



COVID AWARE APPLICATION USING APPLICATION PROGRAMMING INTERFACE [API] VIA WEB APPLICATION

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Abstract : Recent Covid-19 pandemic breakouts have caught the world off guard, putting lockdowns in place and putting a pressure on health-care systems. People have expressed a strong desire for contact tracing programs that can aid automate the laborious work of tracing all recent connections of newly confirmed infected covid-19 persons. The goal of developing and implementing the project was to use APIs to leverage access to technical improvements and the need for vaccination slots. The growing number of Web APIs has made it possible to easily create a variety of apps with distinct functionality. Taking into consideration the post-pandemic situation, this has been a persistent problem, we intend to assist citizens in every possible way and especially to address the needs of the elderly people in the pandemic, as well as post-pandemic situations. This API-based Web Application has high performance and has higher accuracy. Due to all the factors, this application is highly accurate and cost-friendly.

IndexTerms - Web APIS'S, Contact tracking system, Vaccination slots, higher accuracy

I. INTRODUCTION

In march 2020, the WHO announced COVID-19, a pandemic caused by SARS-CoV-2. COVID-19 is very infectious and transform into other viruses. Pandemic has changed our world in many ways, and that has led to slew of new technological development. One of them is the ability to track the spread of virus, store medical record for further use of medicines and quickly see if user has been exposed to Covid 19 and quarantine themselves consulting nearest isolation center using digital tools.

The year 2020 will go down in history as the year of the coronavirus. A virus which caused countries to quarantine, lockdown, and shutdown their economies. COVID-19 treatment needs early detection so after exhaustive research on SARC-CoV-2, scientist came up with vaccination and government of India came up with Vaccination drives. Since of the scarcity of vaccinations, the Indian government identified priority groups that will be vaccinated first because they are at greater danger. The first group consisted of healthcare and frontline employees. People over 60 years old and people between 45 and 59 years old with comorbid disorders were the second group to receive vaccination. People over the age of 45 were eligible to receive the COVID-19 vaccine beginning April 1, 2021. The COVID-19 vaccine will be available to citizens over the age of 18 starting May 1, 2021.

In the meanwhile we encountered bugs in CO-WIN app, which is an official app for Indian citizen to book vaccination slots. Citizens were not able to book appointment for vaccination slots as we were not able to receive OTP [One time password], so we came up with idea to build a web application as a substitute with better performance to book appointment fast, store Medical records or further use also to track Covid cases around India. Application Programming Interface {API} is a branch that also started growing as Apis provide a secure and standardized way for applications to work with each other and are more widely available to the public and is in vast demand. They're a set of functions that let apps access data and communicate with other software. API simplifies programming by extracting the underlying implementation and only exposing data or actions that developer needs in their When a user uses an application on their device, the software connects to the Internet and sends data to a server. The server then retrieves the data, clarifies it, takes the appropriate steps, and delivers it back to the user device. The program then interprets the input and displays the static data we require in a readable format called JavaScript Object Notation (JSON), which is the API utilized in this project.

Why do we require an API? Easy to use, reduces computational time, and has high security. Over the years, the term "API" has been used to refer to any fairly generic connection interface to an application; nonetheless, APIs are developer-friendly, widely available, and comprehended on a broad level. They're written for specialized audiences like developers, and they're versioned so that consumers can expect certain maintenance and lifetime expectations. Building, managing, developing, testing, and versioning APIs requires their own

software development lifecycle.

In web applications, there are four types of APIs that are often used: We used two of them public and private APIs in our web application. Public APIs allow any third-party program to access some unrestricted information, which will be shared with its users. This can be limited to merely read access in Co-WIN, and Protected APIs allow any third-party application to access specific restricted information; but, in order to gain access, service providers must adhere to the current regulations.

The process how calling API works is shown in [Fig 1], we've used "AJAX" call and "GET" function to fetch API. Ajax call is the backbone of JavaScript application. It's used heavily with Single Page Application and GET function a request looking for read only data.

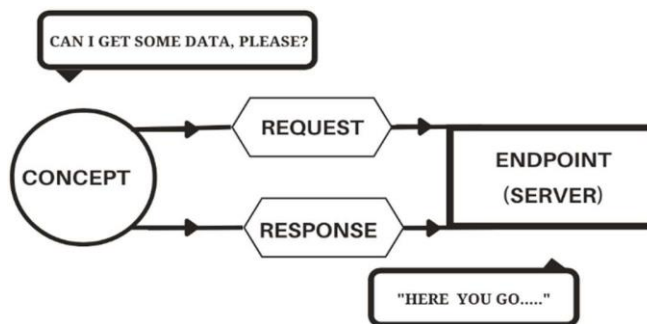


Fig-1 API calling diagram

II. LITERATURE SURVEY

The current COVID-19 outbreak caught everyone off guard, resulting in lockdowns and straining public health care systems. COVID-19 is a highly contagious virus that typically goes unnoticed at first. As a result, at any given time, a sizable fraction of the population can be a source of transmissions. As a result, various governments have expressed considerable interest in smartphone contact tracing apps, which can aid in the onerous task of identifying all recent contacts of newly confirmed infected individuals. Tracing apps, on the other hand, have prompted a lot of discussion about its key aspects, including system architecture, data management, privacy, security, proximity estimation, and attack vulnerability [1].

An excess of false and unverified information about a topic is known as infodemia. A list of Web services that give credible pandemic data from relevant sources has been prepared in the battle against the COVID-19 infodemia. COVID-19 data is defined as a freemium Web API service with a set of GET methods that users can use to request reliable data. In addition to global pandemic data, this service can provide information on individual countries and regions. The latency of COVID-19 data from the Web API service was determined using the getLatestTotals function for collecting global data [2].

Tourists to numerous nations are now required to submit negative virus tests as a result of the global Covid-19 epidemic. A requirement to present proof of immunization status would also help to restore passenger numbers to pre-2019 levels. A separate "Vaccination Passport" document is being proposed at this time. However, the Covid-19 vaccination status of a passport bearer can be displayed in the existing digital passport (ePassports) and Machine Readable Travel Document (MRTD) forms. This article presents a feasible strategy for air and land travelers to reduce the quantity of new paperwork required. The resumption of the global transportation system is intended to benefit travelers [3].

Companies are increasingly using web apps, SOAP services, message-based services, and, more recently, REST services to deliver their services over the internet. Despite the fact that the REST movement is well-known, there is little trustworthy information about the industry's technological characteristics, such as common data formats, HTTP verbs, and URI structure, to name a few. They searched the top 4000 most popular websites on Alexa.com for exactly 500 websites that claim to offer a REST web service API in this article. In these 500 APIs, they look for key technological features, REST architecture principles (such as Resource addressability), and adherence to best practices (e.g., API versioning) [4].

Creating and updating REST API documentation, including usage examples, for evolving APIs can be a time-consuming and costly process. The majority of REST API documentation tools focus on automated API object documentation, however documenting usage examples involves manual effort. As a result, REST API developers must evaluate the cost vs. benefit of incorporating code snippets in the documentation in order to prioritize documentation efforts. For that reason, they conducted a controlled study with 26 experienced software engineers to better understand the challenges faced by REST API client developers [5].

A real-world HTML application and an AJAX application with the identical user interface were compared in an experiment. Data on each performance when presented with the same tasks was collected using a statistically meaningful number of trials. The applications' response size and service time performance metrics were calculated. AJAX increased response size by a significant amount, lowering bandwidth requirements. An average user will perceive a 55% increase in response size performance. AJAX resulted in a 16% improvement in average service time. The average user's service time would be reduced by 21% [6].

III. APPROACH

We have proposed a system that will utilize the advantage of the widespread usage of Application programming interface to deploy a Web application, and find Covid vaccination center near user, Check out vaccination status, also can recognize Covid-19 diseases at an early stage with questionnaire so that effective measures can be taken to prevent further spread of covid 19.

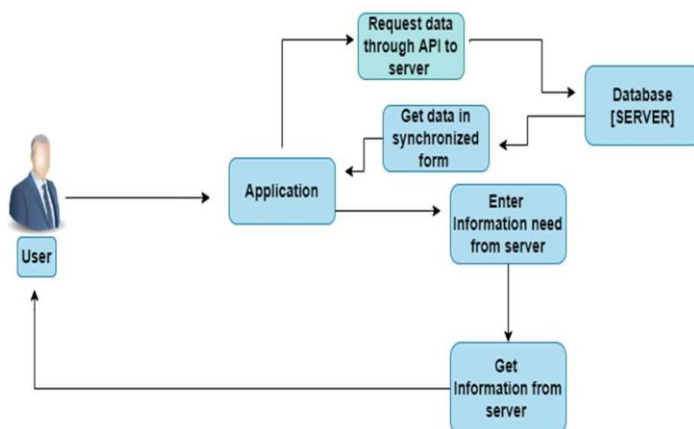


Fig 2- System Architecture

The model request and gets response as data on the device and immediately generate the output with details and solutions. To develop an application, we first need to Fetch Api from Apisetu Indian government website where user can find many commercial APIS for developers, to test run and built application with help of this Api we were able reduce the computational time. But with a higher accuracy. Also we aim to implement this idea using an Android application.

IV. PROPOSED METHODOLOGY

This project aims at providing the necessary and basic information about corona virus. Also taking in consideration the post pandemic situation, this has been a persistent problem.

We intend to assist the citizens in every possible way and especially to address the needs of the elderly people in the pandemic, as well as post-pandemic situations. We have given information about how to prevent virus, how to take the precautions and what are the symptoms of covid-19. What things to do and what things to be aware of. User will be able to find any vaccine slots. Another part is that user can able to find slots in in any location all over India if user is travelling anywhere just with one click. Through the proposed application, citizens of India can avail facilities like getting information about Covid19 disease, direct link finding vaccine slots direct link tracking corona cases all over the India, use of questioner to predict disease and store International vaccine certificate.

The application is built taking elderly people in consideration where a survey states In India approximately many elderly people still don't have a mobile. 12 percent don't have any idea how to use it properly. 28 percent are familiar with technology but rely on someone for learning new technology, and 55 percent have fear of using new things. We are planning on focusing on elderly people who are familiar with technology and people not very familiar with technology also can use application feasibly. System architecture is built in a very understandable form. Tech stack used to build and run our application front-end tools used to build web app are JavaScript some bootstrap classes and applications connected via APIs. The application will contain multiple modules dedicated to solve each problem.

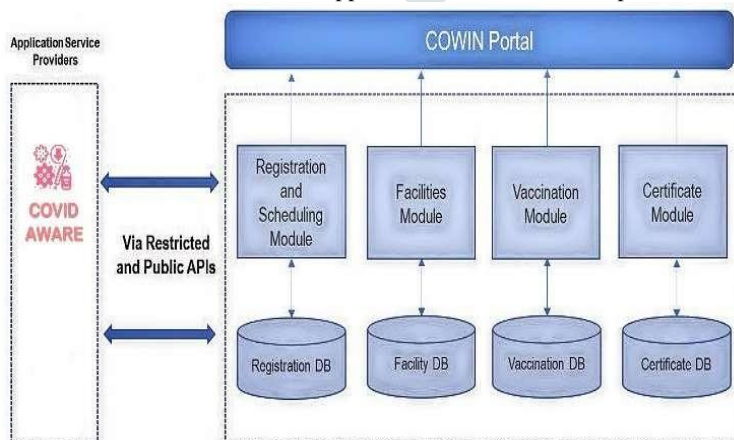


Fig 3 – System Architecture

V. IMPLEMENTATION

The goal of designing and implementing the project was to take advantage of technological advancements. to Carter need for vaccination centres and slots with the help of APIs and also an all in one application for people where everyone can store their medical record, use of questioner to predict disease and store International vaccine certificate.

The increasing number of Web APIs has provided a promising way to quickly build various apps with diverse functions. We propose to aim at providing the necessary and basic information about corona virus. Also, taking into consideration the post-pandemic situation, this has been a persistent problem. We intend to assist citizens in every possible way and especially to address the needs of the elderly people in the pandemic, as well as post-pandemic situations. Also we have provided animated series of information about how to prevent the virus, how to take the precautions and what are the symptoms of covid-19. Things to follow and what Things to be aware of. Also, we have added on vaccination features where user will be able to find vaccination centres near his location. If slots are available people will also be able to find any vaccine slots according to user's convenience in any location all over the country while traveling anywhere just with one click.

This API-based Web Application has high performance and has higher accuracy and is scalable. The system aims to reduce the hustle of waiting for OTP and booking your vaccination slots or reviewing your status system helps to save large amount of time with highly accurate slots selection near user it will also display a questioner to check if person is suffering through covid or not.

Also we have provided solutions to help out users from this covid 19 pandemic and post pandemic situations due to heavy use of api it can easily be deployed on android smartphone as an app which will already have a huge base. This will help the widespread usage and cost effective solution for users and traffic on web application will be divided.

With all these modules present in application we can highly improve and reduce load on one Site and build a superior Version of application.

VI. CONCLUSION

The system aims to reduce the hustle of waiting for OTP and booking your vaccination slots or reviewing your status system helps to save large amount of time with highly accurate slots selection near user it will also display a questioner to check if person is suffering through covid or not. Also we have provided solutions to help out users from this pandemic and post pandemic situations In these circumstances, the growing number of Web APIs has presented a promising option to swiftly construct a variety of apps with various functionality. We propose to aim at providing the necessary and basic information about corona virus. Also, taking into consideration the post-pandemic situation, this has been a persistent problem.

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VII. REFERENCES

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