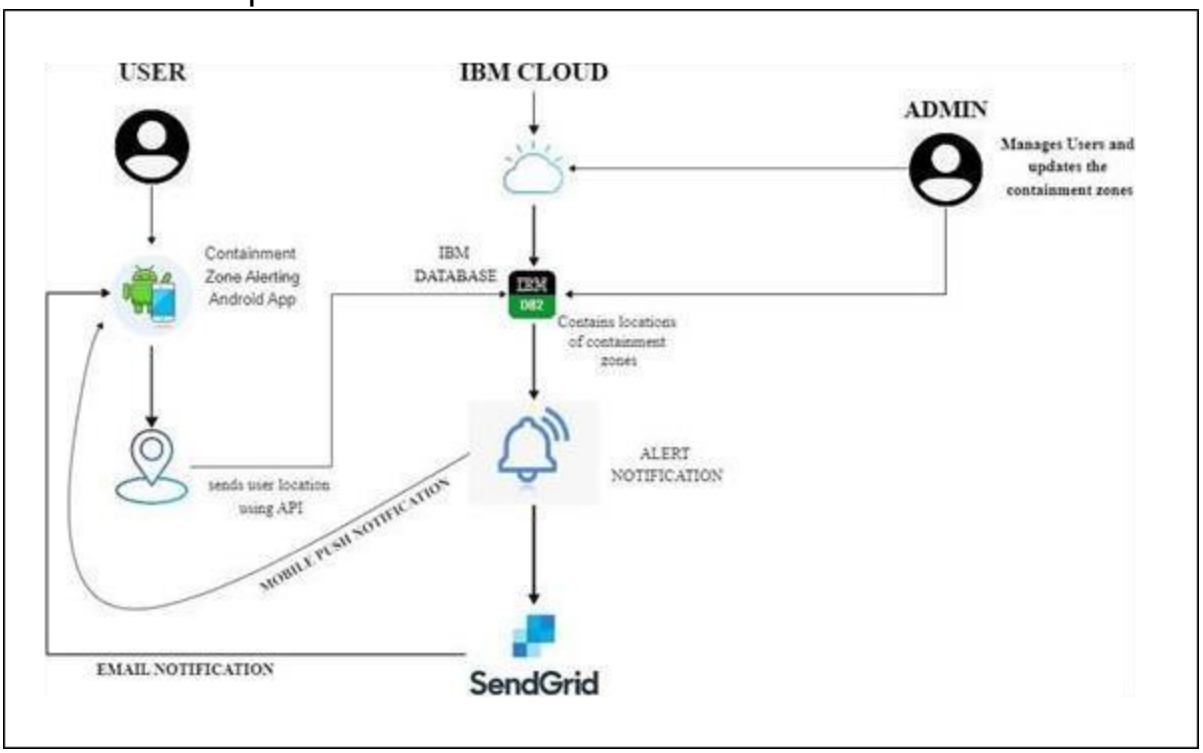
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows with in a system. An eat and clear DFD can dep ict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



SOLUTION & TECHNICAL ARCHITECTURE

Technical Architecture:

The Deliverable shall include the architectural diagramas below and the information as per the table1



Guidelines:

1. Include all the processes (As an application logic/Technology Bloc k)
2. Provide infrastructural demarcation(Local/Cloud)
3. Indicate external interfaces(third party API’s etc.)
4. Indicate Data Storage components/services
5. Indicate interface to machine learning models(ifapplicable)

Table-1:Components & Technologies:

S. No	Component	Description	Technology
1.	UserI nterface	The user can interacts with our application with the help of Chatbot, etc.	HTML,CSS,JavaScript
2.	Application Logic	The user can login with application, by previously registered in our web app.	Java/Python
3.	Cloud Database	The user data will be stored and retrieved with the help of this database.	IBM DB2
4.	File Storage	The user documents like personal details, tracking documents and much more will be stored in cloudbucketetc..,	IBM Block Storage or Other Storage Service or Local File system
5.	ExternalAPI	With the help of API, the user can track the location	IBM API,etc.
6.	Infrastructure(Server/Cloud)	Application Deployment on Local System/Cloud	Local,Cloud Foundry, Kubernetes,etc.

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 Gmail.	I can register & access the dashboard with Google	Medium	Sprint – 1
	Login	USN – 4	As a user, I can log into the application by entering email & password.	I can see the homepage	High	Sprint – 1
	Dashboard	USN – 5	As a user, I can see the options available for User account.	I can see the dashboard	Medium	Sprint – 2
	Background running	USN – 6	As a user, I allow the app to run in background.	I should change the app settings to run app in background	High	Sprint – 2
	GPS	USN – 7	As a user, I allow the app to access my location.	I should accept the permission to access my location.	High	Sprint - 2
	Google Maps	USN – 8	As a user, I can see the containment zones using the maps via Google Maps.	I should accept location permission	High	Sprint – 3
	Notification	USN – 9	As a user, I allow notification access for the application.	I should allow notification access	High	Sprint – 3
Administrator	Login	USN - 1	As admin, I log into the administrator portal.	I can access the admin account.	High	Sprint – 1
	Cloud	USN – 2	As admin, I use the cloud services to maintain users and the contaminated zones data.	I work with cloud services	High	Sprint – 2
	Cloud Database	USN – 3	As admin, I store the user details in the cloud database.	I get the details of the user and store in the cloud database.	High	Sprint – 2
	Maps	USN – 4	As admin, I will enter the containment zone's location.	I should enter correct co-ordinates of containment zones	High	Sprint – 3
	Mail	USN – 5	As admin, I set up a mail system to alert users when they enter a containment zone.	I use online mail system to send mail to users	High	Sprint – 3
	Updating	USN – 6	As admin, I should frequently update the details and the location of the containment zones.	I fetch data from internet and update the zones and the relevant details.	High	Sprint – 4

CHAPTER 6

PROJECT PLANNING & SCHEDULING

SPRINT PLANNING & ESTIMATION:

Product Backlog, Sprint Schedule, and Estimation

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Numer	User Story/Task	StoryPoint	Priority	TeamMembers
Sprint-1	Registration	USN-1	**User**. I can register for the application by entering my email and password	3	Medium	Tharmarajan S shyam Chander sp Veera Kishore P Vigneshwaran S
		USN-2	**User** I will receive a confirmation email once I have registered for the application	3	Medium	Tharmarajan S shyam Chander sp Veera Kishore P Vigneshwaran S
	Login	USN-3	**User** I can log into the application by enteringmy email & password	2	Low	Veera Kishore P VigneshwaranS
Sprint-2	Dashboard	USN-4	**User** I need to give permission to accessmylocation	5	High	Tharmarajan S shyam Chander sp Veera Kishore P Vigneshwaran S
		USN-5	**User** I can view the map with the containment zones	5	High	TharmarajanS Shyam Chander SP
	Service	USN-6	**Admin** Ineed to update the containment zones	5	High	TharmarajanS Shyam Chander SP

Sprint	Functional Requirement (Epic)	User Story Number	User Story/Task	Story Points	Priority	TeamMembers
Sprint-3	Service	USN-7	**Admin** I need to differentiate the containment zones based on the intensity of infection	3	Medium	Tharmarajan S shyam Chander sp Veera Kishore P Vigneshwaran S
		USN-8	**Admin** I need to provide precautionary measures when they travel	3	Medium	Tharmarajan S Shyam ChanderSP
		USN-9	**Admin** Ineed to provide information abou tthe nearby hospitals	2	Low	Veera KishoreP VigneshwaranS
Sprint-4	Service	USN-10	**Admin** I need to alert the user when they enter the containment zone through email or SMS	5	High	Tharmarajan S shyam Chander sp Veera Kishore P Vigneshwaran S
		USN-11	**Admin** I need to provide medical recommendations by collaborating with hospitals	2	Low	Veera Kishore P VigneshwaranS
	DataCollection	USN-12	**Admin** Ineed to store user details on the cloud	5	High	Tharmarajan S shyam Chander sp Veera Kishore P Vigneshwaran S
		USN-13	**Admin** I need to collect details about covid-19 cases from verifiedsources	5	High	Tharmarajan S ShyamChanderSP

Project Tracker, Velocity & Burndown Chart:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date(Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date(Actual)
Sprint-1	20	6 Days	24Oct2022	29Oct2022	20	29OCT2022
Sprint-2	20	6 Days	31Oct2022	05Nov2022	20	05NOV2022
Sprint-3	20	6 Days	07Nov2022	12Nov2022	20	12NOV2022
Sprint-4	20	6 Days	14Nov2022	19Nov2022	20	10NOV2022

Velocity:

Imagine we have a 10-days print duration ,and the velocity of the team is 20 (pointspersprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day).

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used inagile software development_methodologies such as Scrum.However,burndowncharts can be applied to any project containing measurable progress overtime.

https://www.visual-paradigm.com/scrum/scrum-burndown-chart/
https://www.atlassian.com/agile/tutorials/burndown-charts

Reference:

https://www.atlassian.com/agile/project-managementhttps://www.atlassian.com/agile/tutorials/how-to-do-scrum-with-jira-softwarehttps://www.atlassian.com/agile/tutorials/epicshttps://www.atlassian.com/agile/tutorials/sprintshttps://www.atlassian.com/agile/project-management/estimationhttps://www.atlassian.com/agile/tutorials/burndown-charts

CHAPTER 7
CODING & SOLUTIONING

FEATURE-1

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

CODING:

```
<!DOCTYPEhtml>
<htmllang="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:thinsolid;padding-bottom:
  20px;opacity:0.80;
  filter:alpha(opacity=80);/*ForIE8andearlier*/
  }

#date{color:
  white;font-size:1.3em;font-
  family:Georgia,"TimesNewRoman",Times,serif;font-weight:normal;
  letter-spacing:
  0.2em;opacity:0.6;
  filter:alpha(opacity=60);/*ForIE8andearlier*/
```

```
  }

  #footer{width:
  100%;height:
  40px; position:
  fixed;bottom:-1px;
  background-color:
  white;text- align:center;opacity:0.5;
  filter:alpha(opacity=50);/*ForIE8andearlier*/
  }

#line{ width:
  100%;bottom:
  4em;position:fixed;
  border-bottom:solidwhite;

  padding:
  15px;opacity: 0.5;
  filter:alpha(opacity=50);/*ForIE8andearlier*/
  }

  .navbar{position
  :
  fixed;width:100%;
  opacity:0.6; filter:alpha(opacity=60);/*ForIE8andearlier*/
```

```
}

.wrapper{
background-color:red;
}

span{
border-radius: 100px;opacity:0.75;
filter:alpha(opacity=75);/*ForIE8andearlier*/
}

#content{height:
45em;
}p{
max-width:
30em;color:
white;font-
family:"AdobeCaslonPro","HoeflerText",Georgia,Garamond,Times,serif;letter- spacing:0.1em;
text- align:center;margin:40pxauto;

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-navullia{
  text-decoration:
  none;padding: .2em 1em;background-color:black;opacity:0.4;
```

```
  filter:alpha(opacity=40);/*ForIE8andearlier*/
  }

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

#gen{ outline:none;padding
  -top: 5px;text-
  decoration: none;opacity:0.6; background-color: black;color:white; border:thinsolidwhite;h
  eight: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;
  }

  #gena{
  text-decoration:none;
  }
```

```
#date{ color:white;
  }

  @mediascreen
  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>
  <linkrel="stylesheet"type="text/css"href="https://cdnjs.cloudflare.com/ajax/libs/font-

  awesome/4.7.0/css/font-awesome.min.css">
  <bodyonload="startTime();startDate()">
  <divclass="container">
  <divid="date"></div>
  <divid="display"></div>
```

<divid="content">

<divclass="logged"> </p>

<pid="quote">"SUCCESSFUL!"</p>

<ahref="\table"><buttontype="button">ZONELIST</button>

<ahref="\addzone"><buttontype="button">ADDZONE</button>

<ahref="\removezone"><buttontype="button">REMOVEZONE</button>

</body>

</html>

FEATURE-2

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

CODING:

<!DOCTYPEhtml>

<htmllang="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:140540;stroke-dashoffset: - 474;stroke-width:
8px;stroke:#19f6e8;
}


.text{


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

@keyframes draw

{0%{
```

```
stroke-dasharray:140540;stroke-dashoffset: - 474;stroke-width: 8px;
}100%

{

stroke-dasharray:760;stroke-dashoffset:
0;stroke-width:2px;

}

}



.svg-wrapper:hover.shape{

-webkit-animation:0.5sdrawlinearforwards;
animation:0.5sdrawlinearforwards;

}



</style>

<formaction="/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 solidblack;top:250px" placeholder="Enteremail-id" required>

<divclass="svg-wrapper">
```

```
<div>

  <button type="submit" id="button" class="text"
style="color:yellow;top:300px;background-
color:#99ffff"><ahref="/loc">Notifyme</a></button>

<pstyle="color:yellow;font-
size:18px;top:300px">Enteremailaddresstobenotifiedonand Click
onNotifymetogetalertmessageifyou are inContainmentZone</p>

</div>

</form>



</div>

</body>

</html>
```

DATABASE SCHEMA

CHAPTER8

TESTING

TESTCASES

i. Login button click with wrong credential sentered.
ii. Signup with already registered mailID.
iii. Signup with wrong form data entered.
iv. Entering home page with logged out session.
v. Clicking home page buttons with logged out session.
vi. Invalid data entered in change password page and requested for change in password.

USER ACCEPTANCE TESTING

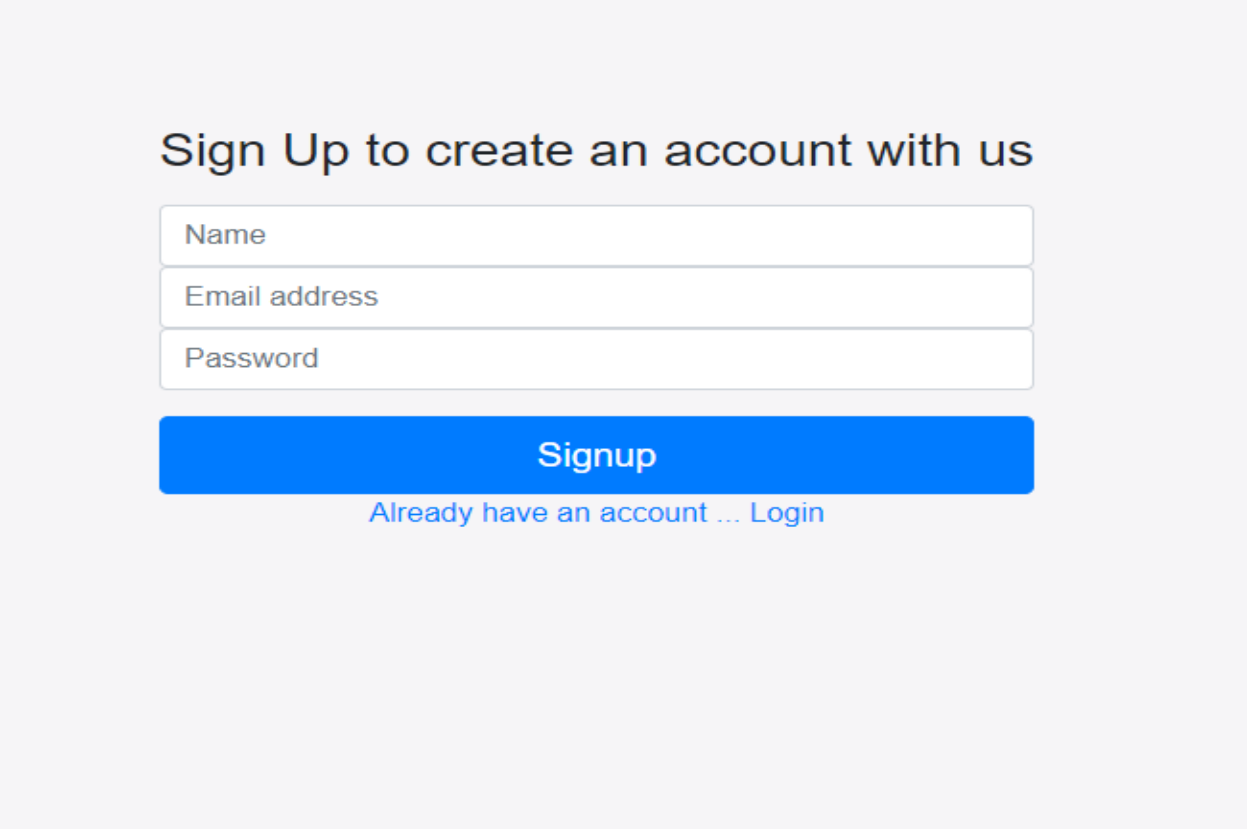
S.NO	TEST CASE	REQUIRED OUTPUT	RESULT OUTPUT	STATUS
1	Login button click with wrong credentials	Wrong credentials entered notification	Wrong credentials entered notification	ACCEPTED
2	Signup with already registered mail ID.	Email already registered notification	Email already registered notification	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

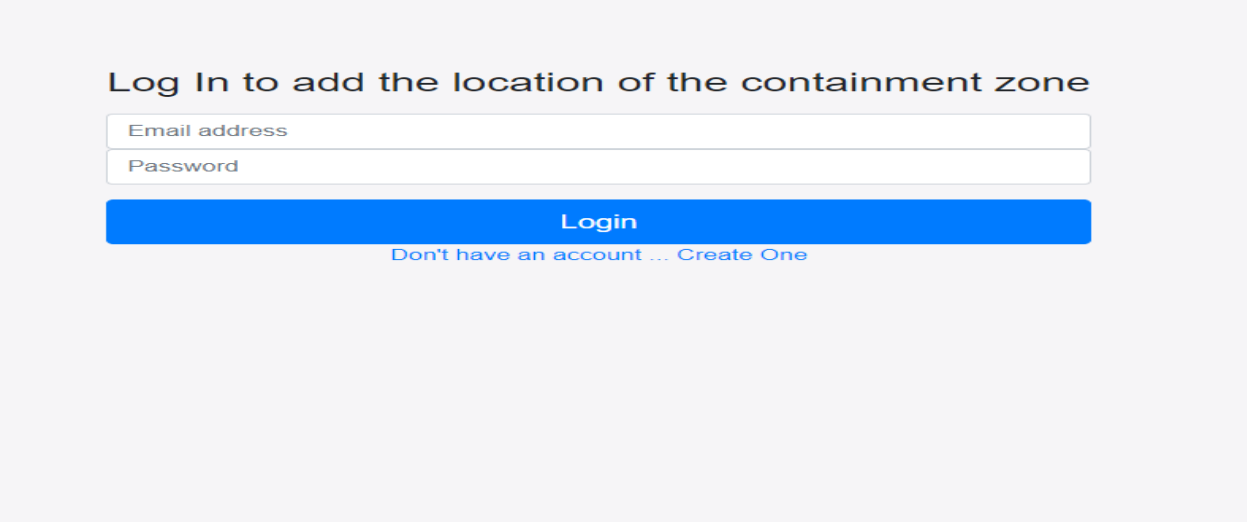
RESULTS

PERFORMANCE METRICS

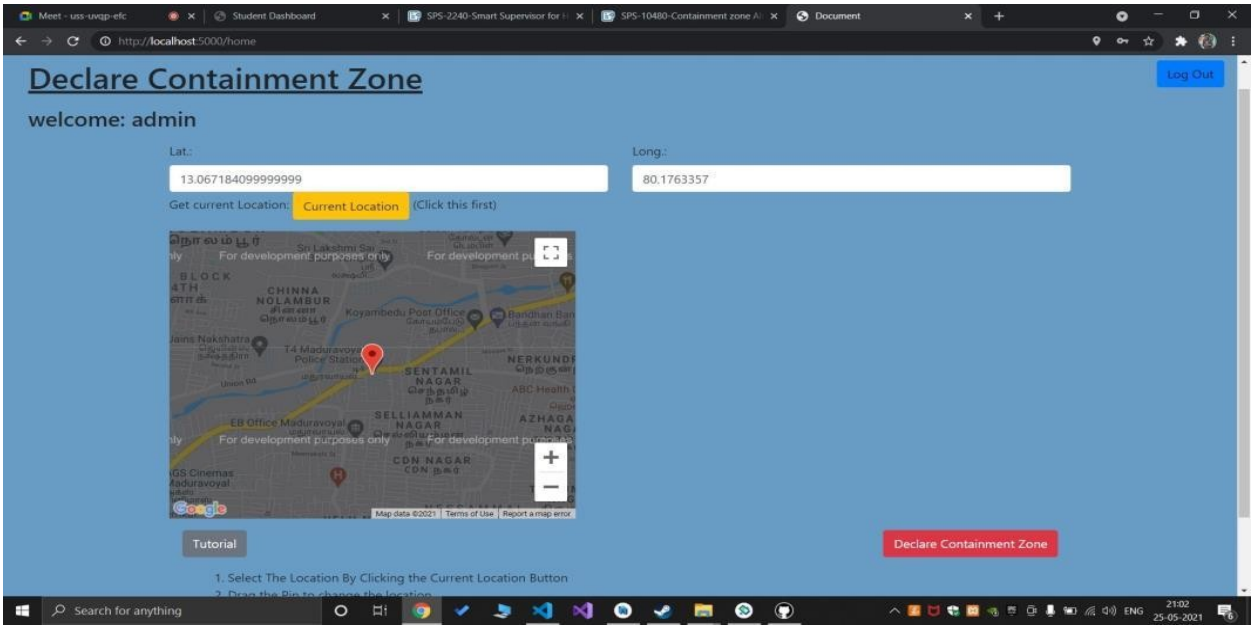
This app service monitors the location and provide information about the contaminated zones near a particular user and send notification to the user. It displays the contaminated zone area by geofencing the particular location.



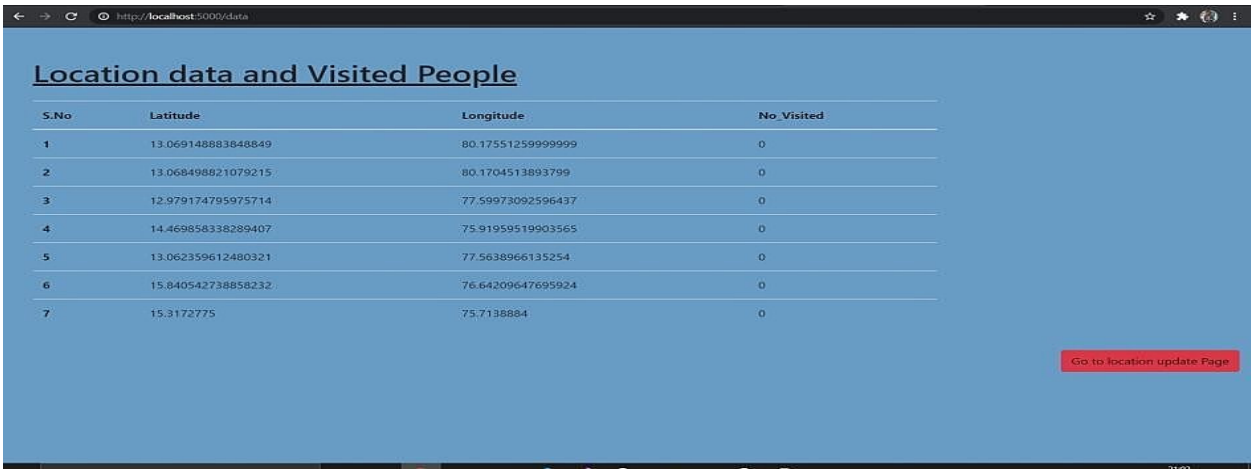
REGISTRATION FORM



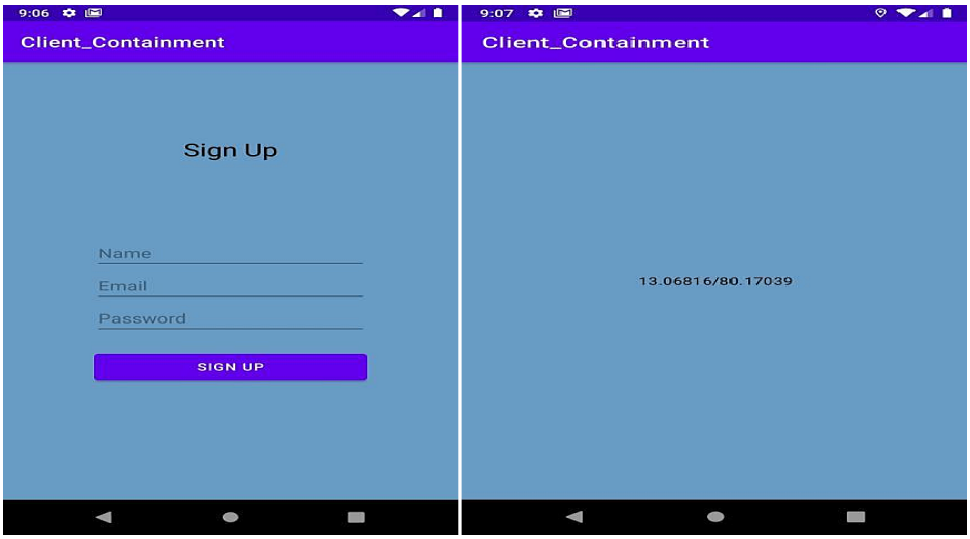
LOGIN FORM



ADD CONTAINMENT ZONE



DISPLAY THE CONTAINMENT ZONE UPDATION DATA



USER SIGNUP AND CURRENT LATITUDE IN ANDROIDAPPLICATION

NOTIFY THE CONTAINMENT ZONE TO THE USER

CHAPTER 10

ADVANTAGES & DISADVANTAGES

The main advantage of containment zone alerting applications is that they can help toprevent 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 potentialforfalse alarms and the possibility that people may ignore the warnings. This application isintended to provide information about containment zonesin a particularregion by alerting people, through continuous monitoring of an individual's location. Keybenefits of the application are monitoring people's activity and alerting them of their safetymovements.

CHAPTER 11

CONCLUSION

We proposed a framework for identifying the contaminated zone areas and store it indatabase 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 acontainment zone.

Theapp also allows users to setup alerts for specific containment zones. It has successfully demonstrated the application. In this project, we alert users about the containment zone are a 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 Googlemap. With the alarming increase of COVID-19 affected cases throughout the world, this developed application can be employed as atool 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 onentering 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. There by this application identifies the containment zones and highlights the need for taking further precautionary measures for combating COVID- 19. The application has been tested invarious locations and has been found to yield accurate results. The application can be further used form any 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 appuses 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 avoidcontracting the virus.

HOME.HTML

```
<!DOCTYPEhtml>
 <htmllang="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>
 <metacharset="UTF-8">
 <metahttp-equiv="X-UA-Compatible"content="IE=edge">
 <metaname="viewport"content="width=device-width,initial-scale=1.0">
<title>CZAA|HOME</title>
<metacharset="UTF-8">
<!--favicon-->
<!--<linkrel="shortcuticon"href="/assets/img/favicon.ico"type="image/x-
icon">-->
```

```
<!--<linkrel="icon"href="/assets/img/favicon.ico"type="image/x-icon">-->
<linkrel="icon"type="image/jpg"sizes="16x16"href="E:\nature.jpg">
<!--bootstrapcsscdn-->
<link
rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.
css"integrity="sha38 4-
JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnIxN0hoP+VmmDGM
N5t9UJ0Z"crossorigin="anonymous">
    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-
awesome.css">
<!--cssstylesheet-->
 <linkrel="stylesheet"href="css/style.css">
 <!--fontstylescdn-->
 <linkrel="preconnect"href="https://fonts.gstatic.com">
 <link
href="https://fonts.googleapis.com/css2?family=Alegreya&display=swap"rel
="stylesheet">
    <linkhref="https://fonts.googleapis.com/css2?family=Alegreya:wght@60
0&display=swap"rel="stylesheet">
</head>
 <body>
 <!-- bootstrapnavbar-->
 <navclass="navbarsticky-topnavbar-expand-lgnavbar-dark">
 <divclass="container-fluid">
        <aclass="main-logo-imgmt-
```

3"href="#"><imgsrc="E:/smartintern.jpg"alt="sheep- logo"height="50px"
width="180px">

<!--<aclass="navbar-brand"href="index.html">JobPortal-->

<divclass="rowdonate-sponsor">
<a type="button" class="btn btn-success
mr-1"id="donate"href="login.html">LOGIN

<atype="button"class="btnbtn-successmr-
1"id="donate"href="medreg.html">MED
LOGIN
<a type="button" class="btn btn-warning
1"id="sponsor"href="register.html">REGISTER
<a type="button" class="btn btn-primary
mr-1"id="sponsor"href="contact.html">CONTACTUS

</nav>
<!-- navbarends-->
<!--what wefocuson-->
<sectionclass="our-focus">
<divclass="container">
<h2class="text-centermt-3">Aboutus</h2>
<divclass="rowml-3mt-3">
<divclass="col-lg-3mr-5"id="focus-first">
<divclass="card"style="width:19rem;">
<divclass="card-body">
<h5class="card-title">Mission</h5>
<pclass="card-
text"><i>Themissionofthecontainmentzonealertingapplication

is

toprovide alerts to users in containment zones in order to prevent the spread ofCOVID-19.</p>

<divclass="col-lg-3mr-5"id="focus-second">
<divclass="card"style="width:20rem;">
<divclass="card-body">
<h5class="card-title">Vission</h5>
<pclass="card-text">TheContainmentZoneAlertingApplicationisdesignedtohelpauthoritiesalertthepublicaboutareasthathavebeendesignatedascontainmentzones.Theappwillallowuserstoseeamapofthecontainmentzone andreceivealerts when they are nearone. The app will alsoprovideinformation on how toavoidcontractingandspreadingthedisease.</p>

<divclass="col-lg-3ml-5"id="focus-third">
<divclass="card"style="width:20rem;">
<divclass="card-body">
<h5class="card-title">Objective</h5>
<pclass="card-text">Theobjectiveofthecontainmentzonealertingapplication is to alert the residentsof the containment zone about the outbreakof a disease. Itwillhelpthemtotakepreventivemeasurestoavoidthe disease.</p>

```
</div>
</div>
</div>
</section>
<footer>
<center>
<divclass="col-xs-2col-md-4">
<h3><b>GetinTouch<b></h3>
<ulclass="footer-links">
<h5>E-mail:<ahref="mailto:test@gmail.com">ibm@gmail.com</a></h5>
<h5>Mobile:<a href="9304050989">+919304050989</a></h5>
</ul>
</div>
</center>
</footer>
</body>
</html>
```

LOGIN.HTML

```
<!DOCTYPEhtml>

<html>

<head>

<metaname="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;
}
/*stylethecontainer */
.container{position:relative;border- radius:5px; background-color:
#f2f2f2;padding:20px030px0
;
}
/* style inputs and link buttons
*/input,
.btn{ width:100%;padding
: 12px;border:
none;border-radius:4px;
margin:5px0; opacity:0.85;display:
inline-block;font-size:
17px;
line-height:20px;
text-decoration:none;/*removeunderlinefromanchors*/
}
input:hover,
.btn:hover
{opacity:1;
}
```

```
 /*addappropriatecolorstofb, twitterandgooglebuttons*/
 .fb{
 background-color: #3B5998;color:white;
 }
.twitter{ background-color:
 #55ACEE;color:white;
 }
.google{ background-color:
 #dd4b39;color:white;
 }
 /*stylethesubmitbutton*/
input[type=submit]{background-color: #04AA6D;color:white; cursor:pointer;
 }
 input[type=submit]:hover
 {background-color:#45a049;
 }
 /*Two-columnlayout*/
.col{float:left;
 width: 50%;margin: auto;padding: 050px;margin- top:6px;
 }
 /*Clearfloatsafterthecolumns*/
.row:after{content: "";display: table;clear:bot h;
 }
 /*verticalline*/
 .vl{
```

```
position:absolute;left:50%;
transform: translate(- 50%);border: 2px solid#ddd;height:175px;
}
/*textinsidetheverticalline*/
.vl-
innertext{position: absolute;top:50%; transform: translate(-50%, -
50%);background-color:
#f1f1f1;border:1pxsolid#ccc;border-radius: 50%;padding:8px10p
x;
}
/*hidesometextonmediumandlargescreens*/
.hide-md-lg
{display:none;
}
/* bottomcontainer*/
.bottom-container
{text-align:center; background-color:#666; border-radius: 0px0px4px4px;
}
/*Responsivelayout-whenthescreenis
lessthan650pxwide,makethetwocolumnsstackontopofeachotherinsteadofnex
ttoeachother*/
@mediascreenand(max-width:650px) {
.col{ width:100%; margin-top:0;
}
```

```
/*hidetheverticalline*/
.vl{
display:none;
}
/*showthehiddentext onsmallscreens*/
.hide-md- lg{display:block;te xt-align:center;
}
}
</style>
</head>
<body>
<h2><b>LoginForm<b></h2
<divclass="container">
<formaction="/action_page.php">
<divclass="row">
<h2style="text-align:center">LoginwithSocialMediaorManually</h2>
<divclass="vl">
<spanclass="vl-innertext">or</span>
</div>
<divclass="col">
<ahref="#"class="fbbtn">
<iclass="fafa-facebookfa-fw"></i>LoginwithFacebook
</a>
```

```
<ahref="#"class="twitterbtn">
<iclass="fafa-twitterfa-fw"></i> LoginwithTwitter
</a>
<ahref="#"class="googlebtn"><iclass="fafa-googlefa-fw">
</i>LoginwithGoogle+
</a>
</div>
<divclass="col">
<divclass="hide-md-lg">
<p>Orsigninmanually:</p>
</div>
<inputtype="text"name="username"placeholder="Username"required>
<inputtype="password"name="password"placeholder="Password"required>
<inputtype="submit"value="Login">
</div>
</div>
</form>
</div>
<divclass="bottom-container">
<divclass="row">
<divclass="col">
<ahref="#"style="color:white"class="btn">Signup</a>
</div>
```

```
<divclass="col">
<ahref="#"style="color:white"class="btn">Forgotpassword?</a>
</div>
</div>
</div>
</body>
</html>
```

REGISTER.HTML

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

*{
 box-sizing:border-box;
}
/*Addpaddingtocontainers*/
.container{padding
 :16px;
```

```
        background-color:white;
      }
    /*Full-widthinputfields
      */input[type=text],input[type=password]{
        width:100%;padding:15px;margin:5px022px0;display: inline-
        block;border:none;background:#f1f1f1;
      }
    input[type=text]:focus,input[type=password]:focus{backg round-
color:#ddd;
        outline:none;
      }

      /*Overwritedefaultstylesofhr */hr{border:1pxsolid#f1f1f1;mar
        gin-bottom:25px;
      }

      /*Setastyleforthesubmitbutton*/
      .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;
}

/* Setagreybackground colorand centerthetext ofthe "sign in"section*/
.signin{ background-color:
 #f1f1f1;text-align:center;
}
</style>
</head>
<body>

<formaction="/action_page.php">
 <divclass="container">
  <h1>Register</h1>
  <p>Pleasefillinthisformtocreateanaccount.</p>
  <hr>
   <labelfor="email"><b>Email</b></label>
  <inputtype="text"placeholder="EnterEmail"name="email"id="email"required>
   <labelfor="psw"><b>Password</b></label>
  <inputtype="password"placeholder="EnterPassword"name="psw"id="psw"required>
   <labelfor="psw-repeat"><b>RepeatPassword</b></label>
```

```
    <input type="password" placeholder="Repeat Password" name="psw-repeat" id="psw-repeat"required>
    <hr>
    <p>Bycreating anaccountyouagreetoour<ahref="#">Terms&Privacy</a>.</p>
     <buttontype="submit"class="registerbtn">Register</button>
  </div>
    <divclass="containersignin">
    <p>Alreadyhaveanaccount?<ahref="#">Signin</a>.</p>
  </div>
</form>
    </body>
</html>
```

GITHUBACCOUNT

https://github.com/IBM-EPBL/IBM-Project-8464-1658920205

DEMO LINK

https://drive.google.com/file/d/1-mRTISgwElGhrwiz78CYOywZQxbJ_ERM/view?usp=share_link