



**IJIRCCCE**

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

**Volume 10, Issue 8, August 2022**

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 8.165**



9940 572 462



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# Bilaspur City Guide: FHSC Web Application

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**ABSTRACT:** Web applications can play a crucial role in IT sectors, business and advertisements. With their help, it is easier to maintain a proper communication channel between merchants and stakeholders. Web application uses a combination of server and client-side scripts. Server-side scripts used for handling the storage and retrieval of the information where as client-side scripts used to present the information to the users.

Our application, **FHSC Web Application**, stands for Food, Hospitals and Shopping Centers, is a region-based based application which tells about nearby food, shopping and hospital zones. It is provided with different filters, so that it can provide an ease to the user to search detailed information about nearby places.

**KEYWORDS:** Html, CSS, JavaScript, Angular framework, NodeJs, Express, MongoDB, Google-Maps

## I. INTRODUCTION

FHSC(Food, hospitals and shopping centers) Web Application which mainly used to identify food, hospitals and shopping centers based on the users need. It fetches and displays all the necessary information regarding that particular place which user has searched. It mainly consists of three parts food, shopping and hospitals component.

**Food Component :** In our application, several restaurants, cafes and street foods lists are fetched from database. There are several filter options such as distance, type of food, ratings, etc.

**Hospital Component :** Like food component, several government and private hospitals are fetched from database. There are several filter options like ownership(government or private, distance, ratings and type of hospital that user wants like multispecialty hospitals, eye specialists, etc.

**Shopping Component :** Here also, lists of shopping centers are being fetched which contains various filters like type of material user wants to purchase, rating, distance, etc.

Our application shows the fetch information with the address in maps. We have collected all the necessary information about various places and stored in our database. In our projects we have used geo-location calls for fetching the users current location i.e latitude and longitude of the user. Then, we have calculated distance between the two latitude and longitudes.

**How distance is calculated between two latitudes and longitudes ?**

The simplest method of calculating distance relies on some advanced-looking math, known as the **Haversine formula**, it uses spherical trigonometry to determine the great circle distance between two points.

```
function haversine_distance(mk1, mk2) {
  var R = 3958.8; // Radius of the Earth in miles
  var rlat1 = mk1.position.lat() * (Math.PI/180); // Convert degrees to radians
  var rlat2 = mk2.position.lat() * (Math.PI/180); // Convert degrees to radians
  var difflat = rlat2-rlat1; // Radian difference (latitudes)
  var difflon = (mk2.position.lng()-mk1.position.lng()) * (Math.PI/180); // Radian difference (longitudes)

  var d = 2 * R *
  Math.asin(Math.sqrt(Math.sin(difflat/2)*Math.sin(difflat/2)+Math.cos(rlat1)*Math.cos(rlat2)*Math.sin(difflon/2)*Math.sin(difflon/2)));
  return d;
}
```

Web development refers to the design, design, and maintenance of websites. It includes features such as web design, web hosting, web publishing, web editing, and website management. Building an online application i.e. websites. The term Web Development is defined by two terms, namely:

**Web:** It refers to websites, web pages or anything that works over the internet.

**Development:** Building the application from scratch.

It contains two components of Front-end Development and Backend Development.

**1.Front-End Development:** Advanced Development controls everything users first see in their browser or application. Previous developers are responsible for viewing the site. Previous development has largely focused on what others might associate with the “client side” of development. Previously, the technologies used in our system were Html, CSS and Angular Framework.

Let's understand these technologies one by one.

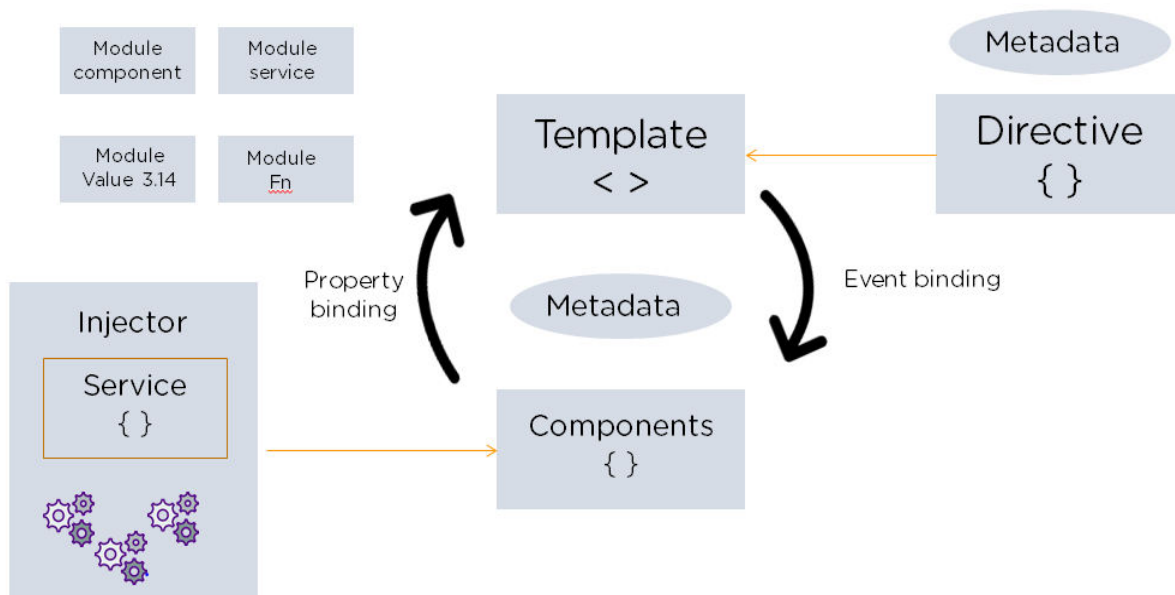
1.HTML: HTML (HyperText Markup Language) code used to create a web page and its content. For example, content may be organized within a set of categories, a dot list, or using images and data tables.

2.CSS: CSS stands for Cascading Style Sheets. CSS is the language to describe the presentation of web pages, including colors, layout, and fonts. Allows one to adjust the presentation on a variety of devices, such as large screens, screens, or printers. CSS is not independent of HTML and can be used with any XML based markup language.

3.Angular Framework: A component-based framework used to build unmanaged web applications. A collection of well-integrated libraries covering a wide range of features, including routing, form management, client server communication, and more. Angular is an open source, JavaScript framework written in TypeScript. Google maintains it, and its main purpose is to improve one-page applications.

### Angular Architecture:

Angular is a complete overview-viewing (MVC) model. It provides clear guidance on how the app should be configured and provides dual-directed data flow while providing a real DOM. The following are eight building blocks of the Angular system:



**1. Modules:** The Angular app has a root module, called AppModule, which provides bootstrap access to the application.

**2. Partments:** Each component in the app defines a category that governs the app's logical application and data. The section usually describes the part of the visual interface (UI).

**3. Templates:** Angular template combines Angular markup and HTML to edit HTML elements before they are displayed. There are two types of data binding:

□ **Event Responsibility:** Allows your application to respond to user input in a specific location by updating your application data.

□ **Location binding:** Allows users to translate calculated values from your application data into HTML.

**3. Metadata:** Metadata tells Angular how to process a class. It is used to decorate the classroom so that it can set the expected behavior of the class.

**4. Services:** If you have data or intelligence that is not related to the view but should be shared in all sections, a service category is created. The class is always associated with the decorator @Injectable.

**4. Dependence Injury:** This feature allows you to keep your component classes clean and efficient. It does not download data from the server, does not verify user input, or logs directly into the console. Instead, it transfers such services to resources.

**2.Back-End upgrade:** Background developers create code that allows the website and the app to communicate. Background developers take care of and maintain the end of the website, including websites, servers, and applications, and control what you do not see. In our project, Backend contains Express and Node.js.

**1.Express:** Express is a small and flexible Node.js web framework that provides a solid set of features for web and mobile applications. It helps to facilitate the rapid development of Node-based web applications.. Other features of the cost framework are:

a.Allows to set middlewares to respond to HTTP Requests.

b.Describes the route table used to perform various actions based on HTTP Method and URL.

c.Allows to render HTML Pages flexibly based on transferring arguments in a template.

**2.Node.js:** Node.js is an open source server location. Node.js lets you run JavaScript on a server. Node.js is a free and

open source server that works on a variety of platforms (Windows, Linux, Unix, Mac OS X, etc.). It uses an

asynchronous system. The Node.js app works in a single process, without creating a new series for all applications. Node.js provides a set of asynchronous I / O primitives in its standard library that prevents JavaScript code from being blocked and,

In most cases, libraries in Node.js are written using non-blocking paradigms, making blocking behavior different from normal.

### III. METHODOLOGY

While developing this application following things were kept in mind :

- The performance of the system.
- The efficiency of the existing System.
- The security of the Data and software.
- The security of the user 'device and user etc.

Before building this application, tasks were being planned in a way :

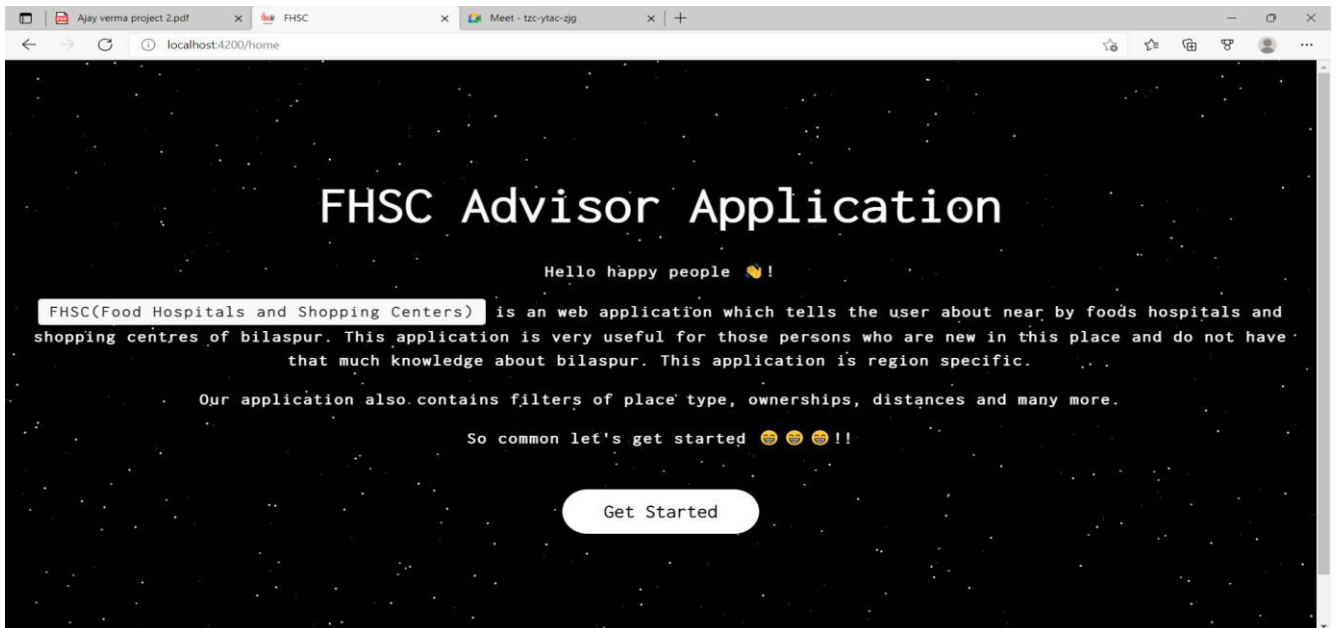
**1. Data collection:** In this, Data is collected from google maps and stored in a database. In this project, NoSql(MongoDB) database is used. The reason behind NoSql database was :

- Handle Large Volumes of Data at High Speed with a Scale-Out Architecture

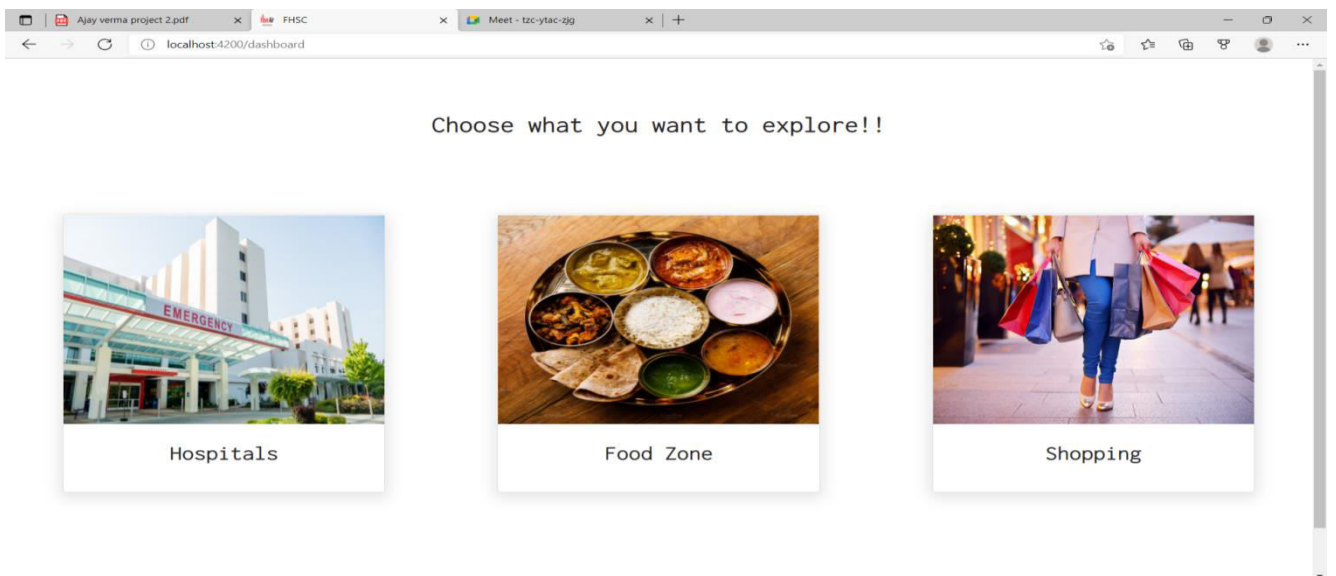
- Store Unstructured, Semi-Structured, or Structured Data
- Enable Easy Updates to Schema and Fields

2. **Front-End** : In front-end, we have developed client-side part. It comprised of home-page, hospital-page, shopping-page, map-view page and food-page. As front-end was developed using angular framework, it was divided into several components. Some of them are :

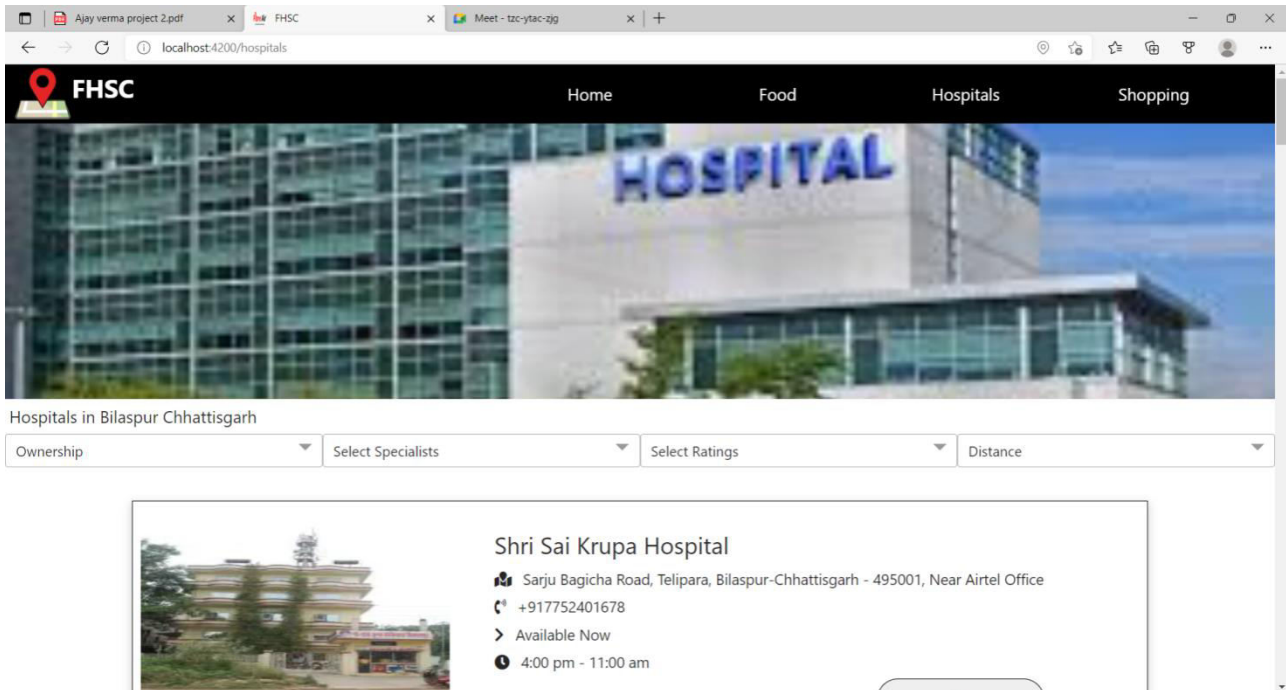
1. Introduction:



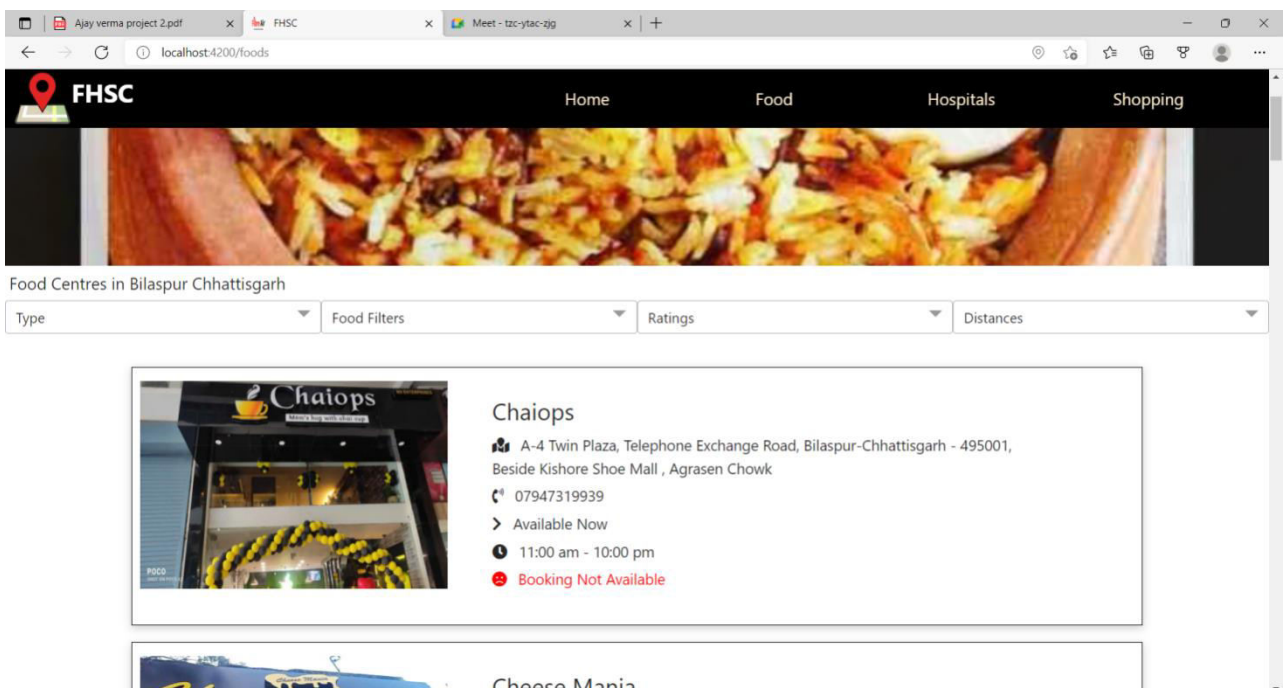
2. Home Page :



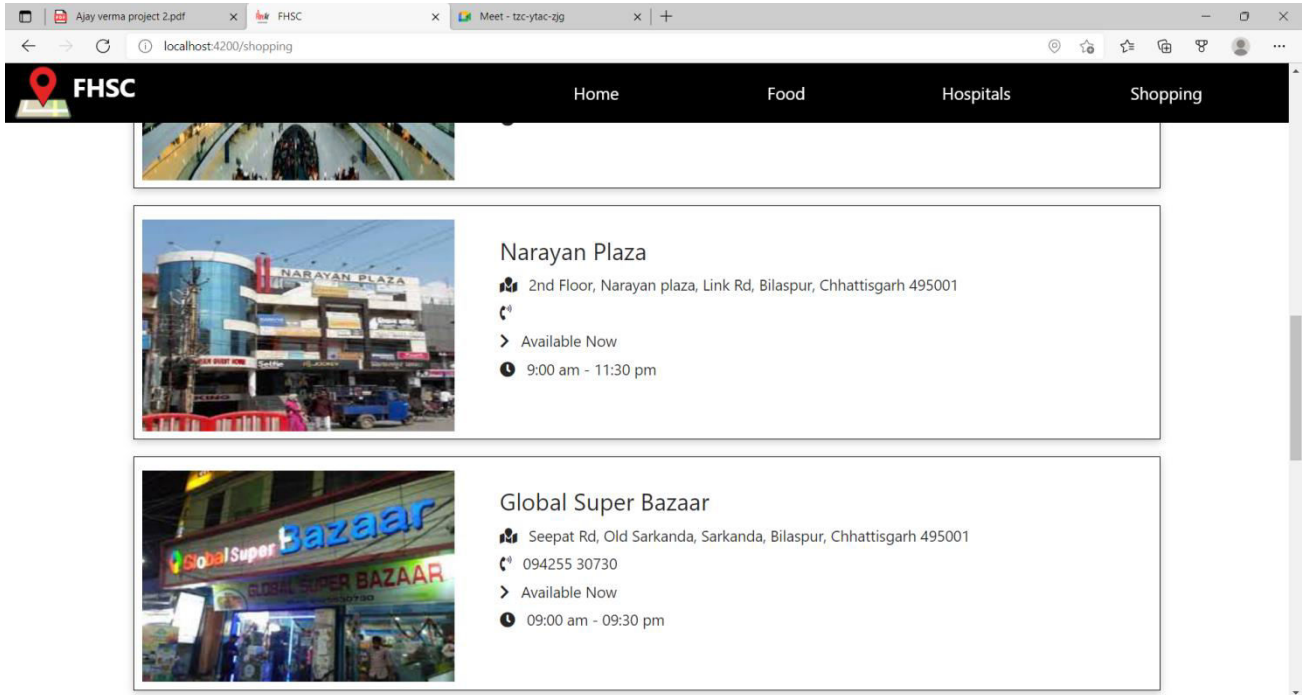
3. Hospital page Component: In this component, list of hospitals is being fetched from the Backend via API calls in service file.



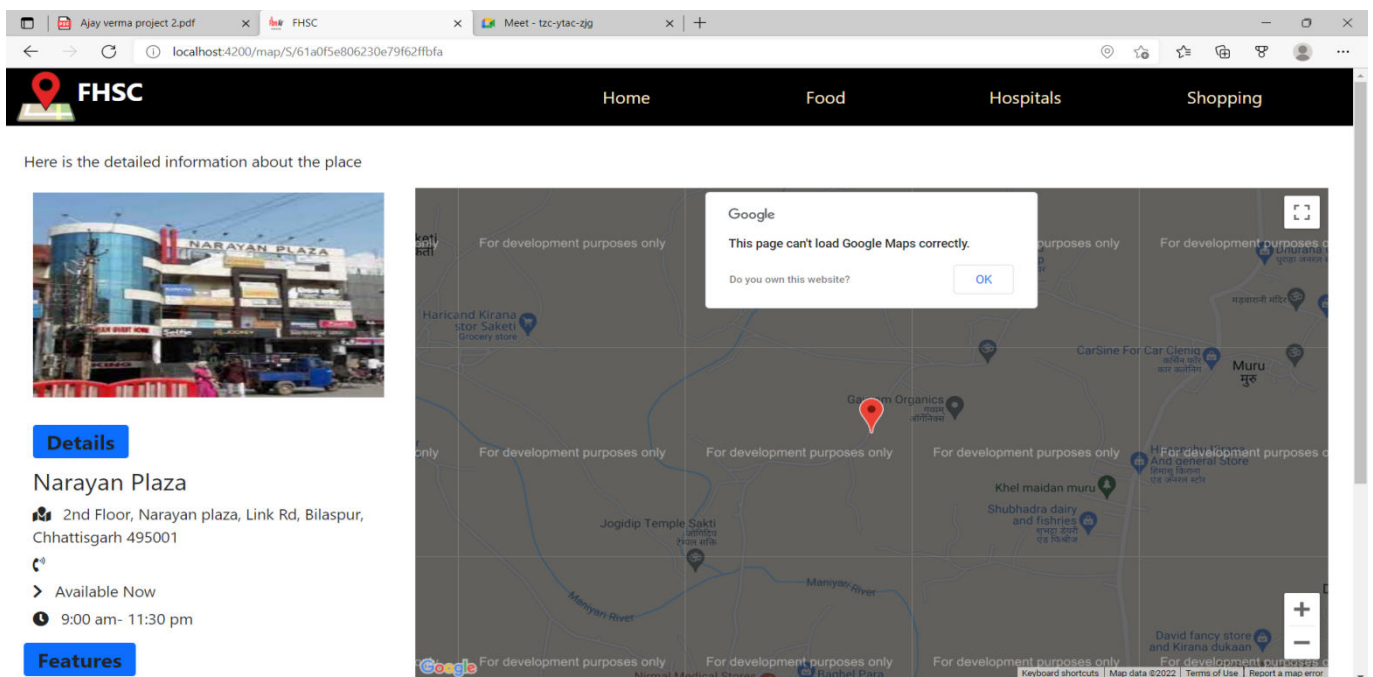
4. Food Page Component: In this component, list of food centers is being fetched from the Backend via API calls in service file.



5. Shopping Page Component : In this component, list of shopping centers is being fetched from the Backend via API calls in service file.



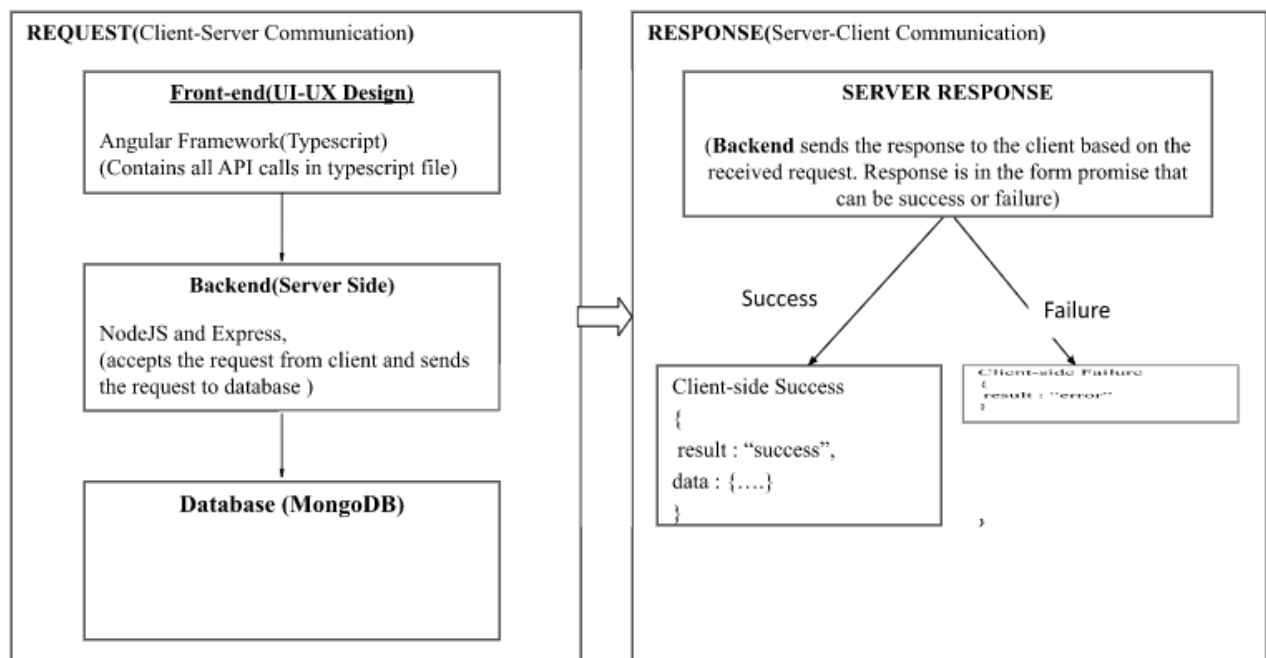
6. Map-view Component : Here, dynamic map-view of every place is displayed based on the place selected.



3. **Backend :** The Project Backend uses Node.js and express framework. It’s main function is to control the code functionality and fetches the data from the server.

**Flow Diagram :**

Here’s the flow diagram which explains the code flow of the project.



**IV. CONCLUSION**

The FHSC Web Application is critical in determining which location best meets the needs of the users. In the future, some more filter options and a proper authentication system will be implemented. This website stands out from each and every website available on the internet today, as this application can give details that no website will be able to give about any place, such as personal reviews, what is best about that place, what it is famous for, and what precautions you should take before going out there. It solves the problems that we, and every normal person, have seen in these locations. This website gives its users knowledge as well as confidence about the places they are visiting. For hospitals, filters are added, e.g., according to type of hospital, in what field they have specialization, ratings, reviews, and timings of opening and closing of the hospital. Or for food courts, we have added filters according to the type of food court, whether it is a stall, a restaurant, street food, or cafe, which food is good there and what its rating and reviews are. These types of important filters are available in marketplaces and tourist places too. To achieve this, we did lots of work on the front end with the use of the angular framework, and then we collected data about everything and fetched that data on Mongo-DB, which was then further shown in website.

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