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# COVID-19 CHATBOT

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CLOUD COMPUTING



DECEMBER 10, 2021

THE UNIVERSITY OF TEXAS AT ARLINGTON  
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# Final Project

## Project Title: Covid19 Chatbot

<https://myapp-hbaazayfza-uc.a.run.app/>

### Application Overview:

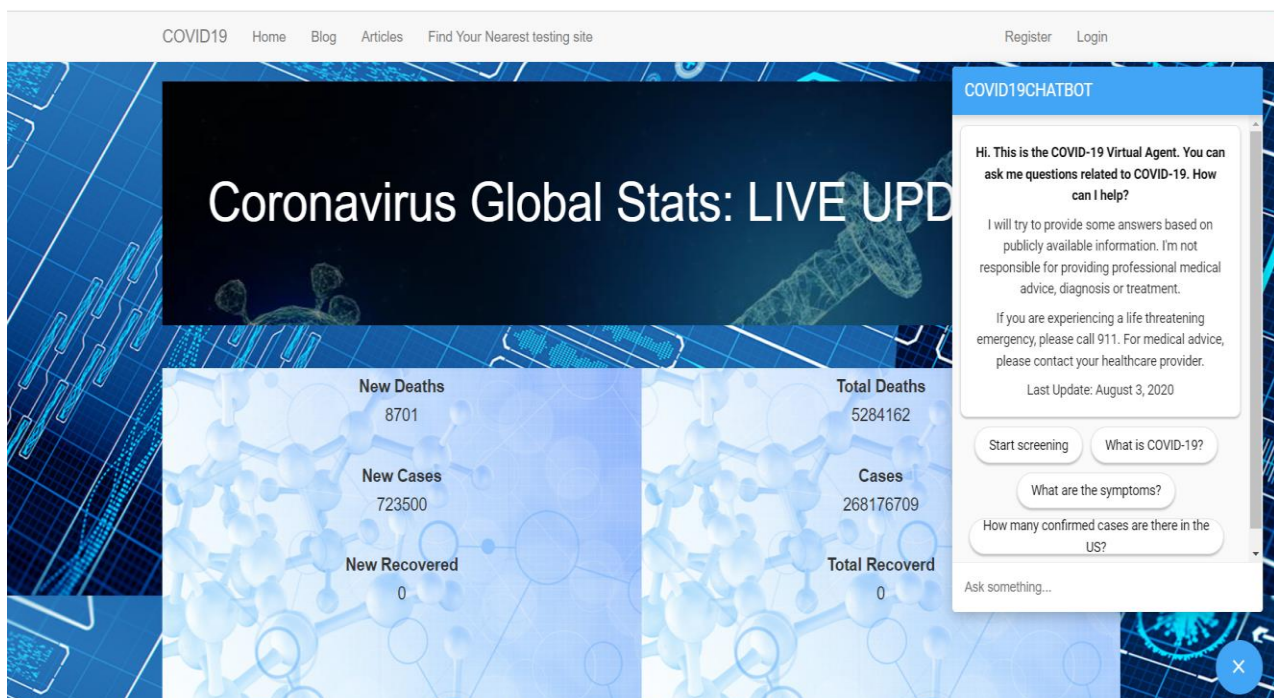
This is a web application built using the Python Flask framework. This project is a place where the users can look at the CDC updated Covid statistics on the dashboard. Users can access Covid articles through login or registration and also interact with the Chatbot which is designed to simulate conversation with human users, especially over the internet and provide Covid 19 related queries as per the CDC regulations integrated into the home page. The chatbot application is a Google cloud model which we have integrated into our application.

The Blog page shows a few interesting articles which can be accessed through login. Once the user logs in, they have a dashboard to view, edit create or update their articles. Altogether this application is user-friendly consisting of a register, login, homepage, Chatbot, Covid stats blogs a list of covid specific articles, and a dashboard containing the user's list of published articles.

### User Interactions and functions enabled to by the service:

The user interacts with the application from the landing page where the user can view the latest Covid statistics as per CDC updates.

#### 1. LANDING PAGE



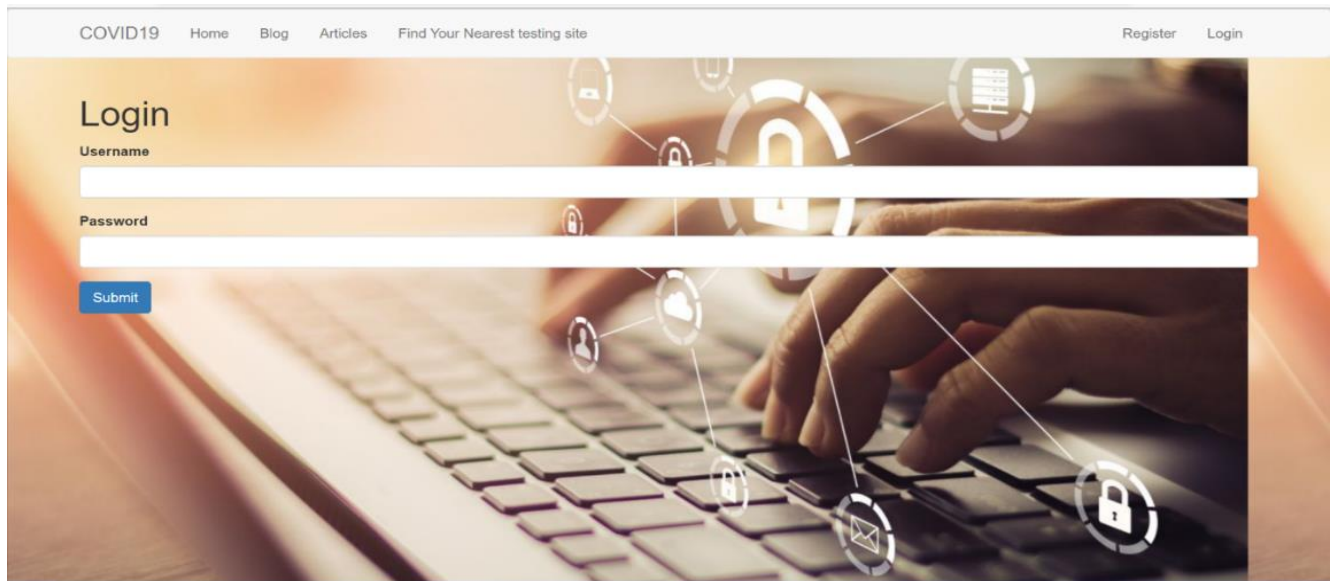
## 2. REGISTER

New users can register through the register page, or an existing user can log in going to the login page.



The screenshot shows the 'Register' page of a website. The header includes 'COVID19' and navigation links: 'Home', 'Blog', 'Articles', and 'Find Your Nearest testing site'. On the right, there are links for 'Register' and 'Login'. The main content area has a title 'Register' and a form with the following fields: 'Name', 'Email', 'Username', 'Password', and 'Confirm Password'. Each field is represented by a white input box. Below the 'Confirm Password' field is a blue 'Submit' button.

## 3. LOGIN

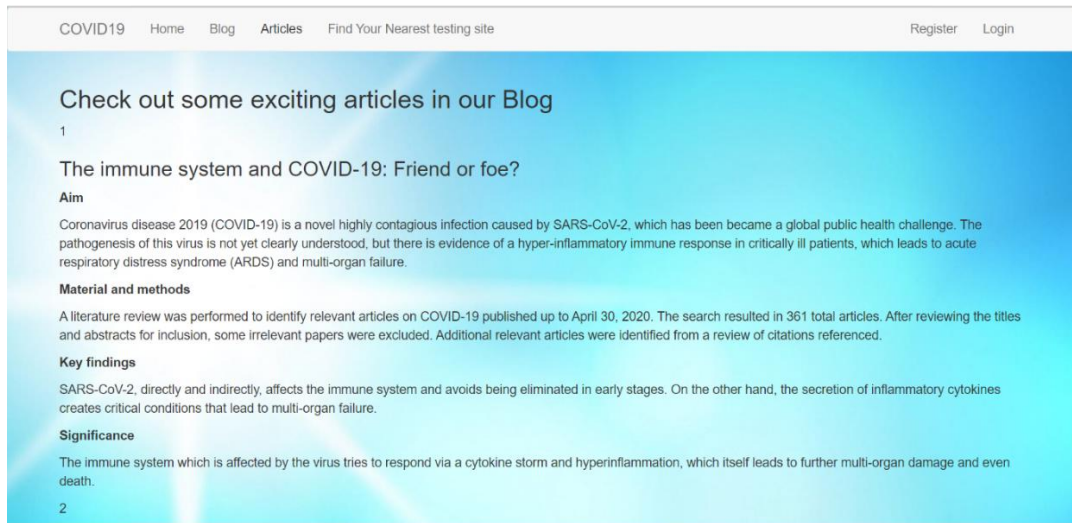


The screenshot shows the 'Login' page of the same website. The header is identical to the Register page. The main content area has a title 'Login' and a form with two fields: 'Username' and 'Password', each with a white input box. Below the 'Password' field is a blue 'Submit' button. The background of the page features a blurred image of hands typing on a laptop keyboard, overlaid with various digital security icons like padlocks and network symbols.

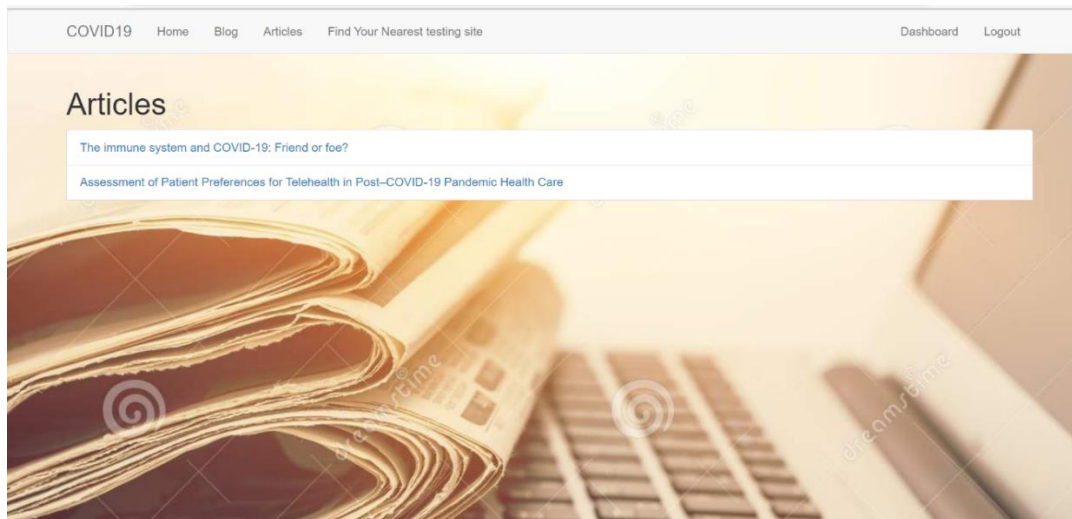
The chatbot gets activated asking for help on the home page. The user can open it and get their questions answered. For example, the user can ask queries related to safe things which can/cannot be done during the Covid 19 situation. The agent should understand the query and give back an appropriate response as per the CDC guidelines. Once all questions are answered the chat asked for feedback and quits until the next open is requested.

#### 4. BLOGS:

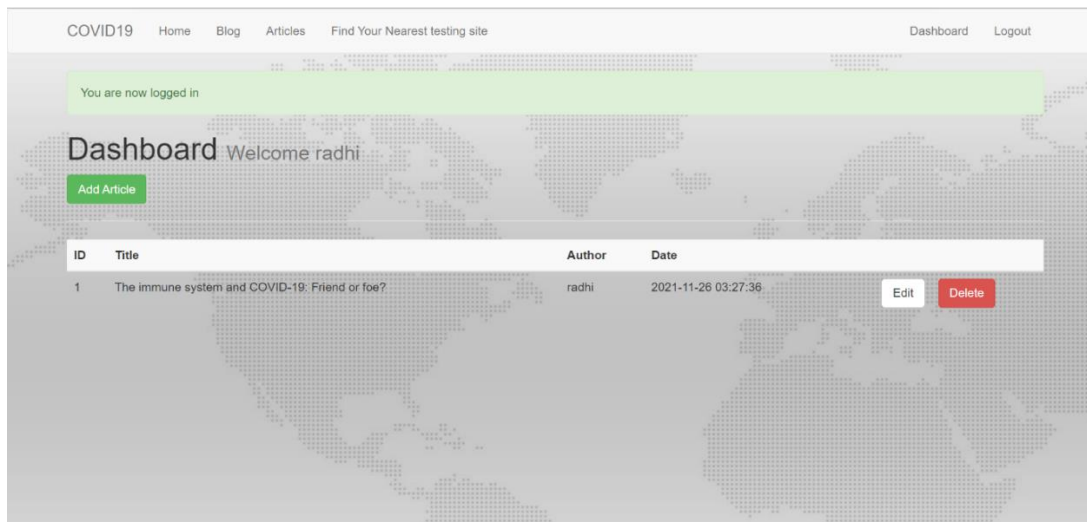
The Blog page shows some articles published by various users over time and if a user is interested, they can further login and publish the article through the dashboard “add Article button”. We have all the update, create, delete operations available in here.



#### 5. Articles published or added by the logged in user can be viewed here!



## 6. Dashboard: Articles can be added, Deleted or Updated From here.



## Components used:

### Components Used

- Dialogflow
- Cloud functions
- Cloud run
- Cloud registry
- Cloud build
- Cloud sql
- CI/CD
- Git Hub
- Docker

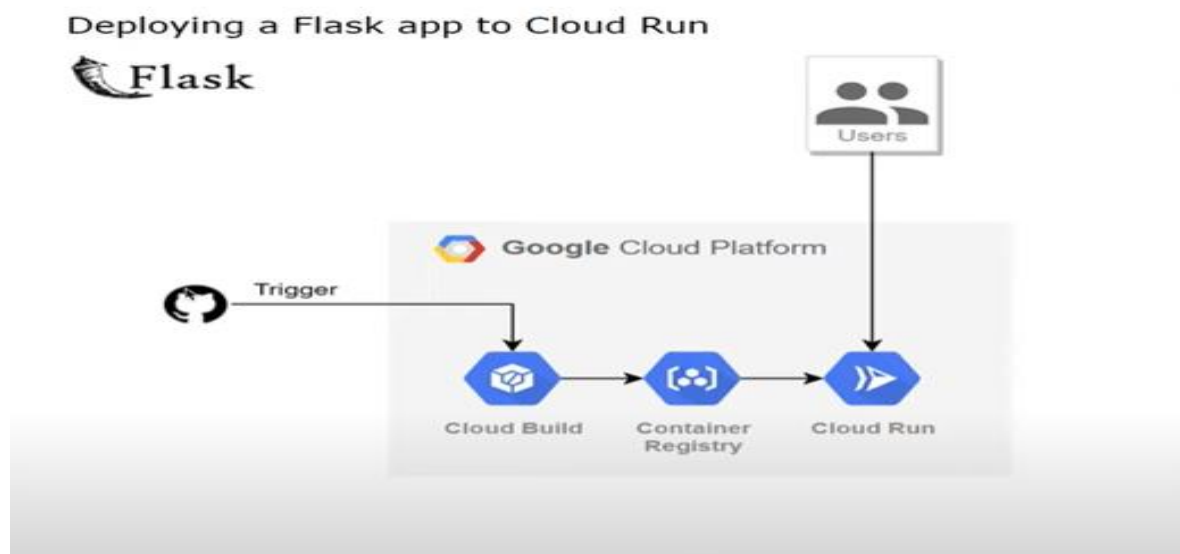


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1. **Dialogflow** and **Cloud Functions**: Used to create Covid-19 Chatbot.
2. **Cloud Run**: - Compute Platform to run container.
3. **Cloud Registry**: - Used to manage Docker images. Docker images are pushed to cloud registry.
4. **Cloud Build**: - Used to execute builds on google cloud platform and implement CI/CD.
5. **Cloud SQL**: - Used to setup Application database.
6. **GITHUB**: Version control system for code hosting and collaboration.
7. **Docker**: To dockerize the Application.
8. **Technologies used for Creating the Application:**
  - a. Python Language
  - b. Flask Framework
  - c. MySQL
  - d. VScode Editor

## Architecture



### Compute service: Cloud Run

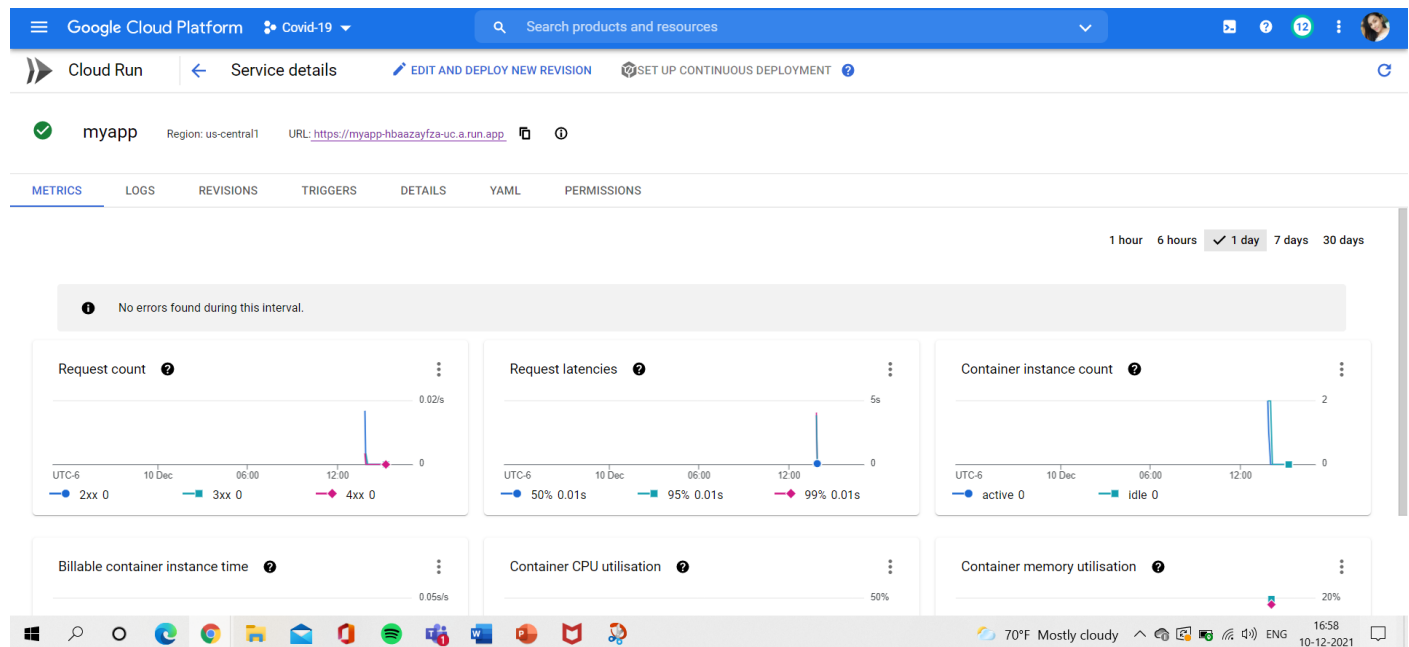
Cloud Run is a managed compute platform that enables you to run containers that are invocable via requests or events. Cloud Run is serverless: it abstracts away all infrastructure management, so you can focus on what matters most – building great applications. The pipeline was configured to be triggered every time new code was pushed into the master branch of the Cloud Source Repository. Once that happens, the pipeline:

- Builds the Docker image;
- Pushes the built Docker image into Container Registry;



- Executes the build using cloud Build;

## The Cloud run instance



<https://myapp-hbaazayfza-uc.a.run.app>

The application is built and deployed and can access it through the endpoint generated by Cloud Run.

## Cloud Source Repository

Google Cloud Source Repositories are fully-featured, private Git repositories hosted on Google Cloud Platform. Collaborate easily and securely manage your code on a fully featured, scalable, private Git repository.

## Cloud Build

Cloud Build is a service that executes your builds on Google Cloud Platform infrastructure. Cloud Build can import source code from Google Cloud Storage, Cloud Source Repositories, GitHub, or Bitbucket, execute a build to your specifications, and produce artifacts such as Docker containers or Java archives.

Google Cloud Platform Covid-19 Search products and resources

Cloud Build Dashboard

Filter Enter property name or value

**Successful: SimranSinghi/COVID-19-CHATBOT - myapp-trigger**

Latest Build	Duration	Trigger description	Source	Commit
<a href="#">07/12/2021, 19:47</a>	00:07:21	Implementing CI/CD	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	<a href="#">c1862cd</a>

Build History Latest [View all](#)

Average Duration ? 00:07:15

Pass-Fail % ? 36% - 64%

Release notes

Google Cloud Platform Covid-19 Search products and resources

Cloud Build Build history **STOP STREAMING BUILDS**

Region: global (non-regional)

Filter [Trigger ID: 7a81fc33-f0ef-45af-a57b-ca834410ac8b](#) Enter property name or value

	Status	Build	Source	Ref	Commit	Trigger name	Created	Duration	
<input type="checkbox"/>	✓	0b3435b7	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">c1862cd</a>	myapp-trigger	07/12/2021, 19:47	7 min 21 sec	⋮
<input type="checkbox"/>	✓	95acad14	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">7acabbb</a>	myapp-trigger	06/12/2021, 12:38	8 min 37 sec	⋮
<input type="checkbox"/>	✓	22ea2e41	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">ab10ece</a>	myapp-trigger	06/12/2021, 04:29	8 min 25 sec	⋮
<input type="checkbox"/>	✓	d8ad0244	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">263e5e4</a>	myapp-trigger	06/12/2021, 04:20	8 min 4 sec	⋮
<input type="checkbox"/>	✓	faa41f79	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">263e5e4</a>	myapp-trigger	06/12/2021, 04:07	5 min 30 sec	⋮
<input type="checkbox"/>	✗	a012bd6f	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">914d700</a>	myapp-trigger	06/12/2021, 03:53	5 min 38 sec	⋮
<input type="checkbox"/>	✗	c2ad2478	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">821eed9</a>	myapp-trigger	06/12/2021, 03:12	8 min 21 sec	⋮
<input type="checkbox"/>	✗	022b4f37	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">a2554c4</a>	myapp-trigger	06/12/2021, 03:04	5 min 34 sec	⋮
<input type="checkbox"/>	✗	0d09d98d	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">33aaf3a</a>	myapp-trigger	06/12/2021, 02:49	6 min 55 sec	⋮
<input type="checkbox"/>	✗	a981ef1d	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">33aaf3a</a>	myapp-trigger	06/12/2021, 02:47	8 min 27 sec	⋮
<input type="checkbox"/>	✗	f3c8b91d	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">81e8066</a>	myapp-trigger	05/12/2021, 21:09	7 min 48 sec	⋮
<input type="checkbox"/>	✗	3b55f5c8	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">18b071c</a>	myapp-trigger	05/12/2021, 20:36	7 min 45 sec	⋮ <a href="#">View actions</a>
<input type="checkbox"/>	✗	ca96faf9	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">18b071c</a>	myapp-trigger	05/12/2021, 20:35	5 min 54 sec	⋮
<input type="checkbox"/>	✓	4b1fae2d	<a href="#">SimranSinghi/COVID-19-CHATBOT</a>	development	<a href="#">ab10ece</a>	myapp-trigger	05/12/2021, 16:54	7 min 14 sec	⋮

Rows per page: 50 1 - 50 of many

## Container Registry

Container Registry is a private container image registry that runs on Google Cloud.



Google Cloud Platform

Covid-19

Search products and resources

Container Registry

Images

DELETED

LEARN

Images

Settings

myapp

gcr.io > covid-19-334218 > myapp

Filter Enter property name or value

Name	Tags	Virtual size	Created	Uploaded	
9a25430f07ab	latest	1.5 GB	3 days ago	3 days ago	
8961e432cc67		1.5 GB	4 days ago	4 days ago	
171ffd56a5a		1.4 GB	4 days ago	4 days ago	
82e71315ea11		1.5 GB	4 days ago	4 days ago	
2eb1d86d87a6		1.5 GB	4 days ago	4 days ago	
1f385c6ff548		1.5 GB	4 days ago	4 days ago	
b321cea8ae19		1.5 GB	4 days ago	4 days ago	
45cf1e99686b		1.5 GB	4 days ago	4 days ago	
5a559253e08b		1.5 GB	4 days ago	4 days ago	
c8400d3f2f18		1.5 GB	4 days ago	4 days ago	
c26e25ce2cd5		1.4 GB	5 days ago	5 days ago	
133a692c3438		1.4 GB	5 days ago	5 days ago	
b21353e1dada		1.4 GB	5 days ago	5 days ago	
639086fca7bf		1.4 GB	5 days ago	5 days ago	

Marketplace

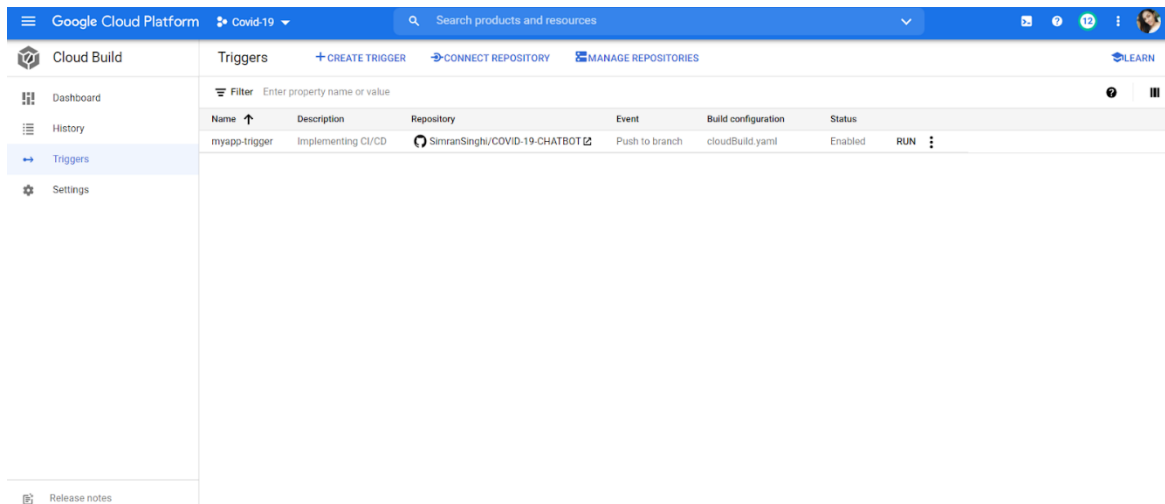
Release notes

## Configuring Cloud Build Pipeline

The steps to build pipeline defined in YAML file called [cloudBuild.yaml](#). The pipeline is composed of three steps.

1. The first step is responsible for building and tagging the Docker image of our application.
2. The second step is responsible for pushing the Docker image built on the step one to Container Registry.
3. The third step is responsible for deploying the Docker image to Cloud Run.

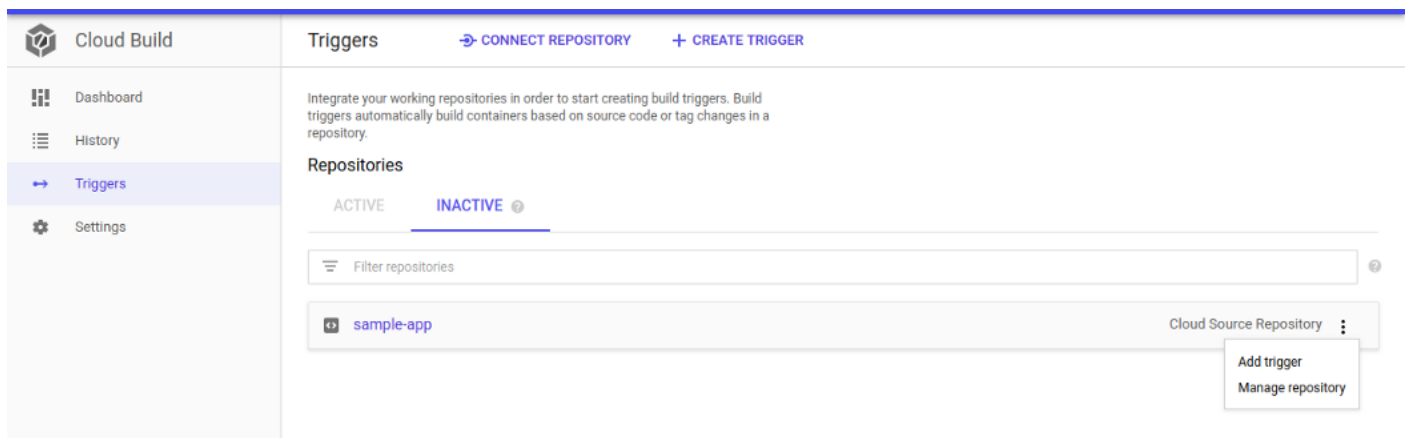
The dashboard showing the details of all the triggers:



Name	Description	Repository	Event	Build configuration	Status
myapp-trigger	Implementing CI/CD	SimranSingh/COVID-19-CHATBOT	Push to branch	cloudBuild.yaml	Enabled RUN

## Set up the Cloud Build Trigger:

From the menu, select **Cloud Build**, select **Trigger**, Select the Repository we created in CSR, click on: and select **Add trigger**



Here, we specify:

- The **Name** and **Description** of the trigger;
- That the build should be triggered whenever stuff is pushed into the **master** branch of the repository.
- That the build configuration is provided by the [cloudbuild.yaml](#) file from our repository;

- That the **email** variable from our [cloudbuild.yaml](#) should be replaced with the **service account** value. As described before, this variable is used for managing our generated Docker image, as well as to set the name of the deployed Cloud Run service.

## The Application Revisions deployed using the Trigger.

☰

Google Cloud Platform

☰ Covid-19

🔍 Search products and resources

▼

📧 ? 🕒 12 👤

🏠 Cloud Build

📊 Dashboard

📜 History

→ Triggers

⚙️ Settings

📄 Release notes

❏

Build history

🛑 STOP STREAMING BUILDS

📖 LEARN

Region

global (non-regional)

?

🔍 Filter

Trigger ID : 7a81fc33-f0ef-45af-a57b-ca834410ac8b

Enter property name or value

✕ ? ☰

<input type="checkbox"/>	Status	Build	Source	Ref	Commit	Trigger name	Created ?	Duration	
<input type="checkbox"/>	✓	0b3435b7	SimranSinghi/COVID-19-CHATBOT	development	c1862cd	myapp-trigger	07/12/2021, 19:47	7 min 21 sec	⋮
<input type="checkbox"/>	✓	95acad14	SimranSinghi/COVID-19-CHATBOT	development	7acabbb	myapp-trigger	06/12/2021, 12:38	8 min 37 sec	⋮
<input type="checkbox"/>	✓	22ea2e41	SimranSinghi/COVID-19-CHATBOT	development	ab10ece	myapp-trigger	06/12/2021, 04:29	8 min 25 sec	⋮
<input type="checkbox"/>	❌	d8ad0244	SimranSinghi/COVID-19-CHATBOT	development	263e5e4	myapp-trigger	06/12/2021, 04:20	8 min 4 sec	⋮
<input type="checkbox"/>	✓	faa41f79	SimranSinghi/COVID-19-CHATBOT	development	263e5e4	myapp-trigger	06/12/2021, 04:07	5 min 30 sec	⋮
<input type="checkbox"/>	❌	a012bd6f	SimranSinghi/COVID-19-CHATBOT	development	914d700	myapp-trigger	06/12/2021, 03:53	5 min 38 sec	⋮
<input type="checkbox"/>	❌	c2ad2478	SimranSinghi/COVID-19-CHATBOT	development	821eed9	myapp-trigger	06/12/2021, 03:12	8 min 21 sec	⋮
<input type="checkbox"/>	❌	022b4f37	SimranSinghi/COVID-19-CHATBOT	development	a2554c4	myapp-trigger	06/12/2021, 03:04	5 min 34 sec	⋮
<input type="checkbox"/>	❌	0d09d98d	SimranSinghi/COVID-19-CHATBOT	development	33aaf3a	myapp-trigger	06/12/2021, 02:49	6 min 55 sec	⋮
<input type="checkbox"/>	❌	a981ef1d	SimranSinghi/COVID-19-CHATBOT	development	33aaf3a	myapp-trigger	06/12/2021, 02:47	8 min 27 sec	⋮
<input type="checkbox"/>	❌	f3c8b91d	SimranSinghi/COVID-19-CHATBOT	development	81e8066	myapp-trigger	05/12/2021, 21:09	7 min 48 sec	⋮
<input type="checkbox"/>	❌	3b55f5c8	SimranSinghi/COVID-19-CHATBOT	development	18b071c	myapp-trigger	05/12/2021, 20:36	7 min 45 sec	⋮
<input type="checkbox"/>	❌	ca96faf9	SimranSinghi/COVID-19-CHATBOT	development	18b071c	myapp-trigger	05/12/2021, 20:35	5 min 54 sec	⋮
<input type="checkbox"/>	✓	4b1fae2d	SimranSinghi/COVID-19-CHATBOT	development	ab10ece	myapp-trigger	05/12/2021, 16:54	7 min 14 sec	⋮

View actions

Rows per page: 50 1 - 50 of many < >

## Cloud SQL

We choose Cloud SQL because it is fully managed relational database service for MySQL, PostgreSQL, and SQL Server. The relational databases have their rich extension collections, configuration flags and developer ecosystem, without the hassle of self-management.

**Cloud SQL instance:** The instance can be created by selecting all the preferred configurations and later we connected the instance using the MySQL client in Cloud Shell.

## Connection Code

```
app.py - Flaskapp - Visual Studio Code
EXPLORER
  FLASKAPP
    __pycache__
    app.py
    client-cert.pem
    client-key.pem
    cloudbuild.yaml
    data.py
    Dockerfile
    README.md
    requirements.txt
    server-ca.pem
  app.py
    8 import os
    9 import json
    10 from flask_sqlalchemy import SQLAlchemy
    11 import requests
    12 from flask_sqlalchemy import SQLAlchemy
    13 from mysql.connector.constants import ClientFlag
    14 import requests
    15 # from flask_sqlalchemy import SQLAlchemy
    16 # from datetime import datetime
    17 app = flask(__name__)
    18
    19
    20 config = {
    21     'user': 'root',
    22     'password': 'password',
    23     'host': '34.135.90.63',
    24     'client_flags': [ClientFlag.SSL],
    25     'ssl_ca': 'server-ca.pem',
    26     'ssl_cert': 'client-cert.pem',
    27     'ssl_key': 'client-key.pem'
    28 }
    29
    30 # now we establish our connection
    31 cnxn = mysql.connector.connect(**config)
    32 cursor = cnxn.cursor() # initialize connection cursor
    33 cursor.execute('CREATE DATABASE IF NOT EXISTS myflaskapp_new') # create a new 'testdb' database
    34 # cnxn.close()
    35 # # close connection because we will be reconnecting to testdb
    36 cursor.execute('USE myflaskapp_new')
    37 config['database'] = 'myflaskapp_new' # add new database to config dict
    38 cursor.execute('CREATE TABLE IF NOT EXISTS users (id int(11) AUTO_INCREMENT PRIMARY KEY, name varchar(100), email varchar(100), username varchar(30), p
    39
    40
    41 cursor.execute('CREATE TABLE IF NOT EXISTS articles (id int(11) AUTO_INCREMENT PRIMARY KEY, title varchar(225), author varchar(100), body TEXT, crea
    42
    43 cnxn.commit()
    44 # from datetime import datetime
```

## Creating a database and adding tables to our database.

For our application, we require two tables namely Users: for storing all the registration and login credentials and Articles table to maintain and perform CRUD operations on articles.

For the creation of them into a database, we created a database and added all the variables required in each table appropriately.

The database is created and tables required for our application have been added.

## CLOUD SQL INSTANCE

Google Cloud Platform

Covid-19

Search products and resources

SQL

Instances

+ CREATE INSTANCE

MIGRATE DATA

SHOW INFO PANEL

Filter

Enter property name or value


	Instance ID	Type	Public IP address	Private IP address	Instance connection name	High availability	Location	Storage used	Labels	Actions
	covid-sql	MySQL 5.7	34.135.90.63		covid-19-334218:us-central1:covid-sql	ENABLED	us-central1-f	1 GB of 100 GB		

## DATABASES

Google Cloud Platform Covid-19 Search products and resources										
SQL	Databases									
<div>PRIMARY INSTANCE</div> <div>Overview</div> <div>Connections</div> <div>Users</div> <div>Databases</div> <div>Backups</div> <div>Replicas</div> <div>Operations</div> <div>Release notes</div> <div>&lt;1</div>	All instances > covid-sql									
	covid-sql									
	MySQL 5.7									
	CREATE DATABASE									
	Name	Collation	Character set	Type						
	hello	utf8_general_ci	utf8	User						
	information_schema	utf8_general_ci	utf8	System						
	myflaskapp	utf8_general_ci	utf8	User						
	myflaskapp_1	utf8_general_ci	utf8	User						
	myflaskapp_5	utf8_general_ci	utf8	User						

## Dialog Flow: Virtual Agent:

### WEB DEMO


 Dialogflow [API & DOCS](#) [PRICING](#) [GO TO CONSOLE](#)


## COVID19CHATBOT

COVID-19 Rapid Response Virtual Agent

Use following code to integrate this agent into your site:

```
<iframe width="350" height="430" allow="microphone;" src="https://console.dialogflow.com/api-client/demo/embedded/11ceb767-8d0d-4b1b-9636-3c1cac0ceca3"></iframe>
```

 COVID19CHATBOT  
COVID-19 Rapid Response Virtual Agent

POWERED BY  Dialogflow

hello

Good day! What can I do for you today?

What is covid 19?

A novel coronavirus is a new coronavirus that has not been previously identified. The virus causing coronavirus disease 2019 (COVID-19), is not the same as the coronaviruses that commonly circulate among humans and cause mild illness,

Ask something...

COVID19 [Home](#) [Blog](#) [Articles](#) [Find Your Nearest testing site](#) [Register](#) [Login](#)

# Coronavirus Global Stats: LIVE UPD

<b>New Deaths</b> 8701	<b>Total Deaths</b> 5284162
<b>New Cases</b> 723500	<b>Cases</b> 268176709
<b>New Recovered</b> 0	<b>Total Recoverd</b> 0

COVID19CHATBOT

Hi. This is the COVID-19 Virtual Agent. You can ask me questions related to COVID-19. How can I help?

I will try to provide some answers based on publicly available information. I'm not responsible for providing professional medical advice, diagnosis or treatment.

If you are experiencing a life threatening emergency, please call 911. For medical advice, please contact your healthcare provider.

Last Update: August 3, 2020

Start screening

What is COVID-19?

What are the symptoms?

How many confirmed cases are there in the US?

Ask something...

1. Created a new agent
2. Uploaded the code
3. Enabled fulfillment via cloud functions

The screenshot shows the Dialogflow Fulfillment editor for an agent named 'COVID19CHATBOT'. The left sidebar contains navigation options: Intents, Entities, Knowledge (beta), Fulfillment (selected), Integrations, Training, Validation, History, Analytics, and Prebuilt Agents. The main area is titled 'Fulfillment' and includes a 'Code Editor' powered by Google Cloud Functions. It displays a code snippet for 'index.js' and 'package.json'. The code is a Node.js webhook for a COVID-19 bot, using libraries like 'firebase-functions', 'dialogflow-fulfillment', '@googlemaps/google-maps-services-js', and '@google-cloud/bigquery'. A 'DEPLOY' button is visible at the bottom right. On the right, a 'Try it now' section shows the agent's response to the user input 'covid', which is a detailed paragraph about COVID-19.

4. Train the model for the intents enable webhook to enable API response.
5. Test the Model using Simulator

The screenshot shows the Dialogflow Intents editor for the same agent. The left sidebar is similar to the previous screenshot, but 'Intents' is selected. The main area is titled 'Intents' and features a 'CREATE INTENT' button. Below the button is a search bar and a list of intents. The list includes: coronavirus.test\_negative, coronavirus.airborne, coronavirus.animals, coronavirus.antibody\_testing, coronavirus.at\_risk, coronavirus.china, coronavirus.cleaning, coronavirus.closure, coronavirus.confirmed\_cases, coronavirus.contact, coronavirus.death, and coronavirus.define. On the right, the 'Try it now' section shows the agent's response to the user input 'covid', which is the same detailed paragraph about COVID-19 as in the previous screenshot.

6. Integration of DialogFlow chatbot. We have tried two ways. One is through web demo and other is



using dialogflow messenger. The deployed Application contains DialogFlow Messenger.

## 7. WEBDEMO:

The screenshot shows a web application titled "Coronavirus Global Stats: LIVE UPDATES". The main content area displays statistics on a blue background with a molecular structure pattern. A chatbot window titled "COVID-19-CHATBOT" is overlaid on the right side, showing a conversation about COVID-19.

**Navigation:** COVID19 Home Blog Articles Find Your Nearest testing site

**Statistics:**

Category	Value
New Deaths	8701
New Cases	723500
New Recovered	0
Total Deaths	52841
Total Cases	268176
Total Recovered	0

**Chatbot Conversation:**

COVID-19-CHATBOT  
Hi! How are you doing?

what is covid 19

COVID-19-CHATBOT  
A novel coronavirus is a new coronavirus that has not been previously identified. The virus causing coronavirus disease 2019 (COVID-19), is not the same as the coronaviruses that commonly circulate among humans and cause mild illness, like the common cold.

A diagnosis with coronavirus 229E, NL63, OC43, or HKU1 is not the same as a COVID-19 diagnosis. Patients with COVID-19 will be evaluated and cared for differently than patients with common coronavirus diagnosis.

## 8. Dialoflow Messenger

The screenshot shows the same web application as above, but with a different chatbot overlay titled "COVID19CHATBOT". The chatbot provides a welcome message and offers to answer questions related to COVID-19.

**Navigation:** COVID19 Home Blog Articles Find Your Nearest testing site Register Login

**Statistics:**

Category	Value
New Deaths	8701
New Cases	723500
New Recovered	0
Total Deaths	5284162
Total Cases	268176709
Total Recovered	0

**Chatbot Message:**

COVID19CHATBOT

Hi. This is the COVID-19 Virtual Agent. You can ask me questions related to COVID-19. How can I help?

I will try to provide some answers based on publicly available information. I'm not responsible for providing professional medical advice, diagnosis or treatment.

If you are experiencing a life threatening emergency, please call 911. For medical advice, please contact your healthcare provider.

Last Update: August 3, 2020

Start screening What is COVID-19?

What are the symptoms?

How many confirmed cases are there in the US?

Ask something...

## APIs used to fetch Covid – 19 Statistics

### Major code processes/workflows controlling the functionalities in the Application

API: We have used an external API to show the real-time stats of Covid 19. The API it pulls the data containing a number of recovers, totally recovered, newly infected, total deaths, and more. All this information is in the API link below:

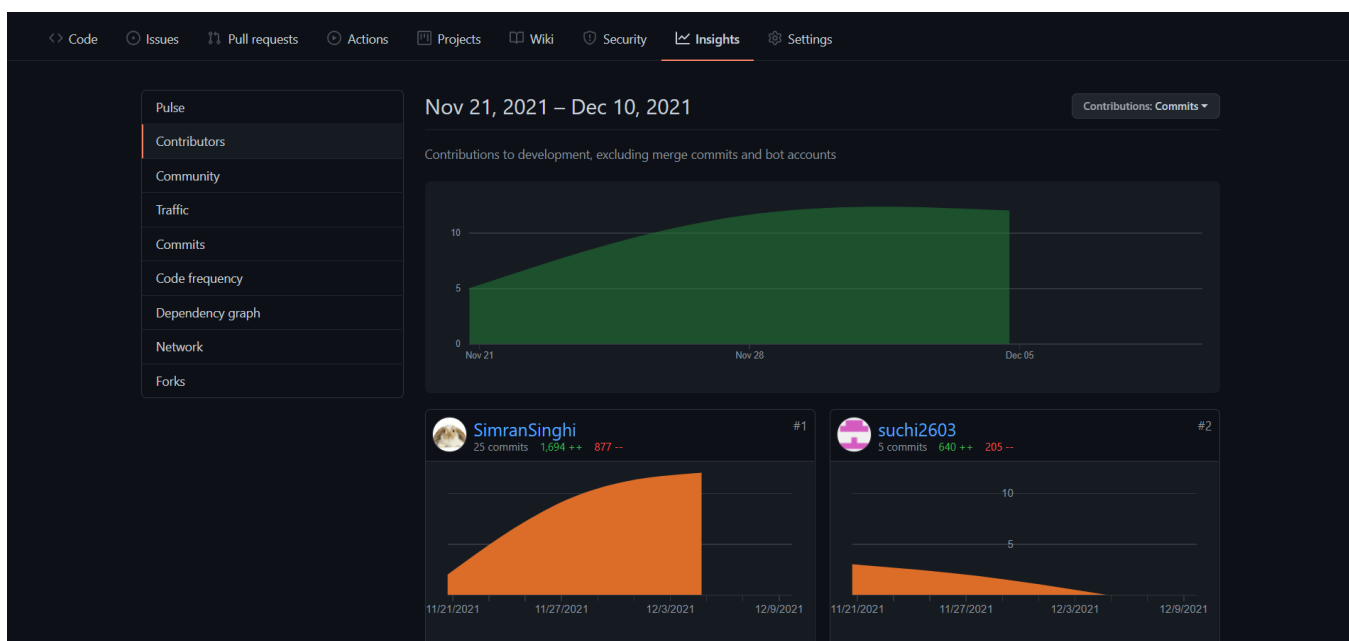
<https://api.covid19api.com/summary>

## Version Control System – GITHUB

<https://github.com/SimranSinghi/COVID-19-CHATBOT>

The screenshot shows the GitHub repository page for SimranSinghi/COVID-19-CHATBOT. The repository is public and has 1 star, 1 watching, and 0 forks. The main branch is development, with 2 branches and 0 tags. The repository contains 42 commits. The file list includes .idea, \_\_pycache\_\_, db files, static, templates, .dockerignore, Dockerfile, README.md, app.py, client-cert.pem, and client-key.pem. The repository description is: "A Web Application which Provides the Statistics, Information and a CHATBOT which helps the users to get information about Covid 19, its risks, and other useful information directly from CDC." The repository also has a README, 1 star, 1 watching, and 0 forks. The repository also has a Releases section with no releases published and a Packages section with no packages published.

### Contributions:



## Implementation Plan

### Who is responsible for which parts of implementation?

To date, we have researched various project ideas and came up with this idea. We have built an application that suit the project requirements.

Responsibilities and roles:

#### **Simran Singhi**

Project plan, Requirements Gathering, Dialog flow chatbot development and integration of chatbot to the Application, setting up Github repository, Deployment to Google Cloud Platform using Cloud Run, Cloud Registry and Cloud Build. Implementing CI/CD. Database connection to cloud sql and setting up cloud sql for the project, Bug fixes and Testing of Application, Some contribution to the report and Presentation.

#### **Sucharitha:**

Project Planning, Requirements Gathering, Application development, Login, Register, Home, Dashboard, Articles, and Blog page design, Cloud DB Connection assistance, Testing and Bug fixes and report ppt preparation.

### Planned milestones and accomplished work:

We managed to complete the application that meets all the functionalities discussed in spite of facing many roadblocks.

Date	List of Functionalities to be completed	Status Complete(C), Pending (P) and InProgress(IP)
October 2-14, 2021	<ul style="list-style-type: none"><li>➤ Project kick off discussion meeting</li><li>➤ Project requirements gathering and specification</li></ul>	<b>Complete</b>

October 14, 2021	Project Proposal	
October 15-28, 2021	<ul style="list-style-type: none"> <li>➤ Project flow understanding</li> <li>➤ Setting up Dialog flow and getting started with the Intent.</li> <li>➤ Code implementation start</li> <li>➤ Check for roadblocks or problems</li> <li>➤ Clear all issues</li> </ul>	<b>Completed</b>
October 28, 2021	Clearing Roadblocks	
October 29-November 21, 2021	<ul style="list-style-type: none"> <li>➤ Integrating the APIs</li> <li>➤ Code Implementation for web app using python and flask</li> <li>➤ Integrating the chatbot in the web App</li> <li>➤ Testing the integrated web App</li> </ul>	<b>Completed</b>
November 22	➤ Start research for deploying the application	<b>Completed</b>
November 23-December 2, 2021	➤ Work on the deployment work	<b>Completed</b>
December 2, 2021	Code Completion and deployment completion	
December 2-6, 2021	Prepare for the project final presentation	<b>Completed</b>
December 6	Project Presentation	

The Application was tested locally by both the members after each modifications and then finally deployed to the Google Cloud Platform. Later on, the deployed version is tested thoroughly. During the testing, we will have tried asking questions in the regions we have trained the chatbot. The application Register, Login, Logout, Article CRUD operations are all working fine as expected.

**Signoff:** The project proposal, the tasks, and the timelines are agreed upon by Sucharitha Cheenepalli and Simran Singhi.