CONTAINMENT ZONE ALERTING APPLICATION

1.INTRODUCTION

1.1. PROJECT OVERVIEW

We have conducted a brief survey on the existing apps published in Google playstore which are related to Covid-19. Efforts have been made to include most of the apps in the survey. The summary of the survey is given in Table Table11 which includes the name of the apps, the description of the apps given in Google Playstore by their developers and our comments on the apps after using them.

The survey shows that there are several apps developed in the country to fight and contain COVID-19. Most of the states of our country have their own apps with specific features and functionality to help their citizens to stop COVID-19 spread, get medical assistance during a crisis, create awareness, and understand safety precautions. The study also shows that there are a limited number of apps which show the COVID-19 containment zones in the country or state and out of these none has the functionality of notifying and alerting the user when they have entered a containment zone. Therefore, no app in the Google Playstore is comparable with our proposed application because the idea behind the development of the proposed app is different. This highlights the novelty of the proposed app

1.2. PURPOSE

The Android application shows the location of the containment zones to the users. It also notifies the user when he or she trespasses the boundary of a containment zone or stays in the containment zones

2.LITERATURE SURVEY

2.1. EXISTING PROBLEM

The economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year.

2.2. REFERENCES

Author	Title	Source	Findings

Dr. Minh Kieu (University of Auckland) & Prof. Alison Heppenstall (University of Leeds)	A Big Data Framework to Facilitate Modelling Efforts Against COVID-19	Worldwide Universities Network (WUN)	This project has to start now, because the access to individual data is the main hurdle to many COVID19-related research in epidemiology, public health, social simulation and engineering. This data platform is not a solution to all existing privacy questions (like consent, but it will be an infrastructure that allows researchers to access individual data and policy makers to access cutting-edge models for their data, while minimising a number of critical risks related to personally identifiable information and maintaining appropriate regulations across multiple legal contexts.
Dr. Jesús Gil-Pulido (Institute of Molecular Biology)	Recommendations to request the determination of Serum IL-6 Levels in Patients with COVID-19**;** 2.Convalescent Plasma Therapy: How does this apply to COVID-19? **&** 3.Rapid Test for SARS-CoV-2	COVID-19 infographics 1 2 3 I Institution: Spanish Society for Immunology (SEI)	To evaluate the relation between diagnosis of covid-19 with SARS-CoV-2 variant B.1.1.7 (also known as variant of concern 202012/01) and the risk of hospital admission compared with diagnosis with wild-type SARS-CoV-2 variants.
Maurizio Cecconi, Guido Forni & Alberto Mantovani	COVID-19: An Executive Report	Executive Report I Institution: Accademia Nazionale dei Lincei	Italy and the entire world are currently facing the dramatic challenge of the SARS-Cov-2 virus. In the face of this unexpected pandemic, which is putting many aspects of human civilization

			in great difficulty, the Commissione Salute of the Accademia Nazionale dei Lincei felt that it was its social responsibility to provide the society at large with an Executive Summary of the current knowledge on the origin, mechanisms and and treatment available to tackle this new COVID-19 virus
Bager P, Wohlfahrt J, Fonager J, et al.	Risk of hospitalisation associated with infection with SARS-CoV-2 lineage B.1.1.7 in Denmark: an observational cohort study	Portal I Institution: Immunopaedia.org	Between Jan 1 and March 24, 2021, 50 958 individuals with a positive SARS-CoV-2 test and at least 14 days of follow-up for hospitalisation were identified; 30 572 (60·0%) had genome data, of whom 10 544 (34·5%) were infected with B.1.1.7. 1944 (6·4%) individuals had a COVID-19 hospitalisation and of these, 571 (29·4%) had a B.1.1.7 infection and 1373 (70·6%) had an infection with other SARS-CoV-2 lineages. Although the overall number of hospitalisations decreased during the study period, the proportion of individuals infected with B.1.1.7 increased from 3·5% to 92·1% per week. B.1.1.7 was associated with a crude RR of hospital admission of 0·79 (95% CI 0·72–0·87; p<0·0001) and an adjusted RR of 1·42 (95% CI 1·25–1·60; p<0·0001). The

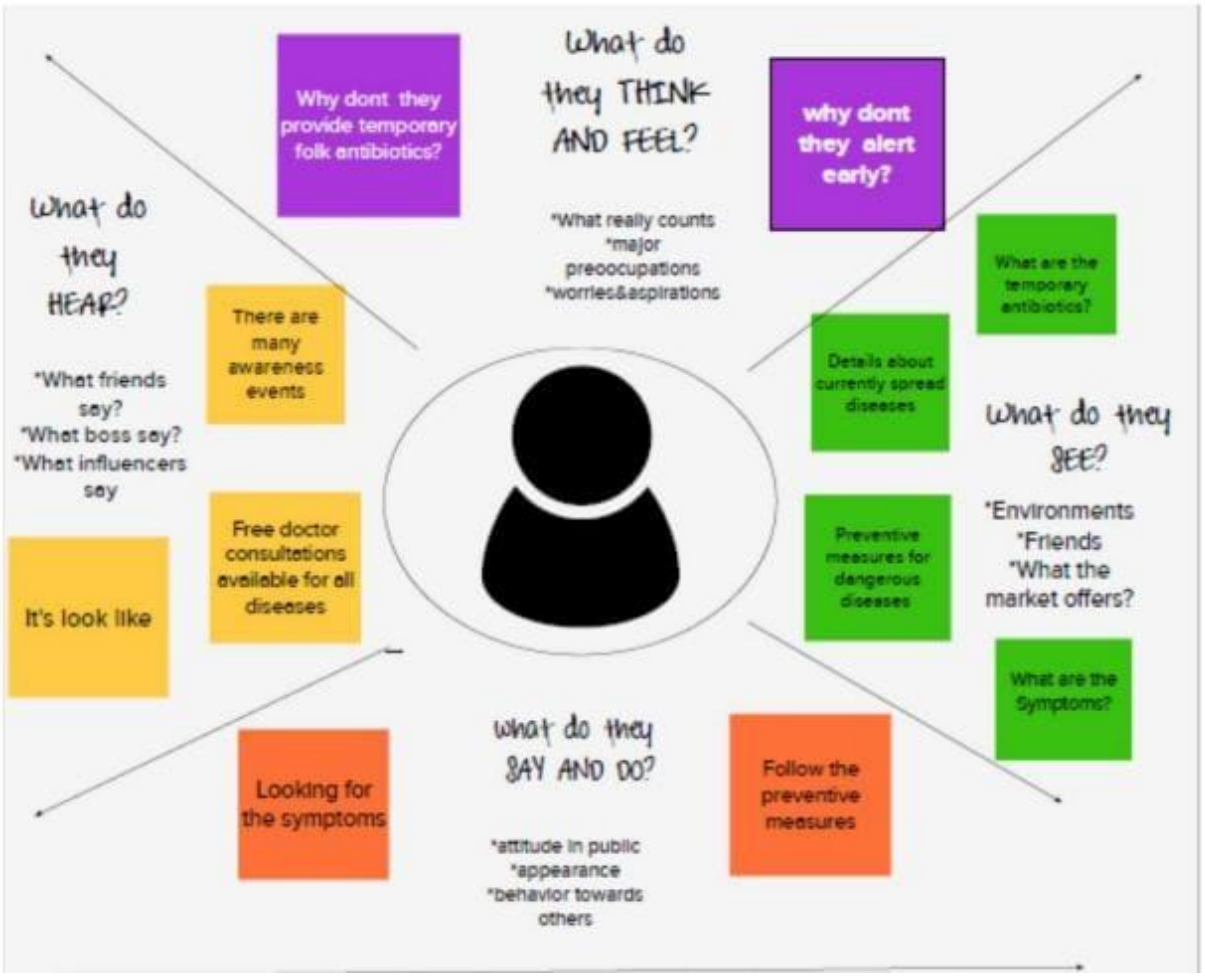
			adjusted RR was increased in all strata of age and calendar period—the two covariates with the largest contribution to confounding of the crude RR.

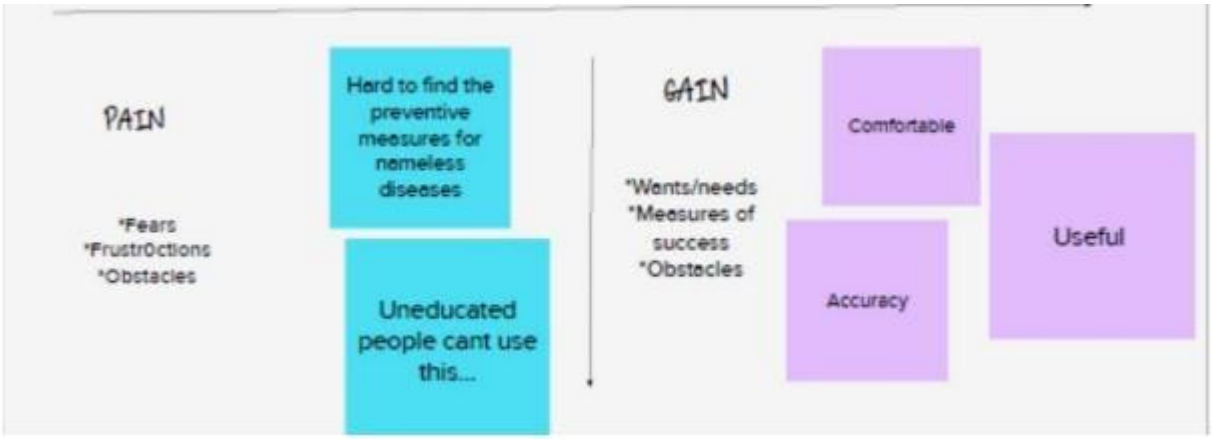
2.3.PROBLEM STATEMENT DEFINITION

There's currently no treatment specifically approved for COVID-19, and no cure for an infection, although treatments and vaccines are currently under study. Instead, treatment focuses on managing symptoms as the virus runs its course. Corona viruses like SARS and MERS are also treated by managing symptoms

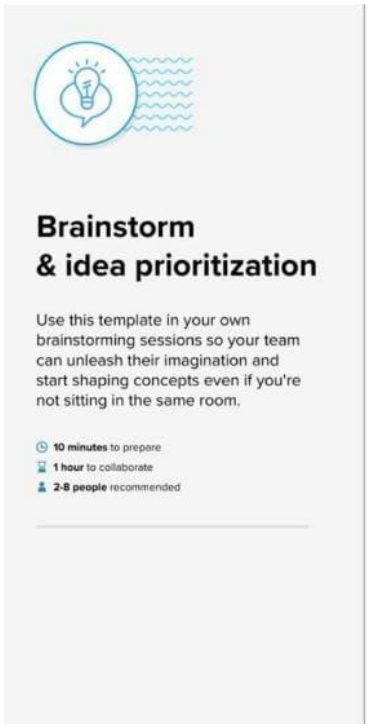
3.IDEATION & PROPOSED SOLUTION

3.1.EMPATHY MAP CANVAS





3.2.IDEATION & BRAINSTORMING



Brainstorm & idea prioritization

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.

10 minutes to prepare
1 hour to collaborate
2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

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

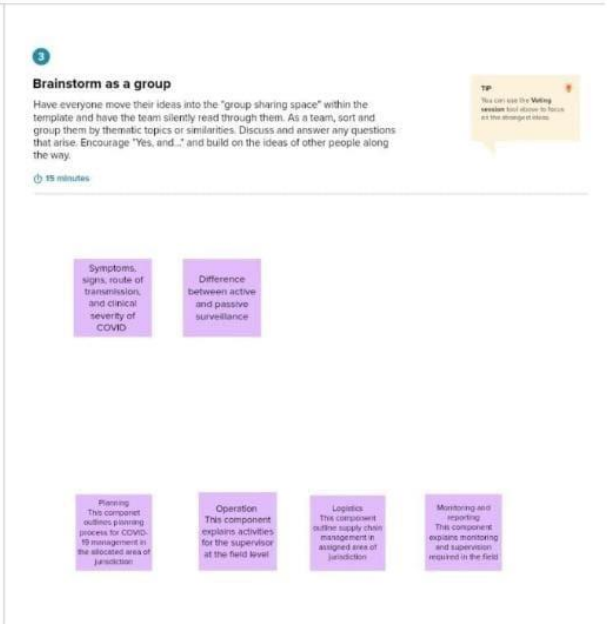
PROBLEM
How might we [your problem statement]?

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 and Grouping

Step-3:idea Prioritization



Brainstorm as a group

Have everyone move their ideas into the "group sharing space" within the template and have the team silently read through them. As a team, sort and group them by thematic topics or similarities. Discuss and answer any questions that arise. Encourage "Yes, and..." and build on the ideas of other people along the way.

15 minutes

TIP
You can use the **Voting session** tool above to focus on the strongest ideas.

Symptoms, signs, route of transmission, and clinical severity of COVID

Difference between active and passive surveillance

Planning
This component outlines planning process for COVID-19 management in the allocated area of jurisdiction

Operation
This component explains activities for the supervisor at the field level

Logistics
This component outline supply chain management in assigned area of jurisdiction

Monitoring and reporting
This component explains monitoring and supervision required in the field

Brainstorm solo

Have each participant begin in the "solo brainstorm space" by silently brainstorming ideas and placing them into the template. This "silent-storming" avoids group-think and creates an inclusive environment for introverts and extroverts alike. Set a time limit. Encourage people to go for quantity.

10 minutes

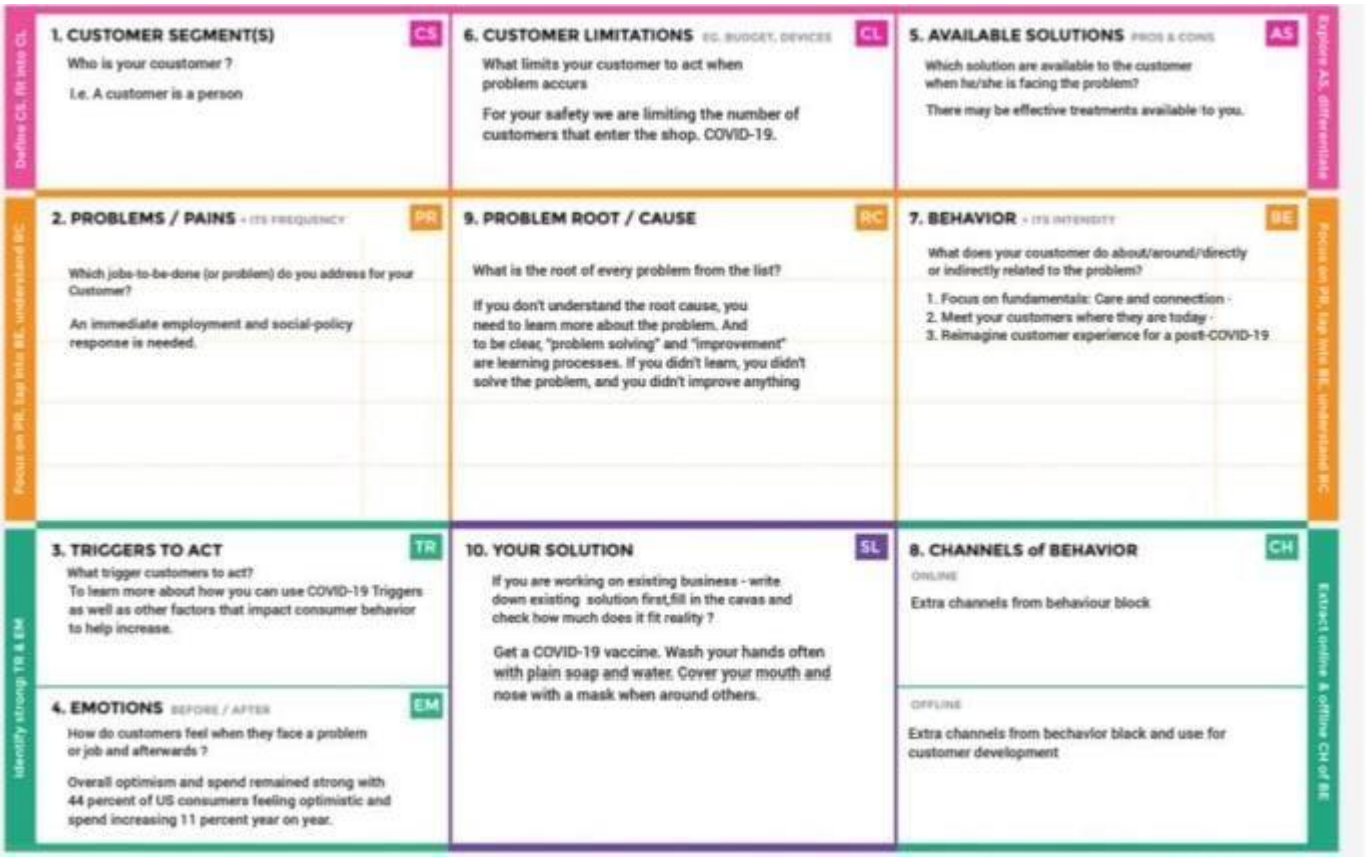
Person 1

Person 2

3.3.PROPOSED SOLUTION

S.NO.	Parameter	Description
1	Problem statement (problem to be solved)	Demarcation of containment zones serves the same purpose as lockdown and classification of districts, but at a more micro level.
2	Idea / solution description	OBJECTIVES. The objective of cluster containment is to break cycle of transmission and decrease the morbidity and mortality due to COVID-19.
3	Novelty / uniqueness	Some features are unique to psychological presentations related to disasters. First, the overlapping of psychological problems is very common.
4	Social impact / customer satisfication	Impact of COVID-19 containment zone built-environments on students' mental health and their coping mechanisms
5	Business model (Revenue model)	Wind effects on the pollutant containment zone in an asbestos removal worksite - Field measurements
6	Scalability of the solution	shows various containment zones identified for conducting the test, the date, time of entry, time of receiving the notification alerts upon entering.

3.4.PROBLEM SOLUTION FIT



4.REQUIREMENT ANALYSIS

4.1.FUNCTIONAL REQUIREMENTS

FR No.	Parameter	Functional Requirement
FR-1	objectives	Describe whatthe product does
FR-2	End Result	Define product feature
FR-3	focus	Focus on user requirements
FR-4	Documentation	Captured in usecase
FR-5	Essentiality	They are mandatory
FR-6	Origin type	Usuality defined by user
FR-7	Testing	Component,API,UI testing,etc. Tested before Nonfunctional testing

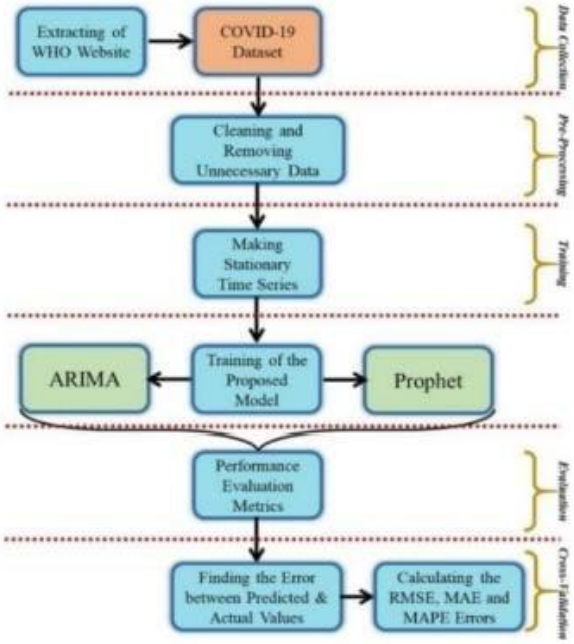
4.2.NONFUNCTIONAL REQUIREMENTS

FR No.	Parameters	Non Functional Requirements
NFR-1	**Objectives**	Describe how the product works
NFR-2	**End Result**	Define product properties
NFR-3	**Focus**	Focus on user expectation
NFR-4	**Documentation**	Captured as a quality attribute
NFR-5	**Essentiality**	They are not mandatory,but desirable
NFR-6	**Origin type**	Usually defined by developers or other tech experts
NFR-7	**Testing**	Performance,Usability,Security testing,etc.Tested after functional testing

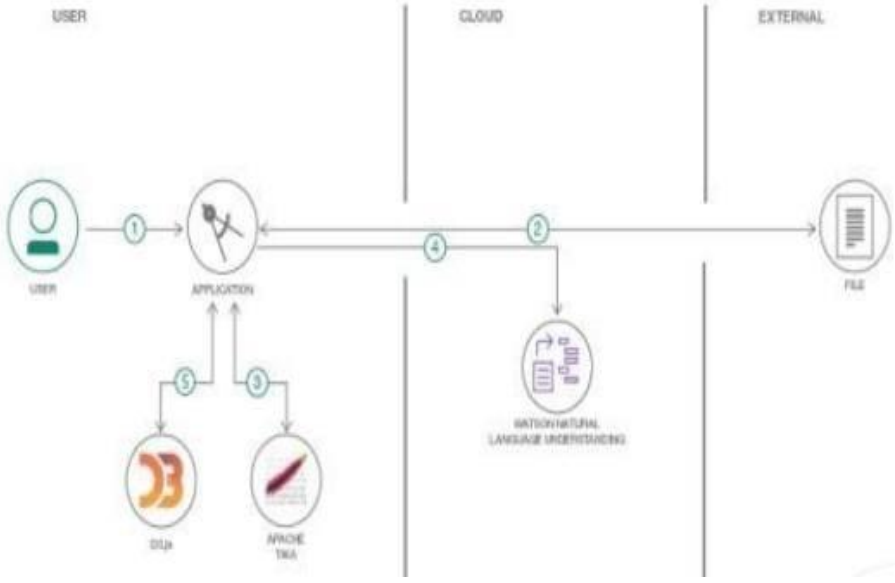
5.PROJECT DESIGN

5.1.DATAFLOW DIAGRAM

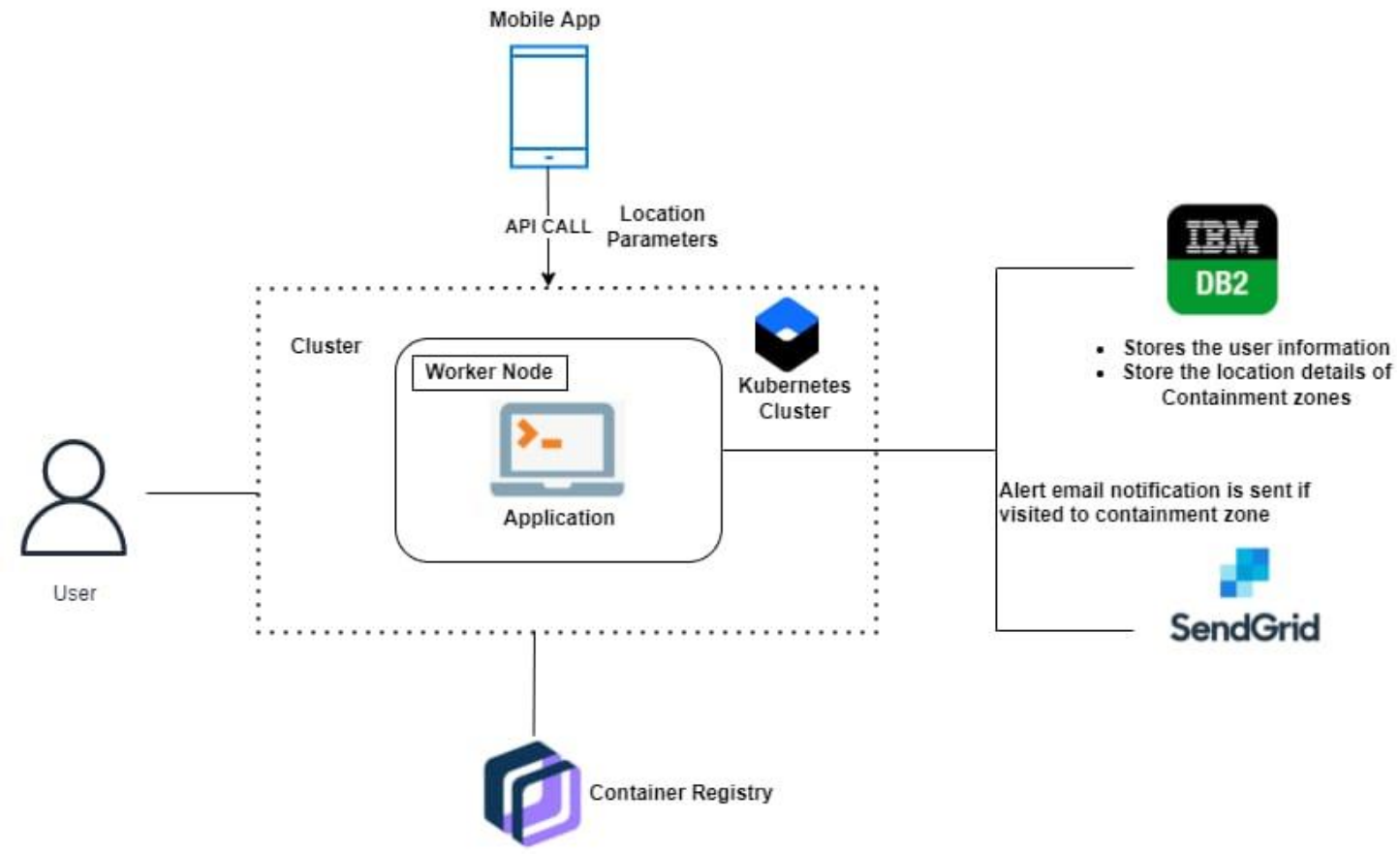
Example: (Simplified)



Flow



5.2.SOLUTION & TECHNICAL ARCHITECTURE

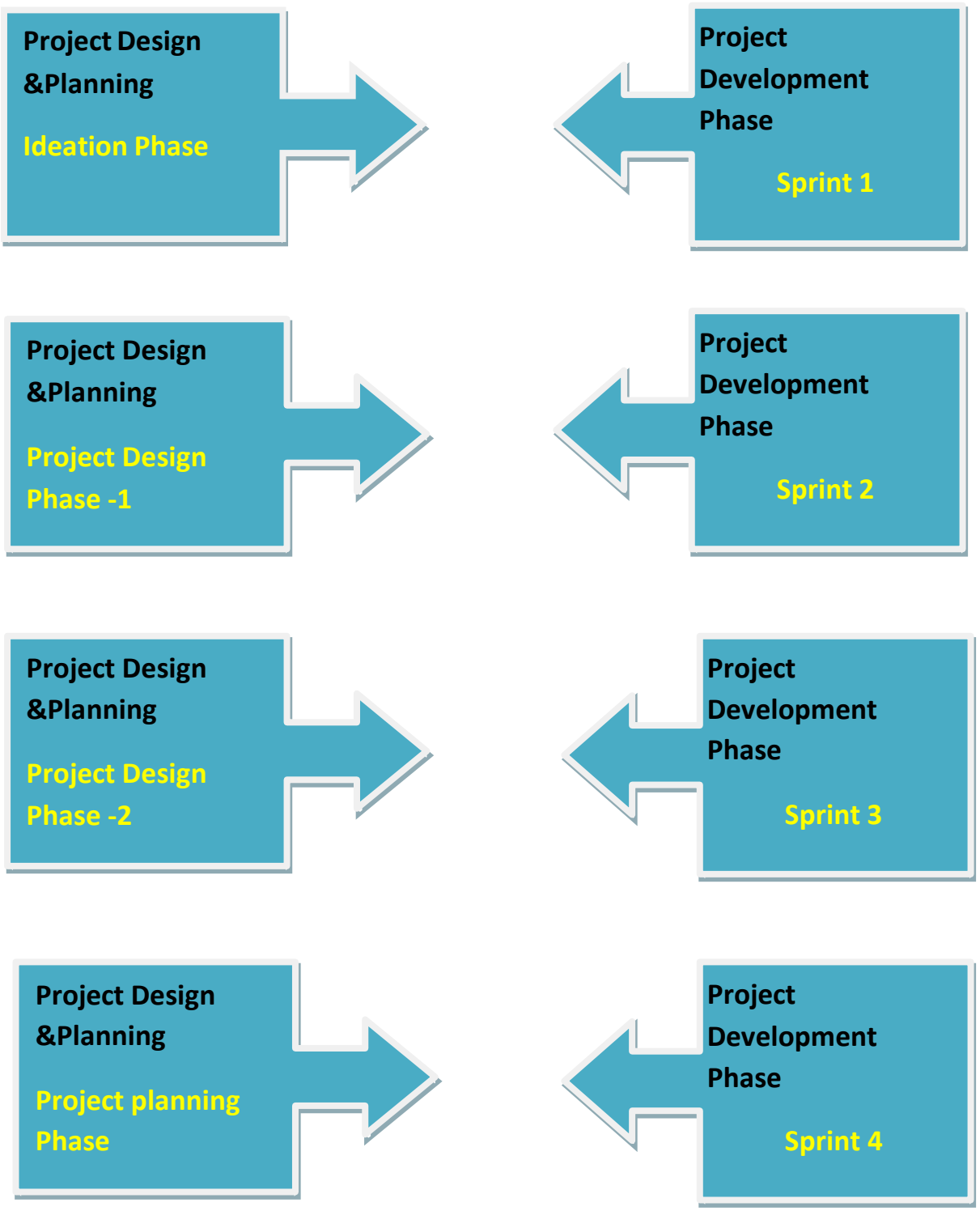


5.3.USER STORIES

	CASES DAILY AVG.	PER 100,000	14-DAY CHANGE	HOSPITALIZED DAILY AVG.	100
New York	8,097	42	+16%	5,489	
Orange ›	229	60	+17%	128	
Rockland ›	172	53	+4%	69	
Putnam ›	49	50	+48%	83	
Suffolk ›	730	49	+14%	521	
New York City ›	4,117	49	+12%	3,200	
Lewis ›	13	48	+66%	31	1
Nassau ›	639	47	Flat	691	
Erie ›	420	46	+84%	136	
Westchester ›	438	45	+15%	269	

6.PROJECT PLANNING & SCHEDULING

6.1.SPRINT PLANNING & ESTIMATION



6.2.SPRINT DELIVERY SCHEDULE

SPRINT PLAN

1. IDENTIFY THE PROBLEM
2. PREPARE A ABSTRACT,PROBLEM STATEMENT
3. LIST A REQUIRE NEEDED
4. CREATE A CODE AND RUN IT
5. MAKE A PROTOTYPE
6. Test With The Created Code and check the designed PROTOTYPE
7. SOLUTION FOR THE PROBLEM IS FOUND!!!

7777ERDTGHSSSS77GFGHG77777UGHKGHFGDG

7.CODING & SOLUTIONING

7.1.FEATURE 1

```
# Importing flask module in the project is mandatory
# An object of Flask class is our WSGI application.
from flask import Flask

# Flask constructor takes the name of
# current module (__name__) as argument.
app = Flask(__name__)

# The route() function of the Flask class is a decorator,
# which tells the application which URL should call
# the associated function.
@app.route('/')
# ‘/’ URL is bound with hello_world() function.
def hello_world():
    return 'Hello World'

# main driver function
if __name__ == '__main__':

    # run() method of Flask class runs the application
    # on the local development server.
    app.run()
```

7.2.FEATURE 2

docker-express-example/

```
├── .dockerignore
├── .gitignore
├── Dockerfile
├── db.json
├── images
│   ├── female.png
│   └── male.png
├── node_modules/...
├── package-lock.json
├── package.json
└── server.js
```

```
[
    {
      "id": 1,
      "name": "Ross Geller",
      "username": "ross",
      "image": "/images/male.png"
    },
    {
      "id": 2,
      "name": "Monica Geller",
      "username": "monica",
      "image": "/images/female.png"
    },
    {
      "id": 3,
      "name": "Jack Geller",
      "username": "jack",
      "image": "/images/male.png"
    }
  ]
```

```
const
express =
require(
'express' );
            const path = require( 'path' );

            // create an express application
            const app = express();

            /*********************/

            // send a list of users
            app.get( '/', ( req, res ) => {
                res.contentType( 'application/json' );
                res.sendFile( path.resolve( __dirname, 'db.json' ) );
```

```
} );

// serve images
app.use( '/images', express.static( path.resolve( __dirname, 'images' ) ) );

/**********************/

// listen on the `process.ENV.SERVER_PORT`
app.listen( process.env.SERVER_PORT, () => {
   console.log( `Server started at port ${ process.env.SERVER_PORT }.` );
} );
```

7.3.DATABASE SCHEME

A contained database is a database that is isolated from other databases and from the instance of SQL Server that hosts the database. SQL Server helps user to isolate their database from the instance in 4 ways.

Much of the metadata that describes a database is maintained in the database. (In addition to, or instead of, maintaining metadata in the master database.)

All metadata are defined using the same collation.

User authentication can be performed by the database, reducing the databases dependency on the logins of the instance of SQL Server.

The SQL Server environment (DMV's, XEvents, etc.) reports and can act upon containment information.

Some features of partially contained databases, such as storing metadata in the database, apply to all SQL Server databases. Some benefits of partially contained databases, such as database level authentication and catalog collation, must be enabled before they are available. Partial containment is enabled using the CREATE DATABASE and ALTER DATABASE statements or by using SQL Server Management Studio. For more information about how to enable partial database containment, see Migrate to a Partially Contained Database.

8.TESTING

8.1.TEST CASES

Test cases contains:
1. GUI testing
2. Navigation testing
3. Functional testing
4. Non functional testing (Performance Security)
5. Data validation testing
6. Negative testing
7. Data Base Testing

Facilitate Testing

a) Arrange for testing at the nearest testing facility

b) Call for RRT/Lab technician/mobile testing team

c) If the person wants to get tested at an approved private laboratory,

then facilitate the same

d) Inform laboratories on the number of patients/ samples arriving for

testing

e) Monitor lead time for test results

Monitoring of the test reports

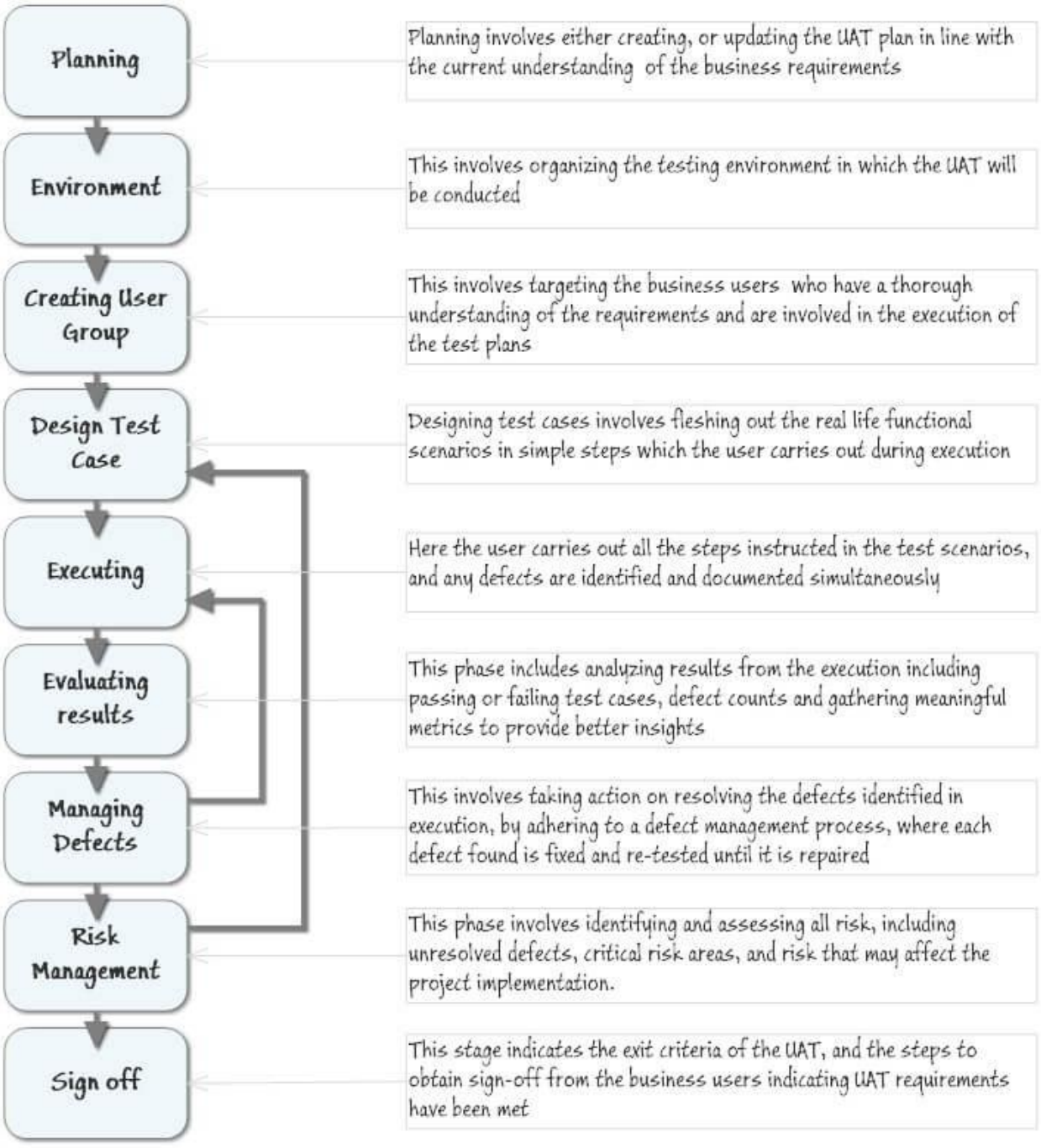
a) Keep a track of samples from your area sent for testing

b) Pending receipt of test results, suspect cases will be kept in a COVID facility

/home isolation, subject to him/her fulfilling laid down criteria (slide No.

44)

8.2.USER ACCEPTANCE TESTING



9.RESULTS

9.1.PERFORMANCE METRICES

- Productivity.
- Effectiveness, Upgrade / Renewal.
- Demography, Staff Satisfaction,
- Customer Satisfaction,
- Efficiency, Rentability,
- Performance, Capacity, Quality.

1O.ADVANTAGES & DISADVANTAGES

ADVANTAGES: There are no significant advantages because there is a huge loss in jobs, lives, and the economy of the Country. But speaking about the children, there are some advantages,

School and Collages holidays Students can use their quality time in studying and the other activities in which they are interested. Spend time in the house by not going out and enjoy watch movies and do some craftwork.

Tims to spend with family Rest time to spend with grandparents.

Saving Time Saving time to avoid transportation time, prayer, sports, chatting with friends. Spending five to six hours of the quality time for the online classes. Whereas in school, spent 10 hours. Getting more time for the self-study if we use in the proper way to avoid watching movies and playing mobile games

DISADVANTAGES

There are significant disadvantages because there is a huge loss in jobs, lives, and the economy of the Country. Main disadvantages for students are

Online Clauses

Online classes, the adoption rate is around 50-60% whereas in the classroom the adoption was around 80-90%. Online classes affect the eyes of the students due to long hours in front of the blue screen Small children like the playschool and the primary grades must not have this type of class because they have low concentration power, and these small kids do not have the ability to sit for a longer time in front of the blue screen.

Lots of poor students do not have access to laptops and computers, all these students are salve, think there should not be this disparate education.

Surely there are lots of disadvantageous factors like there are no exams, students are being given marks by the internals. This may impact their career in the feature. These factors are going to be a foreshadow to the child further life. On this note, want to say that students are missing the days in the schools and colleges. Hoping the government take good decisions on education with clear instructions as early as possible to avoid the situations that occurred by Covid-19 pandemic

11.CONCLUSION

A systematic review on COVID-19 mobile apps, as used and evaluated in research studies published in

the scientific literature, is presented. Our literature search returned a significant number of records (476 unique

published manuscripts), despite the short time period covered (December 2019 to June 2020), thereby showing

the high interest of the scientific community in the research of mobile apps for COVID-19. Our main finding is

that, despite that the current research evidence is fragmented and requires greater methodological rigor, mobile

apps have been found to benefit citizens, health professionals, and decision makers in facing the COVID-19

pandemic. In particular, mobile apps can help in solving several COVID-19–related challenges by increasing the

reach of reliable information to both citizens and health professionals, decreasing misinformation and confusion,

tracking symptoms and mental health of citizens, home monitoring and isolation, discovering new predictors,

optimizing health care resource allocation, and reducing the burden of hospitals. The participants in the studies

were mainly young and middle-aged adults. Further studies are needed that will involve older participants, who

are in greater risk of developing serious complications due to COVID-19. Understanding the needs of older

individuals in the COVID-19 pandemic period would be the first necessary step toward designing and

developing mobile apps to encourage their physical and mental well-being. Our review, in contrast to other

reviews that have not examined the evaluation of COVID-19 mobile apps in pragmatic studies identified that the

majority of included studies were not of high methodological quality, mainly because of their observational

nature. This could be justified by the fact that the COVID-19 pandemic crisis generated an international appeal

for fast response and rapid development of digital health tools by the research community, which might have

inevitably led to the publication of early results by observational studies. This result can be seen as

complementary to other reviews that report that many of those apps are of high quality, offering many

functionalities and advanced user experience. Longitudinal studies with rigorous design such as randomized

controlled trials are now required to systematically assess COVID-19 mobile apps and provide strong evidence

of their value. However, ethical implications might arise due to possible conflicts between liberty and privacy,

equity, fairness, and justice In this direction, health outcomes that have scarcely been used so far, such as

infection rate and quality of life, could be used as primary end points.

12.FUTURE SCOPE

Although we tried to cover almost all of the aspects during our developmental phase, however we were forced to

leave some aspects because of lack of time as well as monetary and other reasons.

Just like in the field of software development where there are always some shortcomings and room for

improvement our application can be enhanced further:-

1) The application can include various government organization to help act faster.

2) The dataset obtained from the application can be used for predictive analysis to determine prone areas

and include special method for tackling the problem in those areas.

3) Emergency signal in case of network failure and internet connection loss.

4) Tackling victim’s movements.

5) Improved Google positioning system’s precision.

6) The client part of application can be integrated in a single intelligent device.

For analysis purpose, we could use machine learning (ML) algorithms as well as data mining applications.

There is a sub branch of machine learning known as time series analysis (TSA), which could be used to predict

and analyze the data obtained through this application. Time series analysis is used to predict crop production as

well as sales in different quarter.