# CONTAINMENT ZONE ALERTING APPLICATION

## PROJECT REPORT

**(TEAM ID:PNT2022TMID08097)**

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***in partial fulfillment of the requirements for the award of***

***thedegree of***

## BACHELOR OF ENGINEERING

***In***

***ELECTRONICS AND COMMUNICATION ENGINEERING***

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# CHAPTER 1

# INTRODUCTION

A containment zone alerting application is a mobile application that sends alerts to 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 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 casesthroughout 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 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 infection and greenzones indicate an area with no infection. This paper mainly focuses on development ofan 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 applicationupdates the locations of the areas in a Google map which are identified to be thecontainment zones. The application also notifies the users if they have entered

acontainment zone and uploads the user's info to the online database. Therefore, this application can be used as a tool for creating further socialawareness about the arising need of precautionary measures to be taken by the people of India.

# CHAPTER 2
# LITERATURE SURVEY

## Introduction:

cloud application is software that runs its processing logic and data storage between 2 different systems: client-side and server-side.

The cloud also processing to create a containment zone alerting application to preventive the people from COVID -19 cases.

To informing people about the location of the containment zones can help them bypass and avoid these zones and thereby reduce the chance of spreading. The application also provides daily Covid-19 case statistics to the users to keep them updated.

**Problem Statement:**

Containment Zone Alerting Application is the process that alert a people of the Covid19 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 identified throughout thecountry and divided into red, orange and green zones. The red zones indicate theinfection hotspots, orange zones denote some infection and green zones indicate anarea 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.

| S.NO | PROJECT TITLE | ADVANTAGE | DISADVANTAGE | TECHNOLOGY USED |
|---|---|---|---|---|
| 1. | COVID-19 Lifeguard: A Compact Wearable-IoT (W-IoT) System for Health Safety and Protection of Outgoers in the Post- Lockdown World | To help people maintain social distancing which detects motion in 360° up to 1.5m. The device can adapt to various surroundings by adjusting the sensitivity of the PIR sensor. | It is limited to specific areas such as detection, tracing, or prevention. The issue of safety, sanitization, health monitoring, and alerting the doctors is not resolved by a single integrated system. Mobile applications have been proposed for storing individual's data and alerting but informing the individual of any physical touch or contact with an infected person is not mentioned. | IOT |

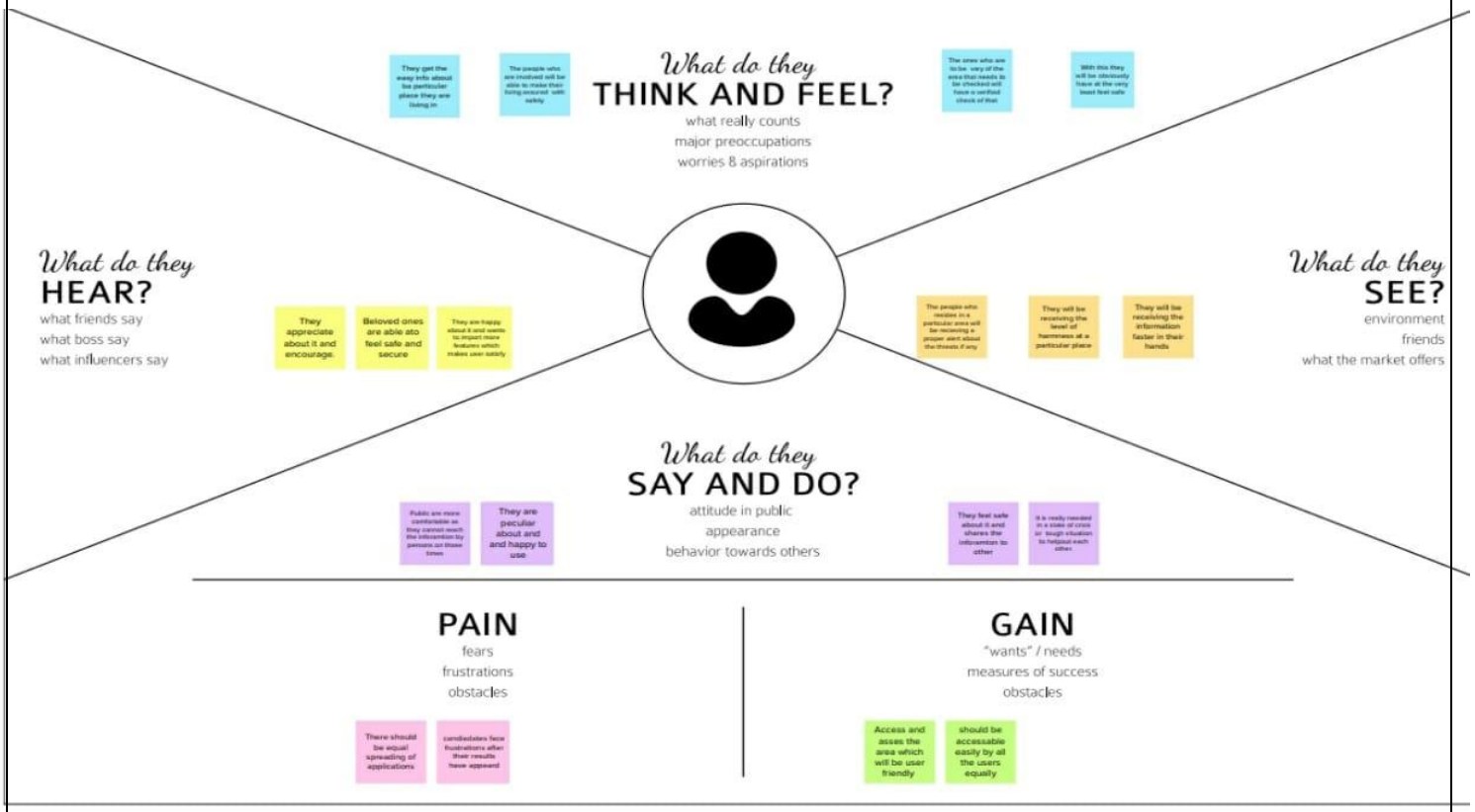
| | | | | |
|---|---|---|---|---|
| 2. | Development of An Android Application for Viewing Covid-19 Containment Zones and Monitoring Violators Who are Trespassing into It Using Firebase and Geofencing | It is used as a tool for creating further social awareness about the arising need of precautionary measures to be taken by the people of India.It can inform people of the Covid19 containment zones and prevent trespassing into these zones. | People can move inside the city for work and other purposes. But the containment zones are still being kept isolated, and new containment zones are being formed wherever Covid-19 cases have been reported. These zones are highly contagious as droplets with virus coughed out from an unscreened asymptomatic patient can travel up to 8 m and it makes tough to use frequently. | Geofencing API Firebase cloud firestore |
| 3. | Internet of Things (IoT) Enabled Architecture for Social Distancing During Pandemic | Digital technologies play a crucial role to support the social, professional and economic activities when people are forced to stay lockeddown in their homes. | A common problem with most IoT devices is their limitation due to restricted battery life which inhibits their capability to operate for long duration and long distances in case of drones, robots etc. The lack of proper measures and guidelines in handling patient's confidential data, algorithms for ensuring security and privacy increases vulnerabilities associated with the use of many technologies like drones, robots, autonomous vehicles etc. which are crucial supplements to the IoT platform. | Proposed IoT architecture |

| | | | | |
|---|---|---|---|---|
| 4. | Community alert project | Improved awareness in pilot communities to natural hazards through enhanced public education and awareness building initiatives. | The main risk is suspension of activity can be considered by the contracting authority in case of a major event. Backstopping and quality assurance measures to ensure the resilience of the contract outputs should be undertaken by the consultant | API<br>CAP server<br>Android |

# 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'sbehaviours 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 whois experiencing it. The exercise of creating the map helps participants consider things fromthe User's perspective along with his or her goals and challenges


What do they
THINK AND FEEL?
what really counts
major preoccupations
worries 8 aspirations
What do they
HEAR?
what friends say
what boss say
what influencers say
What do they
SEE?
environment
friends
what the market offers
What do they
SAY AND DO?
attitude in public
appearance
behavior towards others
They appreciate about it and encourage.
Beloved ones are able ato feel safe and secure
They are peculiar about and and happy to use
They feel safe about it and shares the inforamtion to other
PAIN
fears
frustrations
obstacles
GAIN
"wants" / needs
measures of success
obstacles
Access and asses the area which will be user friendly
should be accessable easily by all the users equally

## 3.2 IDEATION & BRAINSTORMING:

Brainstorming provides a free and open environment that encourages everyonewithin a team to participate in the creative thinking process that leads toproblem 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**

# Brainstorm & idea prioritization

## CONTAINMENT ZONE ALERT APPLICATION

This is a text box...
**1 hour** to collaborate
**2-8 people** recommended

Share template feedback

1

**Define your problem statement**

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

How can we sort and solve the issues said by the public?

How can we understand the issues faced by the public?

How should we spread awarness among the surrounding?

How to get update from the area or surrounding?

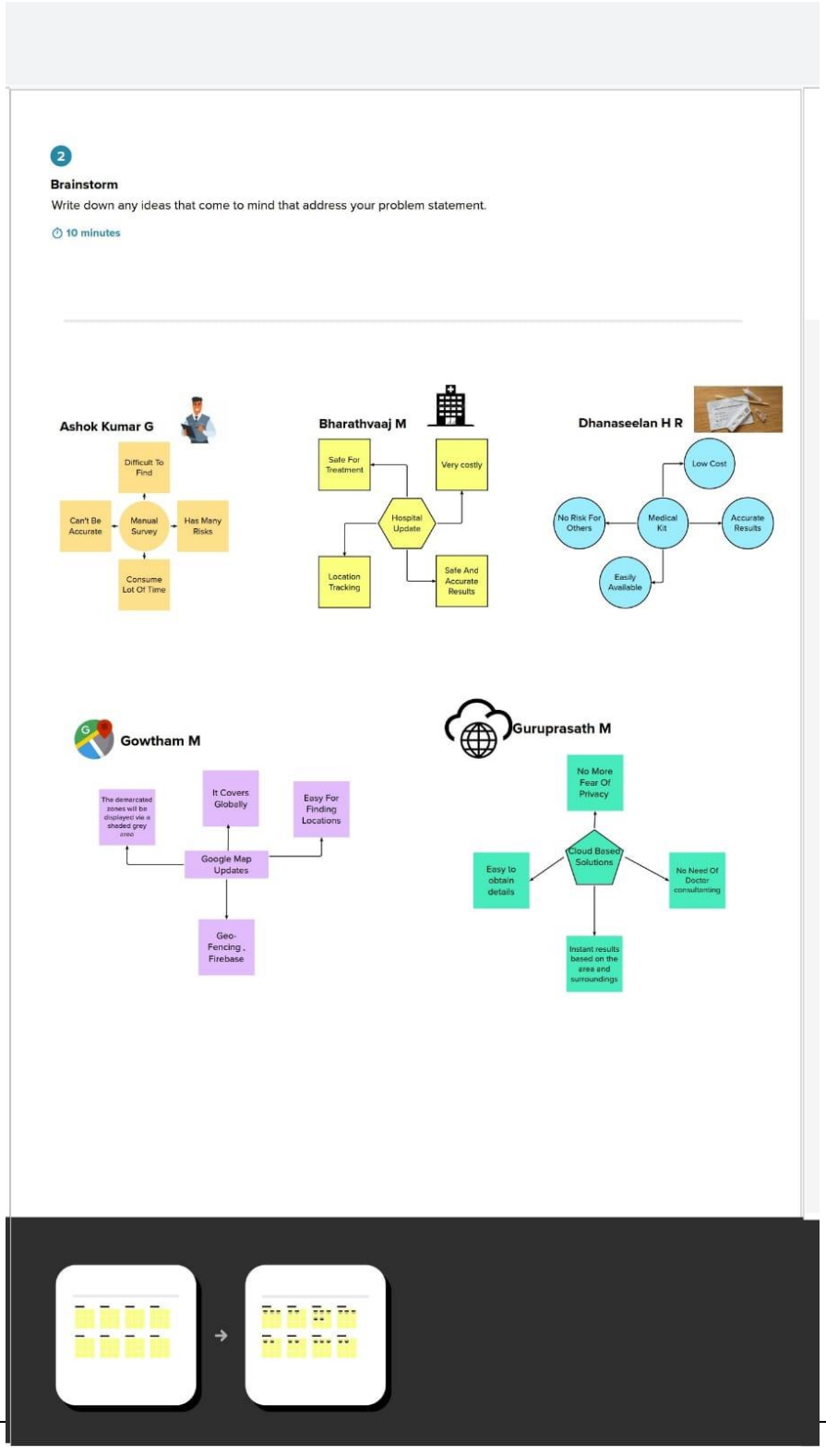
How should we do it safely without getting into contact with each other?

**Key rules of brainstorming**

To run an smooth and productive session

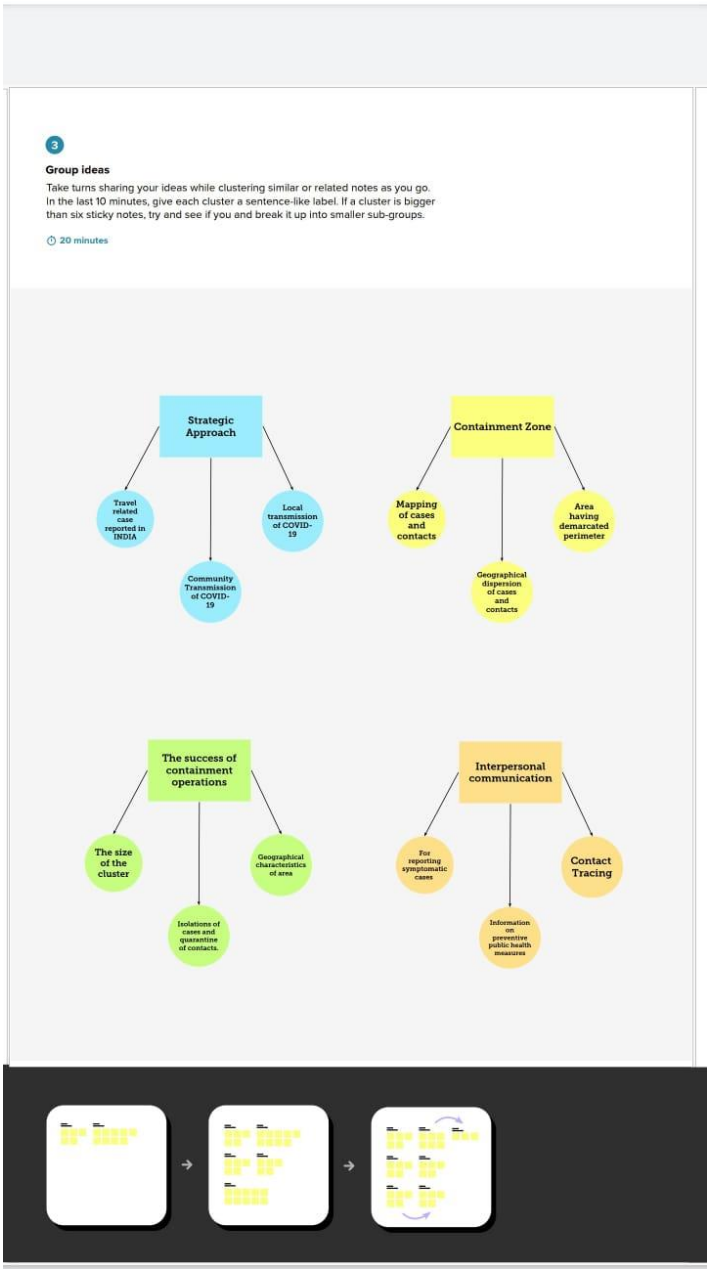
- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

## Step-2: Brainstorm, Idea Listing



## Brainstorm

Write down any ideas that coma to mind that address your problem statement.

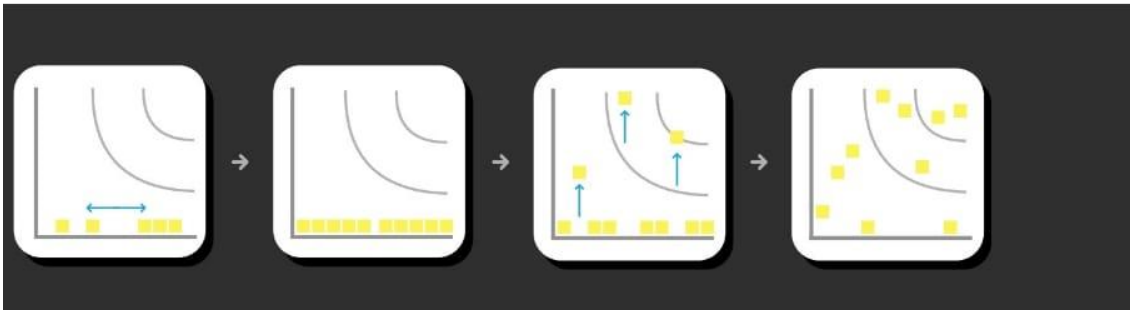


4

**Prioritize**

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

## 3.3 PROPOSED SOLUTION:

### Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

## Problem Statement:

Create an Application to indicate Containment Zone Alert.

## Problem Statement Description:

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.

**Requirement Specification:**

To be used efficiently, all computer software needs certain hardware components or other software resources to be present on a computer. These prerequisites are known as (computer) system requirements and are often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. With the increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to exist computer systems than technological advancements.

## Hardware Requirements:

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in the case of operating systems. An HCL lists tested compatible, and sometimes incompatible hardware devices for a particular operating system or application.

The following subsections discuss the various aspects of hardware requirements.

## Hardware Requirements for Present Project:

PC/COMPUTER:
PROCESSOR : Intel dual

Core, i3 RAM : 8 GB HARD

DISK : 80 GB

**Software Requirements:**

Software Requirements deal with defining software resource requirements and prerequisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or prerequisites are generally not included in the software installation package and need to be installed separately before the software is installed.

## Software Requirements for Present Project:

OPERATING SYSTEM : Windows or

Linux FRONT END : Html, CSS,

JavaScript.

SERVER SIDE : Python, Flask, Docker

DATABASE : IBM Database **Existing System:**

The Existing Containment Zone Alerting system detects the Containment Zone using Bluetooth Technology and It does not alert for Particular Street it shows a particular Region.

And it can't be used without turning ON Bluetooth Feature. Proposed System: Containment Zone Alerting Application is designed to send the accurate street location of the
Containment Zone using location Feature and it sends the alert through notification of our Application.

## Software Specification:

**HTML:**

HTML or Hypertext Markup Language is the standard markup language used to create web pages. HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets. HTML tags most commonly come in pairs like and, although some tags represent empty elements and so are unpaired, for example, Error! Filename not specified... The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags). HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes, and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

**Cascading Style Sheets (CSS):**

It is a style sheet language used for describing the look and formatting of a document written in markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG, and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation. CSS is designed primarily to enable the separation of document content from document presentation, including elements such as layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content. CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech based browser or screen reader), and on Braille- based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their computer, to override the one the author has specified. However, if the author or the reader did not link the document to a specific style sheet the default style of the browser will be applied.

**JavaScript:**

JavaScript is the scripting language of the Web. All modern HTML pages are using JavaScript. A scripting language is a lightweight programming language. JavaScript code can be inserted into any HTML page, and it can be executed by all types of web browsers. JavaScript is easy to learn.

**Python:**

Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured, object-oriented, and functional programming. Flask: Flask is a small and lightweight Python web framework that provides useful tools and features that make creating web applications in Python easier. It gives developers flexibility and is a more accessible framework for new developers since you can build a web application quickly using only a single Python file.

**Docker:**

Docker is an open-source containerization platform. It enables developers to package applications into containers— standardized executable components combining application source code with the operating system (OS) libraries and dependencies required to run that code in any environment.

**IBM Database:**

The IBM database enables you to access and manage server data through an application or a user interface. As well as providing access to and protection for your data, DB2 for IBM provides advanced functions, such as referential integrity and parallel database processing.

## 3.4 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's location 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 particular region by continuously monitoring an individual's location. Location of the individualmust be stored in the Database.

Alerts are sent using the notification service.

## 4.1 FUNCTIONAL REQUIREMENTS:

Following are the functional requirements of the proposed solution.

| FR No. | FunctionalRequirement(Epic) | SubRequirement(Story/Sub-Task) |
|---|---|---|
| FR-1 | UserRegistration | Registration through Mobile number.RegistrationthroughGmail. |
| FR-2 | UserConfirmation | Confirmation via Email.Confirmationvia OTP. |
| FR-3 | AppPermissions | EnablinglocationAccess(Mandatory) Permission to Media AccessPermissionto Camera. |
| FR-4 | Connectivity | The user and server were connected through theInternet. |
| FR-5 | Datafetching | The Users Personal data and a result of self analysisupdatedwithappserver. |
| FR-6 | Supportfunctions | The Users gets teleconsultation using helpline andsupportsbychatbot. |

| | | |
|---|---|---|
| FR-7 | Enduserbenefits | Toprotectthepeoplefromthediseasespreadbyknowingconta inmentzones usingcontacttracing. |

## 4.2 NON-FUNCTIONAL REQUIREMENT:

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 because confirmation through User ownEmail or OTP and also the data were stored inencrypted formattomainanonymity. |
| NFR-3 | **Reliability** | It is a high reliability based on development anddeployment. |
| NFR-4 | **Performance** | High efficiency outcomes with respect to simple userInterface. |
| NFR-5 | **Availability** | Anyonefromanywherecanaccessitthroughinternet. |
| NFR-6 | **Scalability** | It has ability to handle a growing user base withoutaffectingtheuserexperience andappperformance. |

# CHAPTER 5

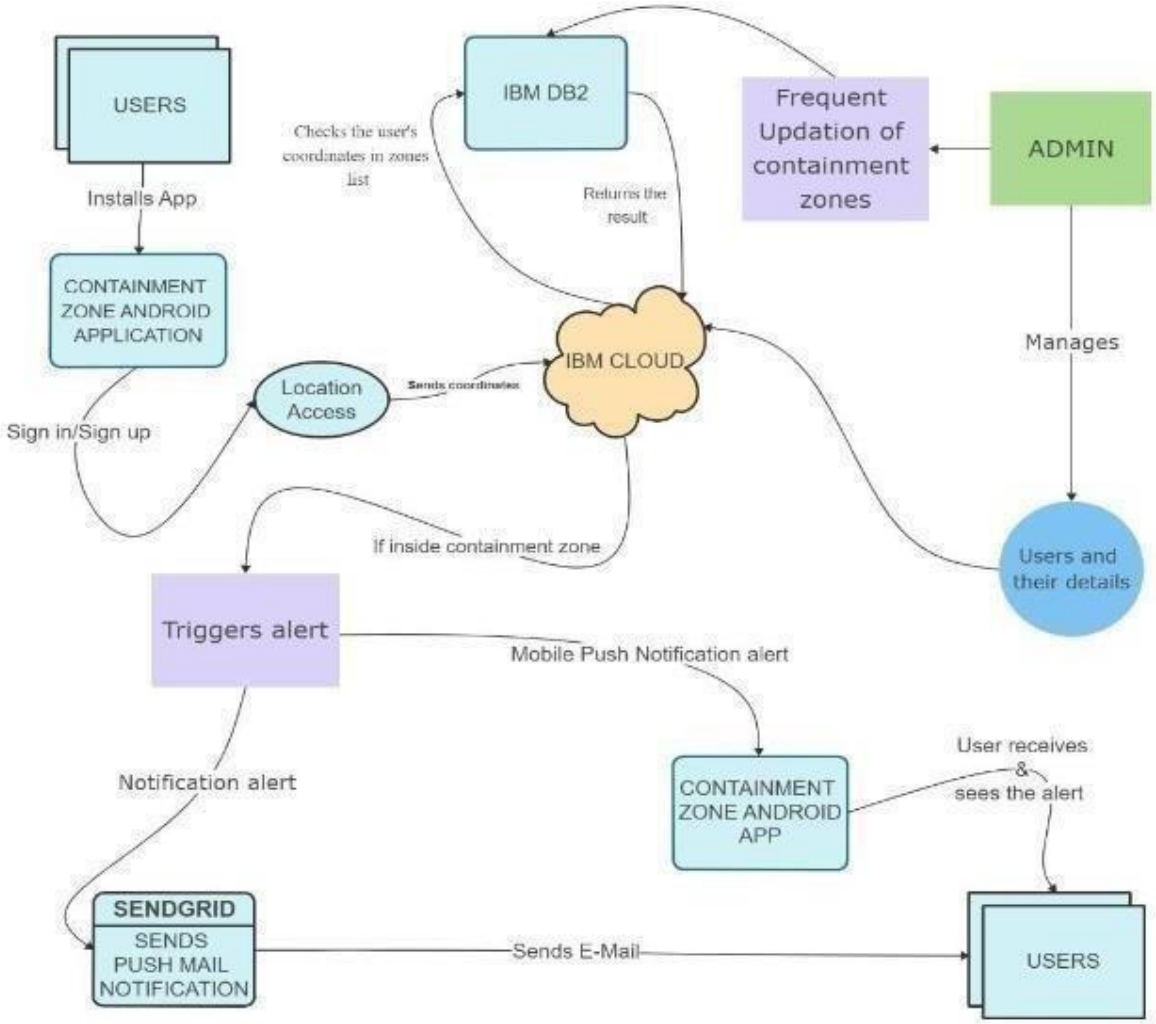
# PROJECT

# DESIGN

## 5.1 DATA FLOW DIAGRAMS:

### DataFlowDiagrams:

A DataFlow Diagram(DFD)is a traditional visual representation of the information flows with in a system. A neat and clear DFD can depict 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.

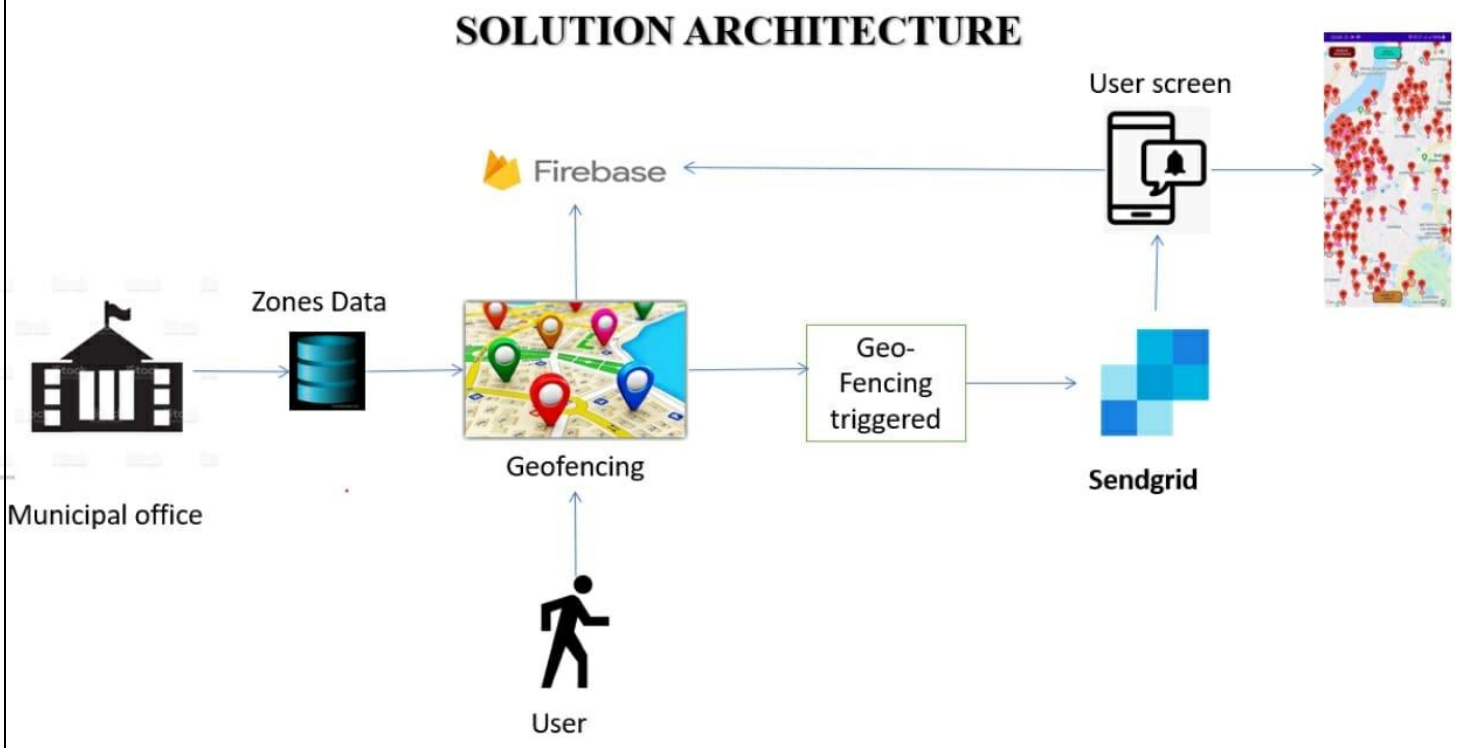


## 5.2 SOLUTION & TECHNICAL ARCHITECTURE

### Solution Architecture:

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.

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.



Guideline

Includealltheprocesses(Asanapplicationlogic/Technology Block)

1.Provideinfrastructuraldemarcation(Local/Cloud)

2.Indicateexternalinterfaces(thirdpartyAPI'set

## Table-1:Components&Technologies:

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | UserInterface | The user can interacts with ourapplicationwiththe helpofChatbot,etc. | HTML,CSS,JavaScript |
| 2. | ApplicationLogic | Theusercanloginwithapplication,bypreviouslyregisteredin ourweb app. | Java/Python |
| 3. | CloudDatabase | Theuserdatawillbestoredandretrieved withthehelpofthisdatabase. | IBMDB2 |
| 4. | FileStorage | The user documents like personal details, trackingdocuments and much more will be stored in cloudbucketetc.., | IBMBlock StorageorOtherStorageService orLocalFile system |
| 5. | ExternalAPI | WiththehelpofAPI,theuser cantrack thelocation | IBMAPI,etc. |
| 6. | Infrastructure(Server/Cloud) | ApplicationDeploymentonLocalSystem/Cloud | Local,CloudFoundry,Kubernetes, etc. |

## UserStories:

| 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

## 6.1 SPRINT PLANNING & ESTIMATION:

**Product Backlog, SprintSchedule,andEstimation**

Use the below template to create product back logand sprint 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 | Dhanaseelan |
| | | USN-2 | User: I will receive a confirmation email once I have registered for the application. | 2 | High | Guruprasth |
| | | USN-3 | User: I can register for the application through Gmail. | 5 | Medium | Dhanaseelan |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | USN-4 | Management: I need to register my hospitals on the site. | 2 | High | Bharathvaaj |
| | | USN-5 | User: I can log into the application by entering my email & password | 3 | High | Dhanaseelan |
| | Login | USN-6 | Management: I need to login into my dashboard with my given hospital id and password. | 5 | Medium | Gowtham |
| | Dashboard | USN-7 | User: I need to give permission to access my Contacts, Location, and Storage | 5 | High | Ashok 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 | Guruprasath |
| | | USN-9 | Management: I need to enter the case information of the patient that visits our hospital. | 5 | High | Bharathvaaj |
| | Services | USN-10 | Admin: I need to provide valid information about the pandemic out there. | 5 | High | Ashok kumar |
| Sprint-3 | Dashboard | USN-11 | Management: I need to store all the patient information on the cloud. | 5 | High | Dhanaseelan |
| | Services | USN-12 | Admin: I need to provide medical advice through a chatbot. | 5 | Medium | Gowtham |

| | | | | | |
|---|---|---|---|---|---|
| | | USN-13 | Admin: I need to provide medical recommendations by collaborating with top hospitals. | 5 | L |
| | | USN-14 | Admin: I need to provide preventive measures when they travel through it. | 5 | Hi |
| | Registration | USN-15 | User: I can register for the application through Facebook. | 2 | Lo |
| Sprint-4 | | USN-16 | User: I can register for the application through Twitter. | 2 | Lo |
| | Services | USN-17 | Admin: I need to alert the user when they enter pandemic zones. | 3 | M |
| | | USN-18 | Admin: I need to provide special services for premium users by giving services like monitoring health by their smart bands. | 3 | Lo |
| | Data Collection | USN-19 | Admin: I need to store all the user information on the cloud | 5 | M |

| Sprint | Functional Requirement (Epic) | User Story Number | User Story / Task | Story Points | Pri |
|---|---|---|---|---|---|
| | | USN-20 | Admin: I need to collect the recent list of diseases in the world. | 5 | L |

## ProjectTracker, Velocity&Burndown Chart:

| Sprint | Total Story Points | Duration | Sprint StartDate | Sprint End Date(Planned) | Story Points Completed (as onPlannedEndDate) | 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:

Imaginewehavea10-daysprintduration,andthevelocityoftheteamis20 (pointspersprint).Let'scalculatetheteam'saveragevelocity(AV)periterationunit (storypointsperday).

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

## BurndownChart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies suchas Scrum.However,burndownchartscanbeappliedtoanyprojectcontainingmeasurablep rogre ss overtime.

# CHAPTER 7
# CODING & SOLUTIONING

## 7.1 FEATURE-1

Inthispage,theuser canaddthezonelist,removezoneandadd zone.

**CODING:**

```
<!DOCTYPEhtml>
<htmllang="en">
<head>
</head>
<body>
   <style>html
,body{ overflow-x:
 hidden;over flow-
 y: hidden;heig
 ht:100
 %; width: 100%;posi tion:ab solute; background-
 color:black;        background-image:
 url('https://wallpapercave.com/wp/5KLTq1z.jpg');back
 groundrepeat:no-repeat; background-size:
 cover;backgroundposition: top;z-index:-2;
}

#display{ color:
     white;fontsi
     ze:
     2.9em;top:10px;              border-
  bottom:thinsolid;
padding-bottom:
20px;opacity:0.80;
   filter:alpha(opacity=80);/*ForIE8andearlier*/
}
```

```
#date
  {
  colo
  r:
  whit
  e;fo
  ntsiz
  e:1.3
  em;
  font-
  family:Georgia,"TimesNewRoman",Times,ser
  if;fontweight: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;textalign:center;opacity:0.5;
  filter:alpha(opacity=50);/*ForIE8ande
  arlier*/
}

#line{
  widt
  h:
  100%;bottom:
  4em;positio
  n:fi xed;
  border-bottom:solidwhite;
```

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

        .navbar{position
          :
          fixed;width :10 0%; opacity:0.6;
          filter:alpha(opacity=60);/*ForIE8andearlier*
          /
        }

        .wrapper{    backgroundcolor:red;
        }

        span{
          border-radius:       100px;opacity:0.75;
          filter:alpha(opacity=75);/*ForIE8ande
          arlier*/
        }

        #content{height:
          45em;
        }p{
          maxwid
          th:
          30em;c
          olor:
          white;
          fontfam
          ily:"Ad
          obeCasl
```

```
  onPro",
  "Hoefle
  rText",
  Georgia
  ,Garam
  ond,Ti
  mes,
  serif;let
  terspaci
  ng:0.1e
  m;
  textalig
  n:center
  ;margi
  n:40pxa
  uto;

   text-transform:
   lowercase;lineheight:
   145%; font-size:2em;
   font-variant:smallcaps;
}

p :hover{
   text-decoration:none;
}

.container{paddi
   ng          -top:
   6em;textalign:c
   enter;
}
```

```
#b-nav{
  paddingbottom:
  5em;position:fix
  ed; 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{
      textdecoration:
  none;padding: .2em
  1em;backgroundcolor:
  black;opacity:0.4;
  filter:alpha(opacity=40);/*ForIE8andearlier*/
}

.hold{
  widt
  h:
```

```
  100
  %;te
  xt- align:left;
}

#gen{
  outline:none;paddi
  ng -top:
  5px;textdecoration
  : none;opacity:0.6;
  background-color:
  black;color:white;
  border:thinsolidwh
  ite;h
       eight:40px;
  width:
  100px;borderradiu
  s:
  2px;transition
  :              0.5s;
  paddingbottom:5px;
}

#gen:hover{

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

#gena{        textdecoration:none;
```

```
}

#date{ color:white;
}

@mediascreen and(max-
devicewidth:800px)and (max-device-
height: 640px)and (webkit-device-pixel-
ratio:
2)and
  (orientation:p
  ortrait){ p{
  fontsize:1em;
    }
}

.fa-twitter{ font-size:
  30px !important;
  marginleft:2
  0px;
}

    </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></a>

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

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

</body>

</html>

## 7.1 FEATURE-2

Theusersget alertedfromenteringthecontaminatedzonebygeofencingthelocationandsendingitas notification.

CODING:

<!DOCTYPEhtml>

<htmllang="en">

<head>

</head>

<body>

<style>htm

l,

body

{

background

:

#333;

```
  height:100%;ov
  e rflow: hidden;textalign:
  center;
}

.svg-wrapper {height:60px;
  margin:          0
  auto;position:r
  elative ; transform:
  translateY(-
  50%);width:320px;
}

.shape{
  fill:transparent;
  stroke-dasharray:140540;
  stroke-dashoffset: 474;strokewidth:
  8px;stroke:#19f6e8;
}

.text{
  color:#fff00;
```

```
  fontfamily:'RobotoCond

  ensed';fontsize:22px; letter-

  spacing:

  8px;line-height:

  32px;position: relative;top:300px;

}


@keyframes draw

  {0%{
    stroke-dasharray:140540;

    stroke-dashoffset: 474;strokewidth:

    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;backgroundcolor:#99ffff"><ahref="/loc">Notifyme</
a></button>
<pstyle="color:yellow;fontsize:18px;top:300px">EnteremailaddresstobenotifiedonandClick
onNotifymetogetalertmessageifyou are inContainmentZone</p>
</div>
 </form>

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

## 7.2 DATABASESCHEMA


# CHAPTER 8
# TESTING

## 8.1 TESTCASES

1. Loginbuttonclick withwrong credentialsentered.
2. SignupwithalreadyregisteredmailID.
3. Signupwithwrongformdataentered.
4. Entering homepagewithloggedoutsession.
5. Clickinghomepagebuttonswithloggedoutsession.
6. Invaliddataenteredinchangepasswordpageandrequestedfor changein password.

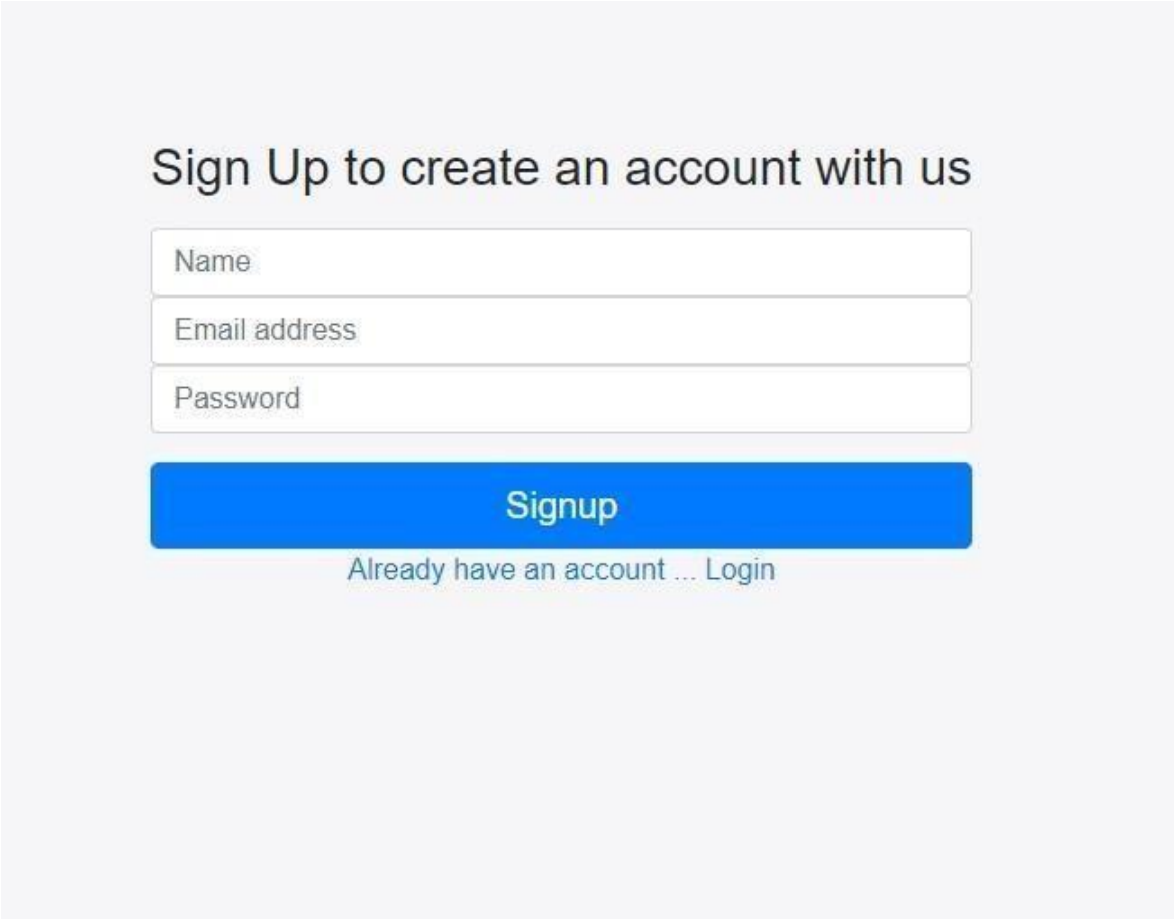
### 8.2 USERACCEPTANCETESTING

| 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 |

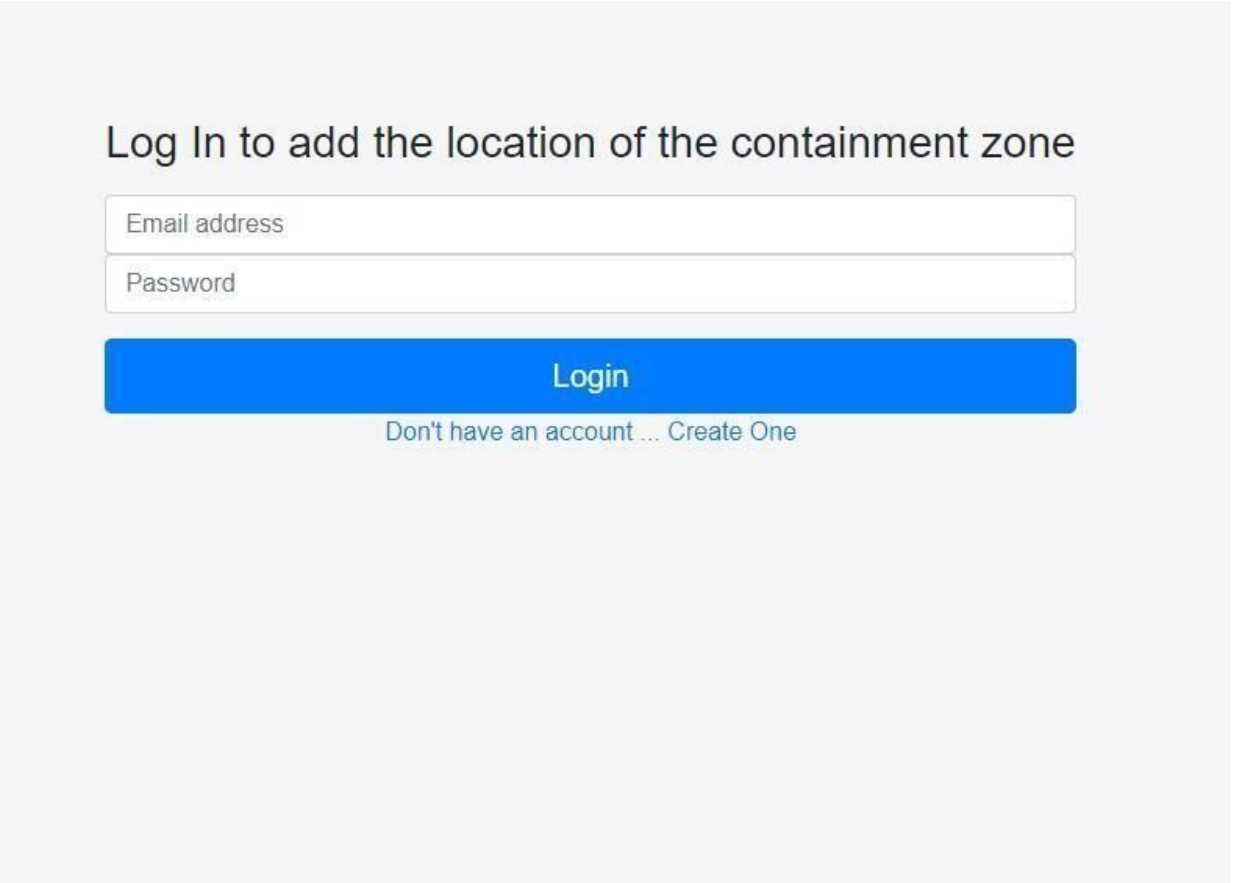
# CHAPTER 9
# RESULTS

## 9.1PERFORMANCEMETRICS

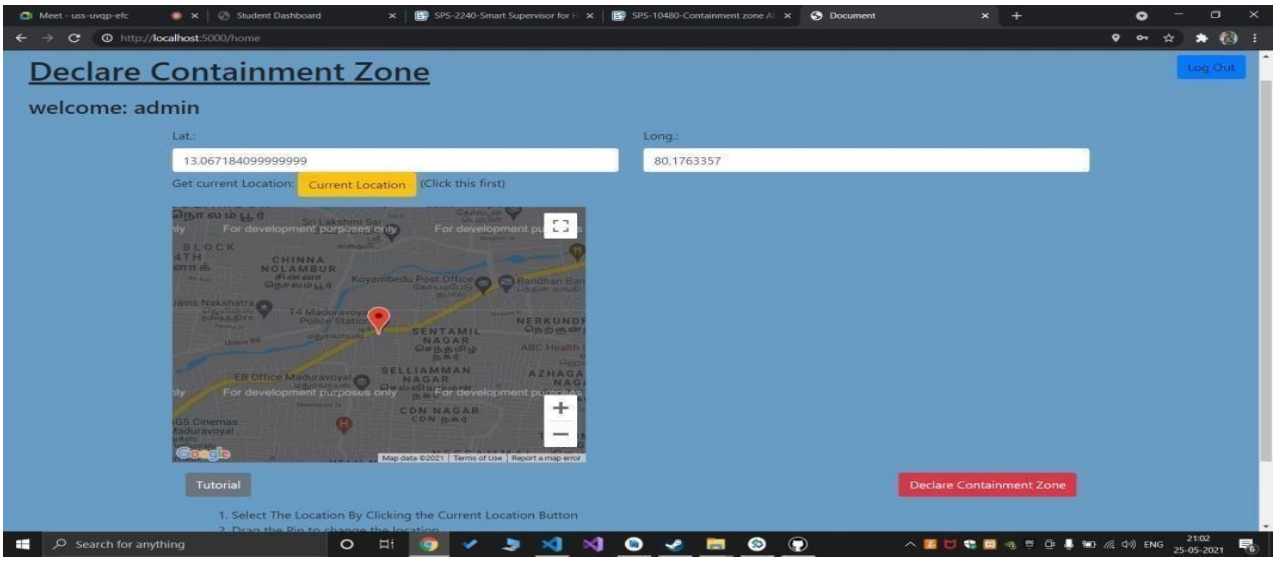
Thisappservicemonitorsthelocationandprovideinformationaboutthecon tami natedzones near a particular user and send notification to the user. It displays thecontaminatedzone areabygeofencingthe particularlocation.




**REGISTRATION FORM**

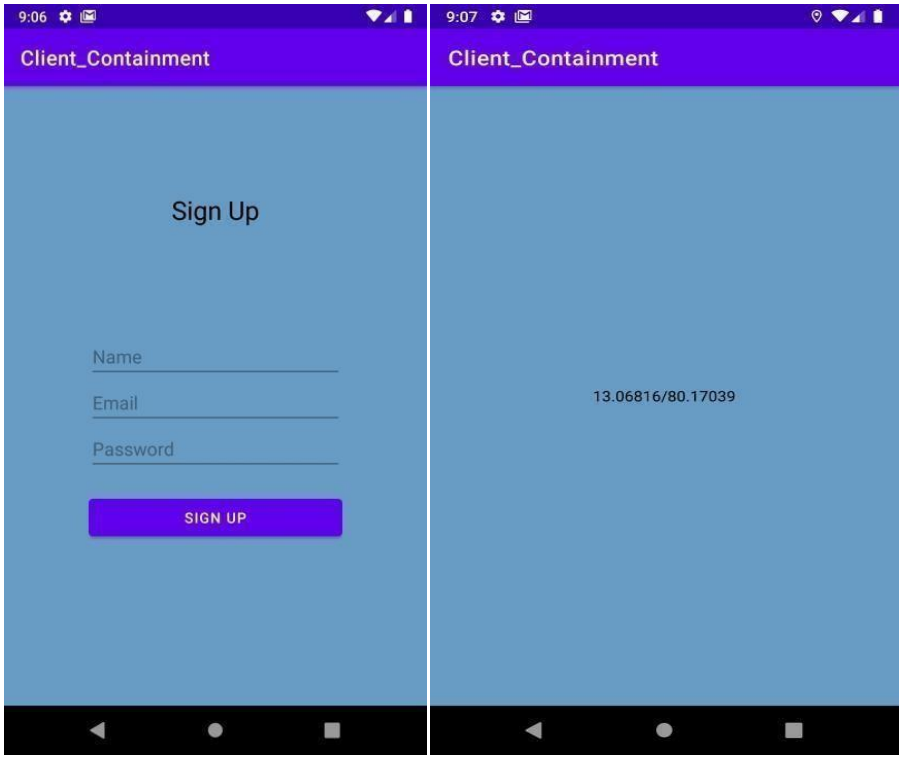



**LOGIN FORM**




**ADD CONTAINMENT ZONE**


**DISPLAY THE CONTAINMENT ZONE UPDATION DATA**




**USER SIGNUP AND CURRENT LATITUDE IN ANDROID APPLICATION**


**NOTIFY THE CONTAINMENT ZONE TO THE USER**

# CHAPTER 10

# ADVANTAGES&DISADVANTAGES

## 10.1ADVANTAGES&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 potential forfalse alarms and the possibility that people may ignore the warnings. This application isintended to provide information about containment zones in 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.

# CHAPTER11

# CONCLUSION

Weproposedaframeworkforidentifyingthecontaminatedzoneareasandstoreit in databaseforfutureuse.Thenusingthedatabase,informationisprovidedtotheus erabou tcontaminatedzoneareasandalertingthembysendingnotification andgeofencingthelocation.Fromtheaboveinformation,itcanbeconcludedthat theCo ntainmentzone Alerting Application, in which we have successfully developed is a mobile applicationthatsendsalertstouserswhentheyenterorexitacontainmentzone.T heappu ses GPStotrackthe user's location and sends an alert if the user enters or leaves a containment zone. The appalsoallowsuserstosetupalertsforspecificcontainmentzones.Ithassuccessfull yd emonstratedtheapplication.Inthisproject,wealertusersaboutthecontainment zone area by that the yareaware and realizeofhighcontainmentzonearea.

# CHAPTER12

# FUTURESCOPE

Theapplicationprovidesanefficientwayofshowingtheidentified COVID19conta inmentzonestotheusersinaGooglemap.Withthealarmingincreaseof COVI D-19 affectedcasesthroughouttheworld,thisdevelopedapplicationcanbeemployed asa toolforcreatingfurthersocialawarenessamongthepeople.Thisapplicationfurther tra cksthe user'slocation andchecks whetheritispresentin

thelistofidentifiedcontainmentzones.Itsendsseparatenotificationalertstotheuse
ron
enteringandexitingthecontainmentareas.Thedevelopedandroidapplicationfurt
her
extractstheIMEINumberofthetrespasserinthecontainmentzoneswhichcanbeus
eful
tothelocalpolicetotrackandidentifypeoplewhoarefrequentlytrespassingthecont
ain
mentzones.Therebythisapplicationidentifiesthecontainmentzonesandhighligh
tsth eneedfortakingfurtherprecautionarymeasuresforcombatingCOVID-
19.Theapplicationhasbeentestedinvariouslocationsandhasbeenfoundtoyieldac
cur
ateresults.Theapplicationcanbefurtherusedformanypurposeslikemaritimeandf
ore stsafetytopreventusersfromenteringrestrictedareas.

# CHAPTER13
# APPENDIX

The Containment zone alerting application is a mobile application that sends alerts to userswhen they are in close proximity to a containment zone. The app uses the user's location todetermine if they are in close proximity to a containment zone, and if so, sends an alert to theuser.Theappalsoallowsusersto viewamapofcontainmentzonesintheirarea,andprovidesinformationonhowto avoid contractingthe virus.

**HOME.HTML**

```
<!DOCTYPEhtml>

<htmllang="en">

<style> body{

backgroundi

mage:
```

```
  url('E:/background.jpg');background-
  repeat:norepeat;              background-
  attachment:
  fixed;background-size: cover;
}
a:link{colo
  r:gr een;
}
</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+VmmDGMN5t9UJ0Z"crossor
i gin="anonymous">
        <link        rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/fontawesome/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="st
ylesheet">

<linkhref="https://fonts.googleapis.com/css2?family=Alegreya:wght@600&display=swa
p"rel="s tylesheet"> </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</a>-->

</a>



<divclass="rowdonate-sponsor">

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

<atype="button"class="btnbtn-successmr-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">CONTACTUS</a>

</div>

</div>

</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">Themissionofthecontainmentzonealertingapplication is to provide 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">TheContainmentZoneAlertingApplicationisdesignedtohelpauthoritiesalertthepublicabo utare asthathavebeendesignatedascontainmentzones.Theappwillallowuserstoseeamapofthecontainment zone 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 residents of the containment zone about the outbreak of a disease. Itwillhelpthemtotakepreventivemeasurestoavoidthe disease.</p>

```
                    </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/fontawesome/4.7.0/css/fontawesome.min.css">
```

```
<style
>
body{
  font-family:Arial,Helvetica,sans-serif;
}

*{
boxsizing:borderb
ox;  }
/*stylethecontainer
*/
.container{position:
relative;borderradiu
s:5px; backgroundcolor:
  #f2f2f2;padding:20px030px0
  ;
}
/* style inputs and link buttons
*/input,
.btn{ width:100%;p
  adding          :
  12px;border:
  none;borderra
  dius:4px;
  margin:5px0;
  opacity:0.85;
  display:
  inlineblock;fo
  ntsize:
          17px;
  lineheight:20px;
  text-decoration:none;/*removeunderlinefromanchors*/
}


input:hover,
.btn:hover
  {opa
```

```
city:1;
}

/*addappropriatecolorstofb, twitter andgooglebuttons*/
.fb{
  backgroundcolor:
  #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
:le        ft;
width:
50%;mar
gin: auto;pad
ding:    0
50px;mar
gintop:6p x;
}

/*Clearfloatsafterthecolumns*/
```

```
.row:after
{conte nt:
"";displa y:
table;cle
ar:bot h;  }

/*verticalline*/
.vl{    position:absol    ute;le
  ft:50%;              transform:
  translate(50%);border: 2px
  solid
  #ddd;height:175px;
}


/*textinsidetheverticalline*/
.vlinnertext{position:
absolute;top:50%;
transform: translate(50%,
50%);backgroundcolor:
#f1f1f1;border:1pxso
  lid#ccc;          borderradius:
  50%;padding:8px10p
  x
;
}

/*hidesometextonmediumandlargescreens*/
.hide-md-lg
  {display:none;
}

/* bottomcontainer*/
.bottom-container
            {textalign:center;
            backgroundcolor:#666; border-
  radius:
```

```
  0px0px4px4px;
 }
 /*Responsivelayout-whenthescreenis
 lessthan650pxwide,makethetwocolumnsstackontopofeachotherinsteadofnexttoeachother*/
 @mediascreenand(max-width:650px) {
  .col{ width:10 0%; margintop:0;
  }
  /*hidetheverticalline*/
  .vl{ display:
   none;
  }
  /*showthehiddentext onsmallscreens*/
  .hidemdlg{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,sansserif;backgroundcolor:black;
}
*{
        boxsizing:
 borderbox;
}
/*Addpaddingtocontainers*/
.container{paddin
  g      :16px; background-
  color:white;
}
/*Full-widthinputfields
*/input[type=text],input[type=password]{ width:100%;padding:1
  5
  px;margin:5px022px0;
  d      isplay:
  inlineblock;border:non
  e;back ground:#f1f1f1;
}

input[type=text]:focus,input[type=password]:focus{backg
  round-
color:#ddd;
outline:non
e; }

/*Overwritedefaultstylesofhr       */hr{
  border:1pxsolid#f1f1f1;mar
  ginbottom: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{
  backgroundcolor:
  #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="pswrepeat"
    id="pswrepeat"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>
```

# GITHUB ACCOUNT :

**https://github.com/IBM-EPBL/IBM-Project-18069-1659678901**