

**CS5551 – ADVANCED SOFTWARE ENGINEERING  
HEALTH INSPECTOR**

**CS5551 – ADVANCED SOFTWARE ENGINEERING**

**FALL 2018**

**Department of Computer Science Electrical Engineering**

**University of Missouri Kansas City**

**Team Number #12**

**Sai Tejaswi Koppuravuri -30**

**Lakshmana Kumar Mettu-35**

**Anusha Palla-38**

**Praneeth Thota-52**

# CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR

## **Acknowledgement Statement**

This work has been completed under the guidance of Dr. Yugi Lee and the TAs (Ruthvic Punyamurthula, Sravanthi Gogadi, Bhargavi Nadendla) in CS5551 Advanced Software Engineering, University of Missouri - Kansas City), Fall 2018.

## **Project Deployment**

### **Health inspector**

**By**

**Sai Tejaswi Koppuravuri**

**Lakshmana Kumar Mettu**

**Anusha Palla**

**Praneeth Thota**

# CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR

## **TABLE OF CONTENTS**

1. Introduction
2. Project goals and objective
  - 2.1 Motivation
  - 2.2 Significance and uniqueness
  - 2.3 Objectives
  - 2.4 System features
3. Github issues
4. Zenhub boarding
5. First increment report
6. Second increment report
7. Third increment report
8. Conclusion
9. References

# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

### 1. INTRODUCTION:

#### HEALTH INSPECTOR

"Health Inspector" is a hybrid application with the fundamental plan to offer important rules to the client about their wellbeing. It basically focusses on finding the close-by specialists dependent on the clients area, giving the points of interest of the nourishment to be devoured dependent on the calories given by the client. In extra the client can ascertain his Body Mass Index (BMI) utilizing his weight and stature.

### 2. PROJECT GOALS AND OBJECTIVE:

#### 2.1 Motivation:

Have you at any point thought of knowing the best specialists that you have close-by? It is safe to say that you are been contemplating the eating routine intend to pursue? Have you thought of consequently arranging an ideal eating routine for you? Indeed, we thought of it and built up an application called Health inspector which gives you an ideal day diet plan dependent on you selection of calories you require to devour.

#### 2.2 Significance and uniqueness:

Presently there are numerous applications that screen the wellbeing conditions. In any case, in our application we are concentrating on the prerequisites required by the client with the end goal to know the close-by specialists dependent on their specialization. This application likewise gives the ideal eating routine arrangement to the day. The client can ascertain the BMI dependent on his height and weight.

#### 2.3 Objectives:

The goal is to build up a hybrid application where in the client can login and improve his health encounter utilizing the highlights worked in. Since we are managing health it makes obvious that we ought to build up an engaging UI which catches the client eye. The application contains at first the client login exercises which ought to be anchored and we are likewise giving the client the eating regimen plan which to be precise and any wrong recommendations

## CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR

ought may deceive them. Indeed, even the client should impeccably happy with the administrations given by the application.

### 2.4 System Features:

- Ability to login the application safely with the client data
- To think about the client wellbeing conditions(if endorsed)
- Suggesting the client the best eating regimen plan in customary premise and not withstanding enabling the client to record his weight physically on standard premise.
- To ascertain client's BMI which is a valuable factor for a person.

### Github Issues:

- Github issues were raised during the project increment.
- Different issues were assigned to different contributors of the project.

Filters

is:issue is:open

Labels

Milestones

New issue

13 Open

7 Closed

Author

Labels

Projects

Milestones

Assignee

Sort

Android\_signout functionality

#24 opened just now by SaitejaswiK

Android\_API search

#23 opened a minute ago by SaitejaswiK

Android\_ BMI calculation

#22 opened 2 minutes ago by SaitejaswiK

Android\_ Diet plan

#21 opened 2 minutes ago by SaitejaswiK

Android\_ Display doctors based on the specialization

#20 opened 3 minutes ago by SaitejaswiK

Android \_display the doctors using geolocation

#19 opened 4 minutes ago by SaitejaswiK

Android\_displaying doctors nearby

#18 opened 5 minutes ago by SaitejaswiK

Android\_ Oauth authentication

#17 opened 6 minutes ago by SaitejaswiK

Android\_login

#16 opened 7 minutes ago by SaitejaswiK

Increment\_2 Android version

#15 opened 8 minutes ago by SaitejaswiK

Mention types of insurance plans available for students

#7 opened on Sep 5 by AnushaPalla

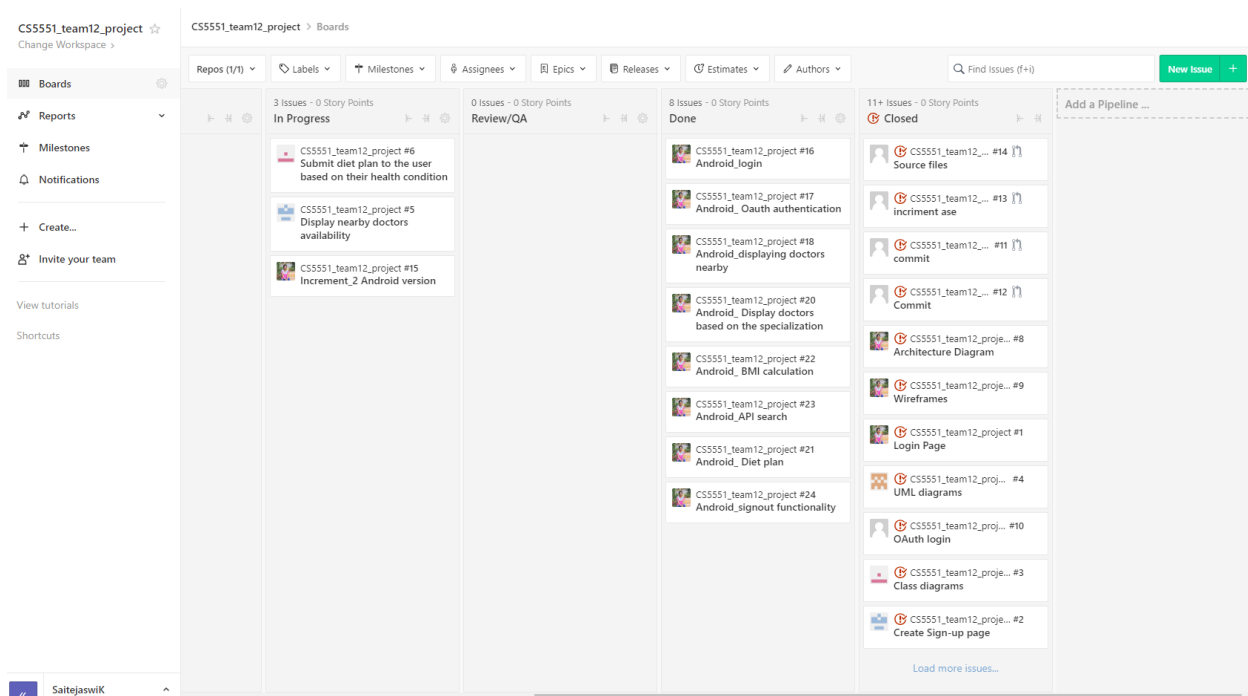
Submit diet plan to the user based on their health condition

#6 opened on Sep 5 by AnushaPalla

Display nearby doctors availability

# CS5551 – ADVANVED SOFTWARE ENGINEERING HEALTH INSPECTOR

## Zenhub boarding:



## First Increment Report:

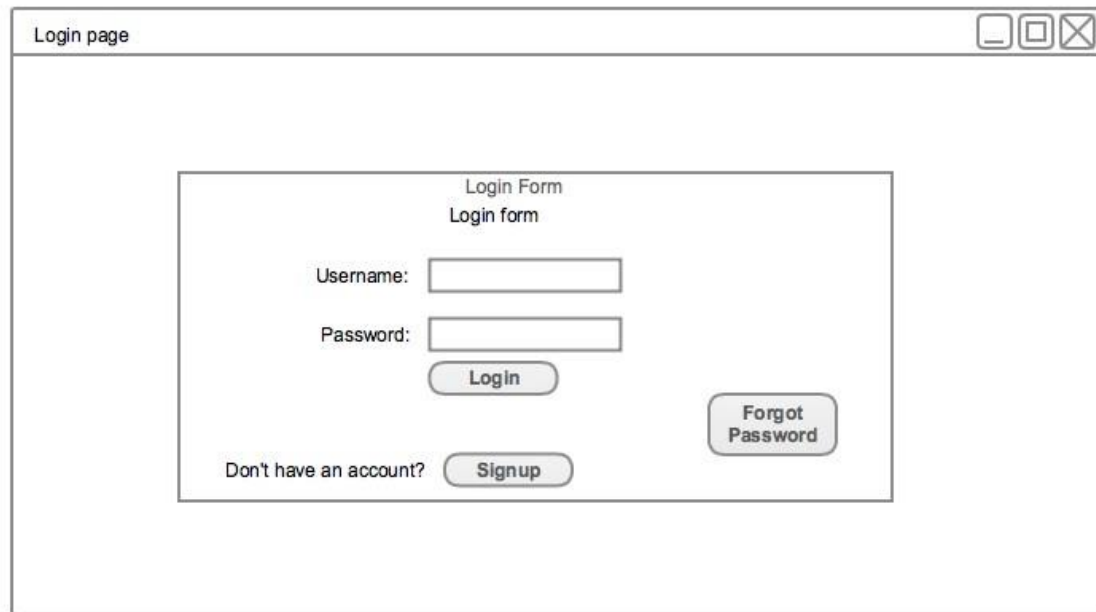
- In the phase 1 of the project, we have implemented the authentication phase.
- Under authentication phase, login page has been implemented using local storage as well as with social login.
- In the social login phase, using Oauth2.0 google sign in and facebook login are implemented.

## Wireframes:

- If the user has already registered he can directly login to the application.

Wireframes for login and signup page are as follows:

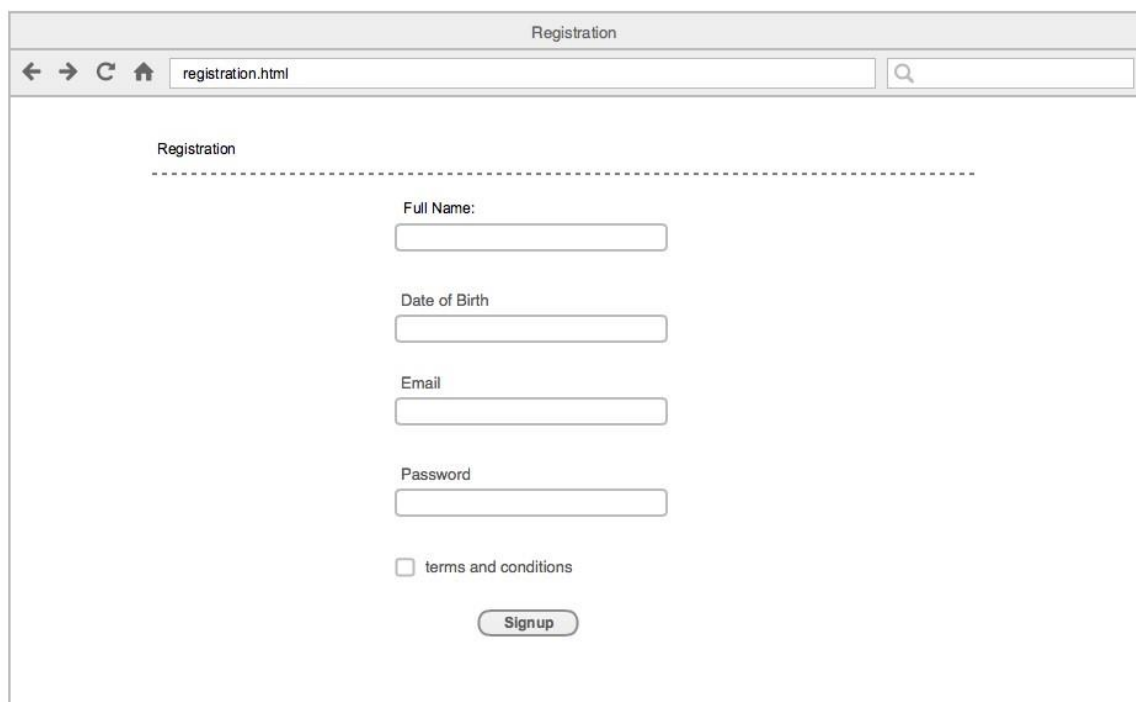
## CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR



The wireframe shows a browser window titled "Login page". Inside the window is a central box labeled "Login Form" and "Login form". It contains a "Username:" label followed by a text input field, a "Password:" label followed by a text input field, a "Login" button, a "Forgot Password" button, and a "Don't have an account?" label followed by a "Signup" button.

- If the user is not registered he can register to the application using Signup page

Wire frame for Signup page:



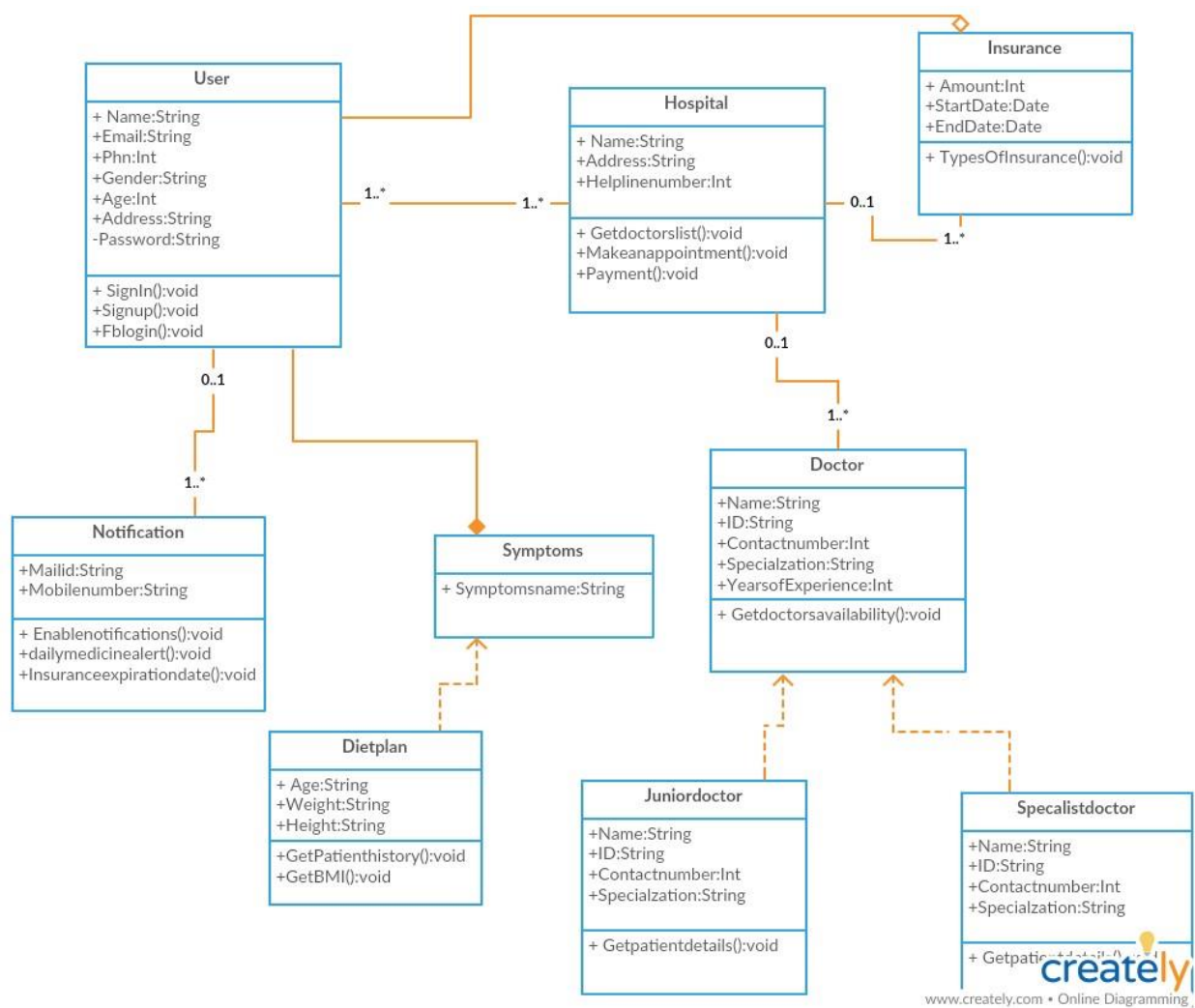
The wireframe shows a browser window titled "Registration". The address bar shows "registration.html". The page content is titled "Registration" and is separated from the header by a dashed line. It contains a "Full Name:" label followed by a text input field, a "Date of Birth" label followed by a text input field, an "Email" label followed by a text input field, a "Password" label followed by a text input field, a checkbox labeled "terms and conditions", and a "Signup" button.

## CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR

### UML DIAGRAMS:

The major part of any project is to understand the workflow of the project where in the class diagram and sequence diagrams are very much helpful in going through the process workflow.

The class diagram of the project is as follows:



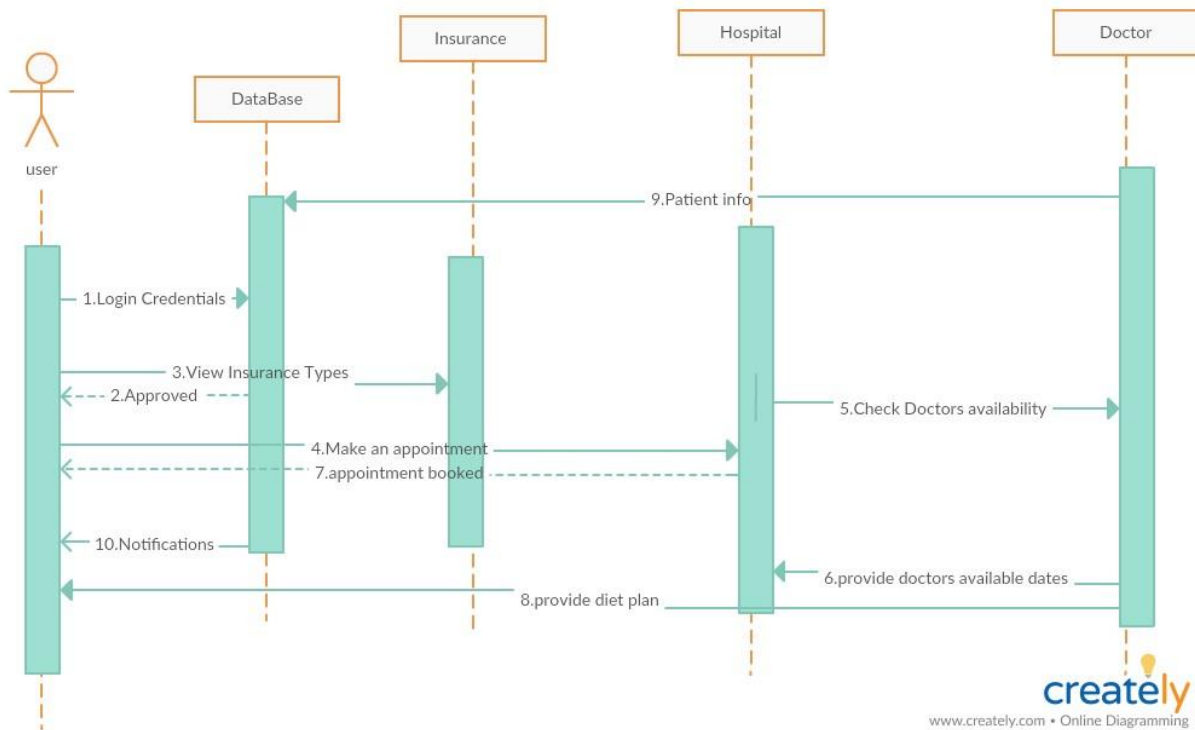
- Another important UML diagram which is very helpful in the user stories is a sequence diagram.



# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

### Sequence Diagram:

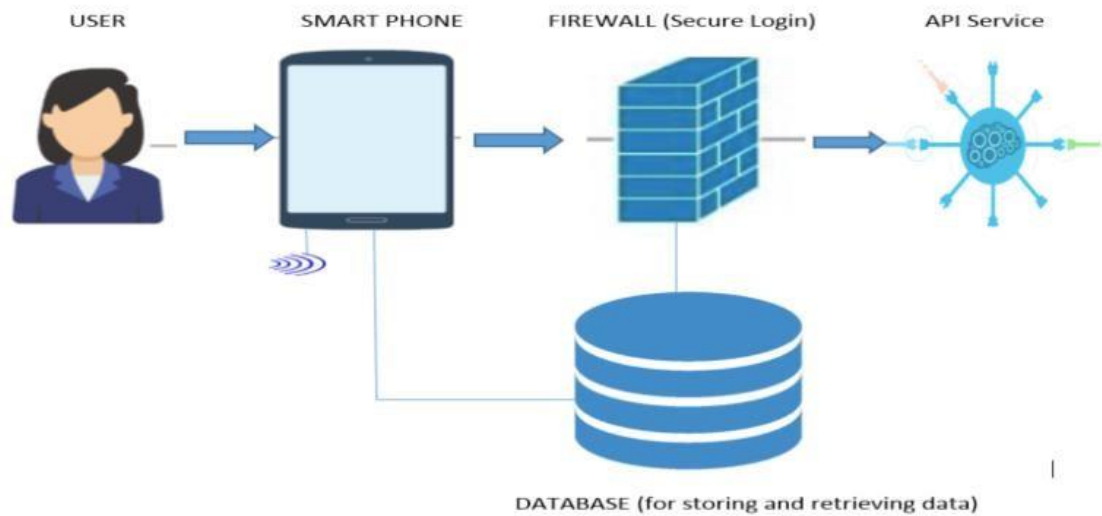


### Architecture:

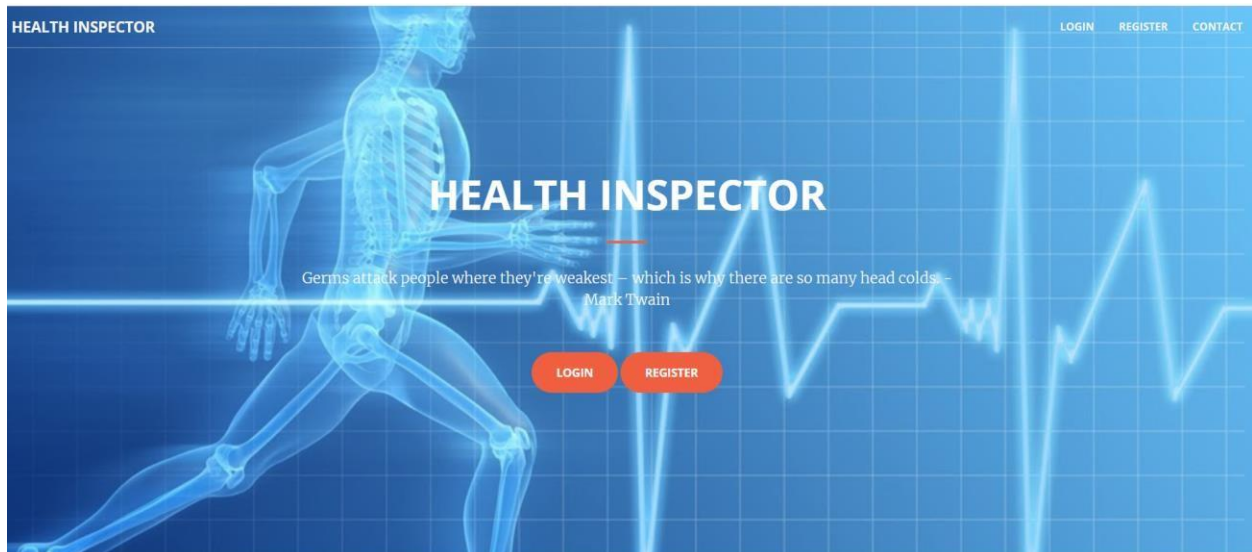
# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

### Architecture Diagram



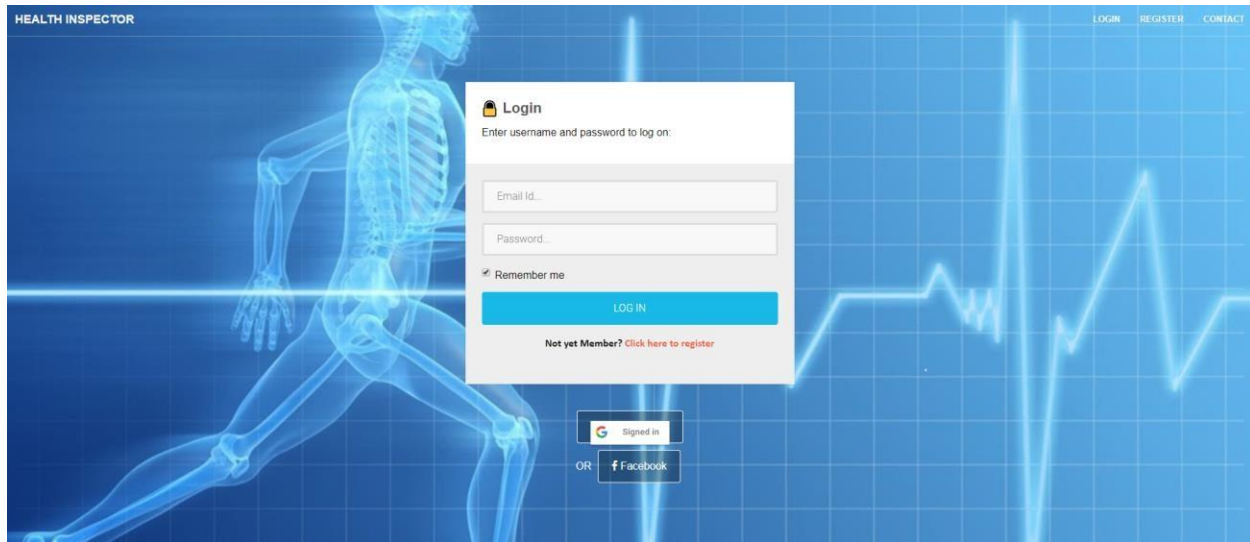
### Implementation:



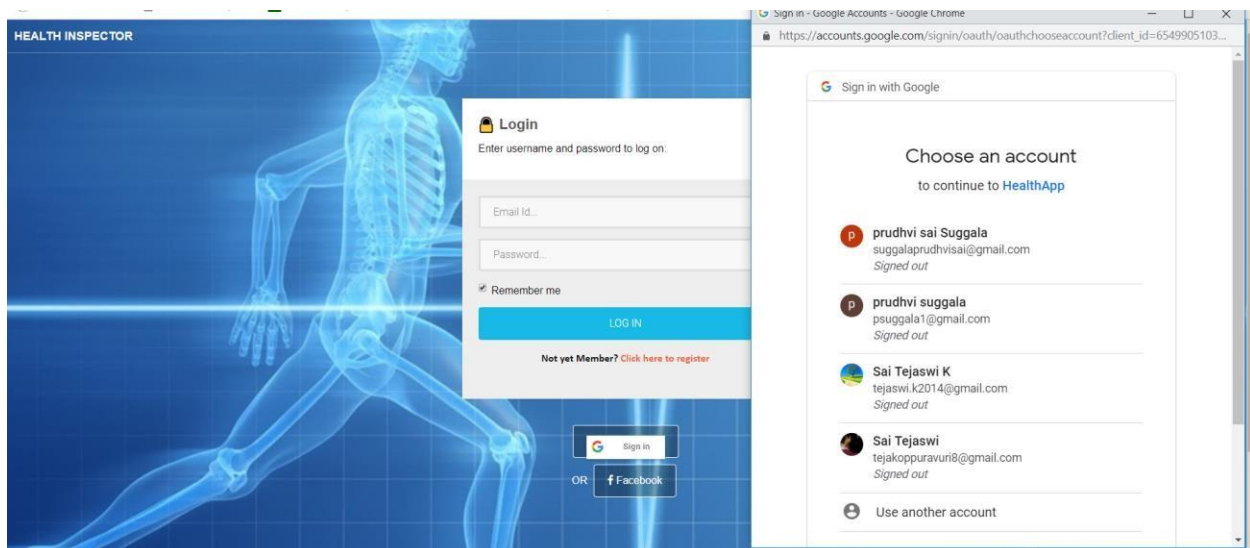
Login page

# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR



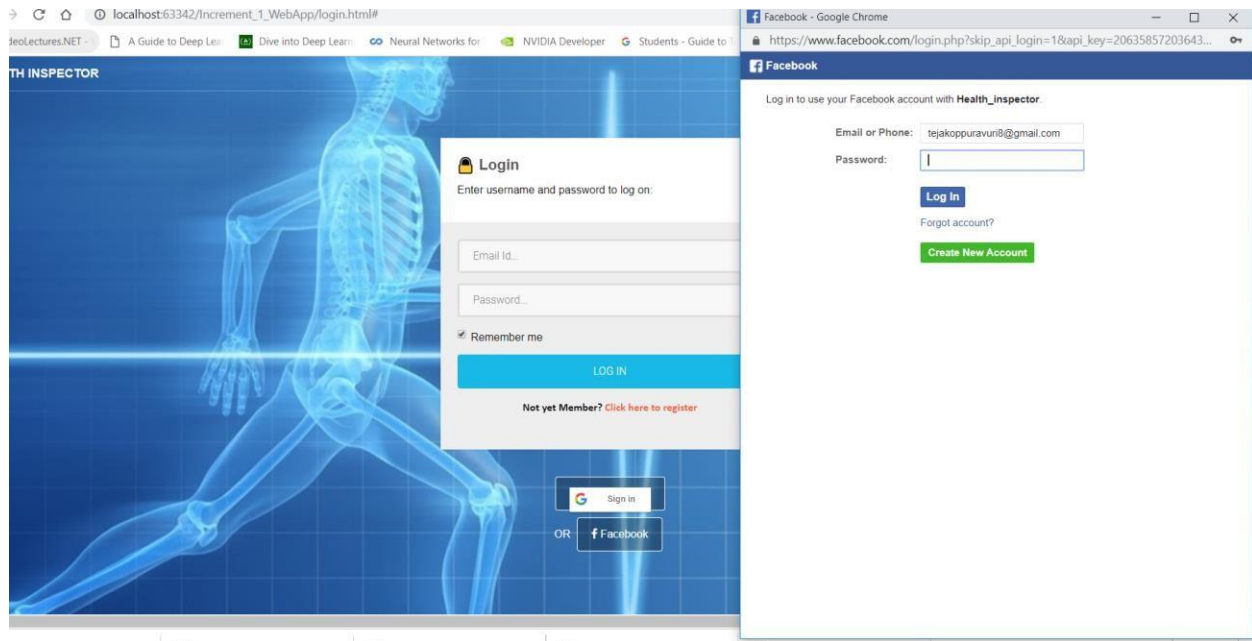
### Oauth Login



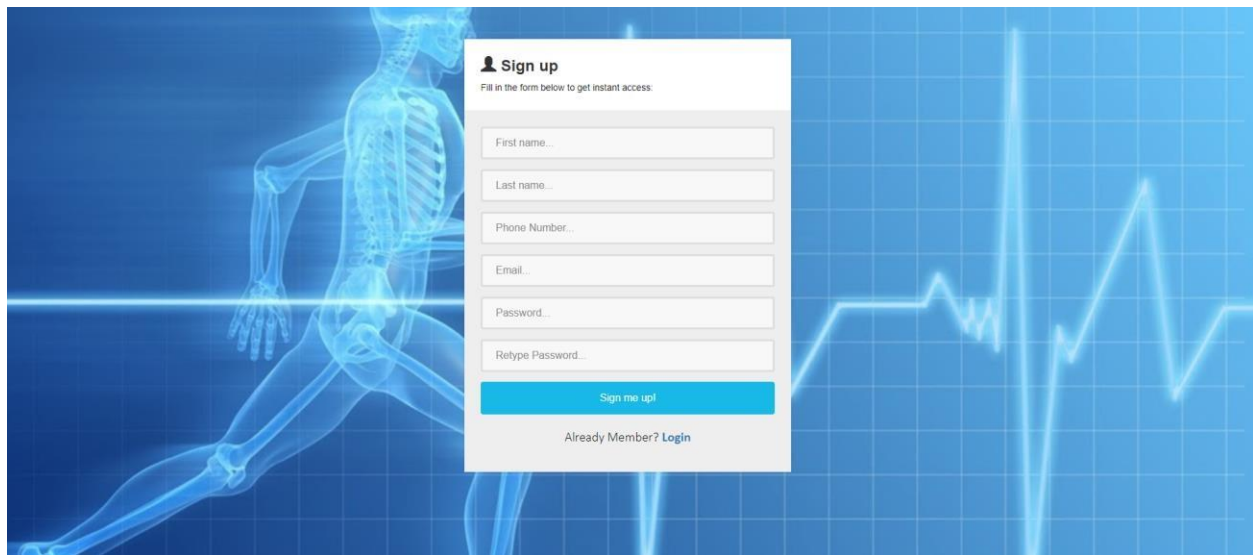
### Facebook OAuth:

# CS5551 – ADVANVCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR



Signup page:



If the user has been successfully logged into the application, they are redirected to the home page.

Home page:

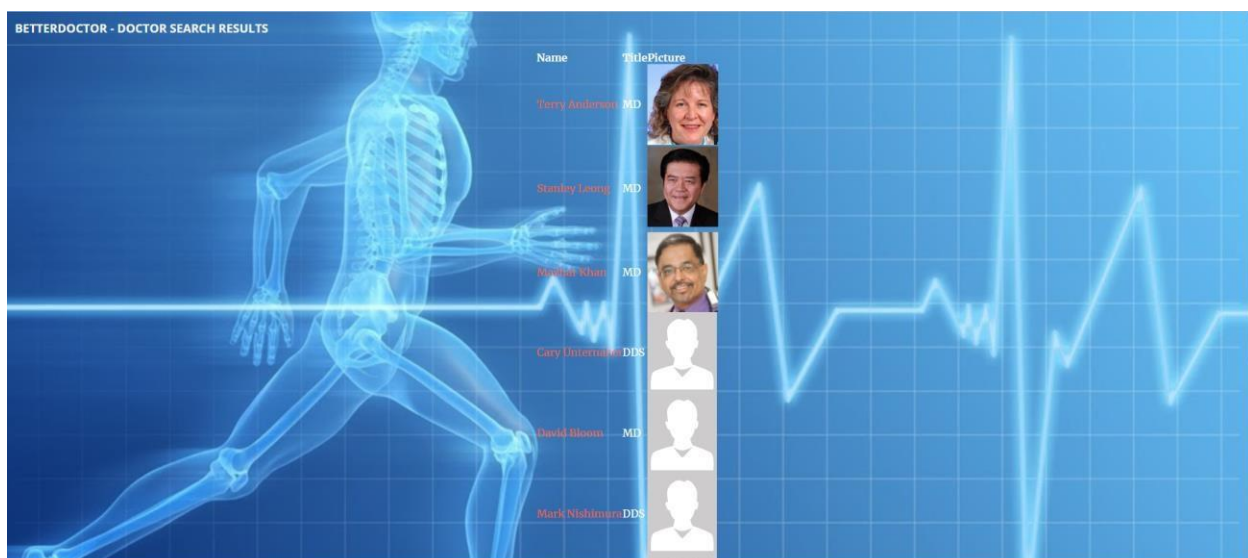
## CS5551 – ADVANCED SOFTWARE ENGINEERING

### HEALTH INSPECTOR



For the phase 1 we have used a *Better Doctor API* in order to retrieve the list of doctors available. So in order to show the doctors available user has to click on the Get Doctor button which will retrieve the doctors list.

The result is as shown:





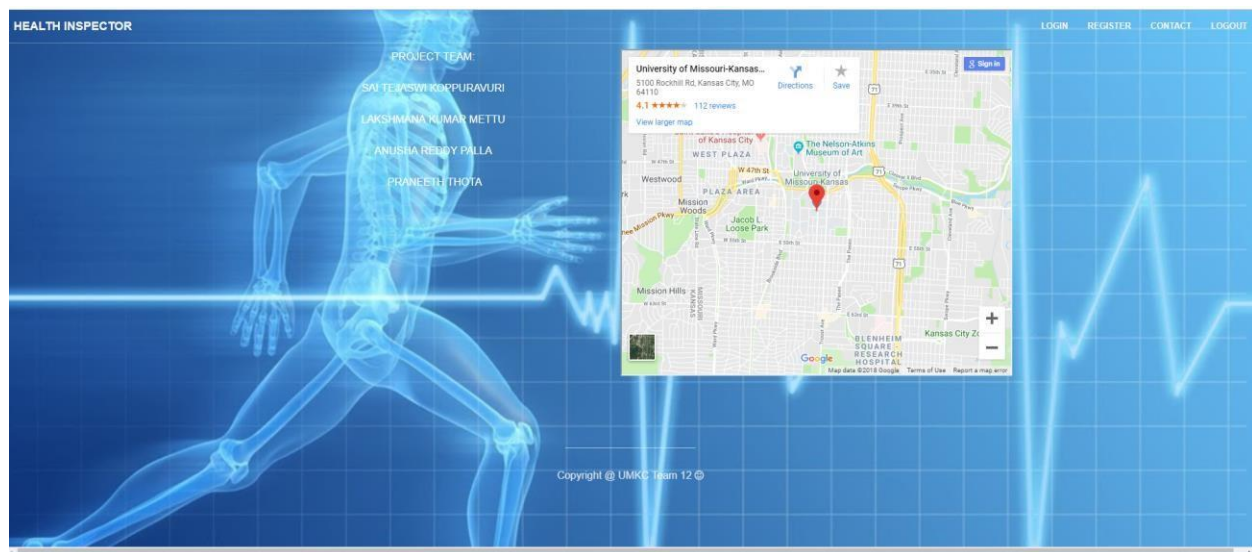
# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

About page displays the glimpse of the project proposal.



Contact Page displays the location and also the details of the project team.



**Second Increment Report:**

## CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR

In the second increment after the discussion, transformation from web to mobile has been happened. Our team was interested in designing the mobile app in two versions.

1. Using Android
2. Using Ionic.

### **Increment Report for the Android Version:**

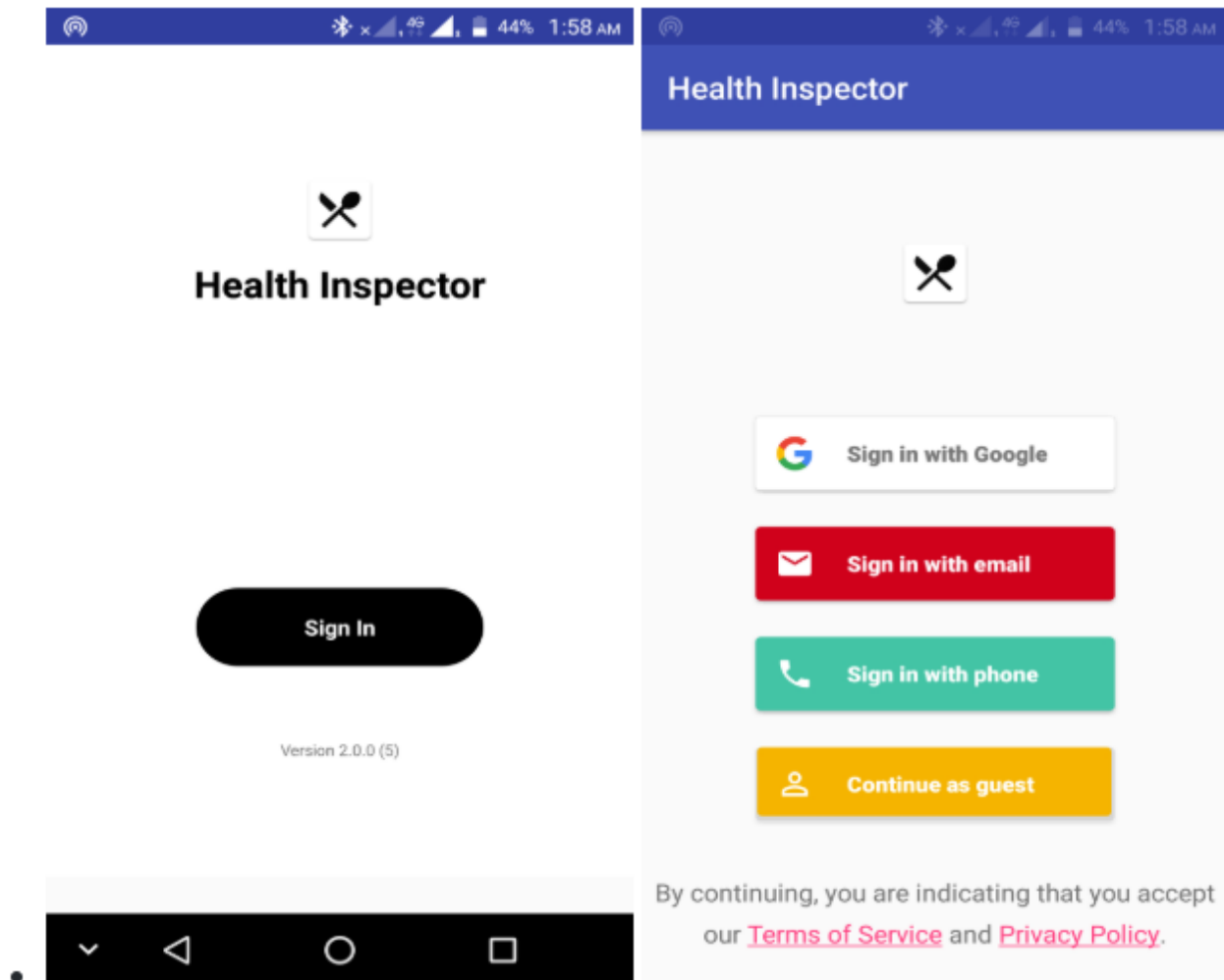
Login credentials for the user have been created.

### **Authentication:**

- Firebase Login UI Auth for social Login (Mobile, Email, Google Login)
- Fetching SHA-1 for release.jks and Substitute that SHA-1 value in firebase console for Authentication
- Firebase SignOut

## CS5551 – ADVANCED SOFTWARE ENGINEERING

### HEALTH INSPECTOR



#### Doctor Search with Better Doctors API:

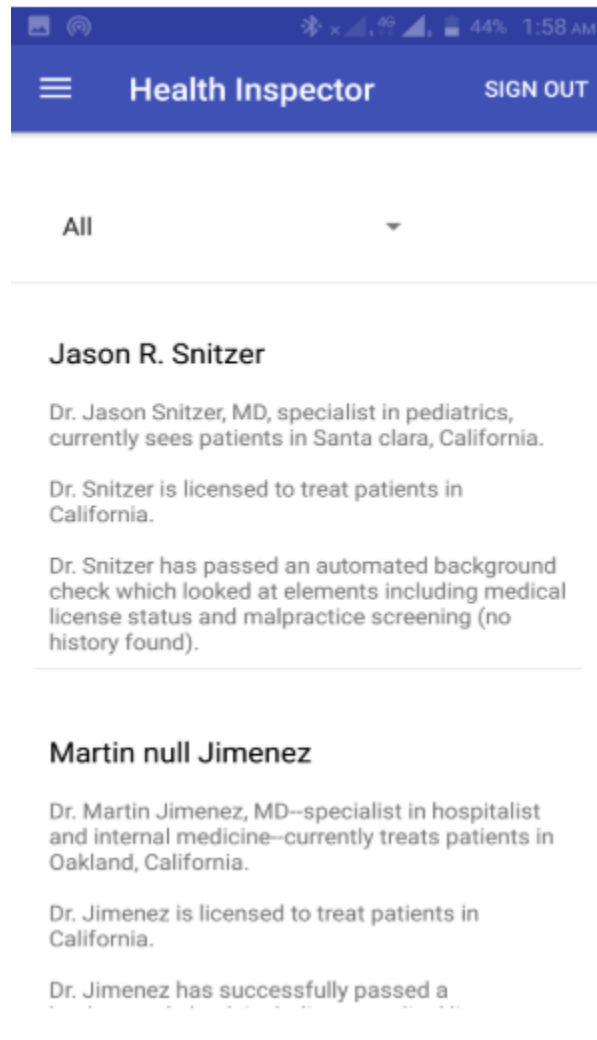
- Drop down (Spinner) to specify specialization in doctor search query
- Making REST Call with lat,lng, limit=10 and specialization

@GET [https://api.betterdoctor.com/2016-03-01/doctors?location=37.773%2C-122.413%2C100&user\\_location=37.773%2C-122.413&skip=0&limit=10&user\\_key=76a2878a9e8d28dcd556ba0c53461174&specialty\\_uid=pediatrician](https://api.betterdoctor.com/2016-03-01/doctors?location=37.773%2C-122.413%2C100&user_location=37.773%2C-122.413&skip=0&limit=10&user_key=76a2878a9e8d28dcd556ba0c53461174&specialty_uid=pediatrician)

And parsing it in Home Activity with RecyclerView



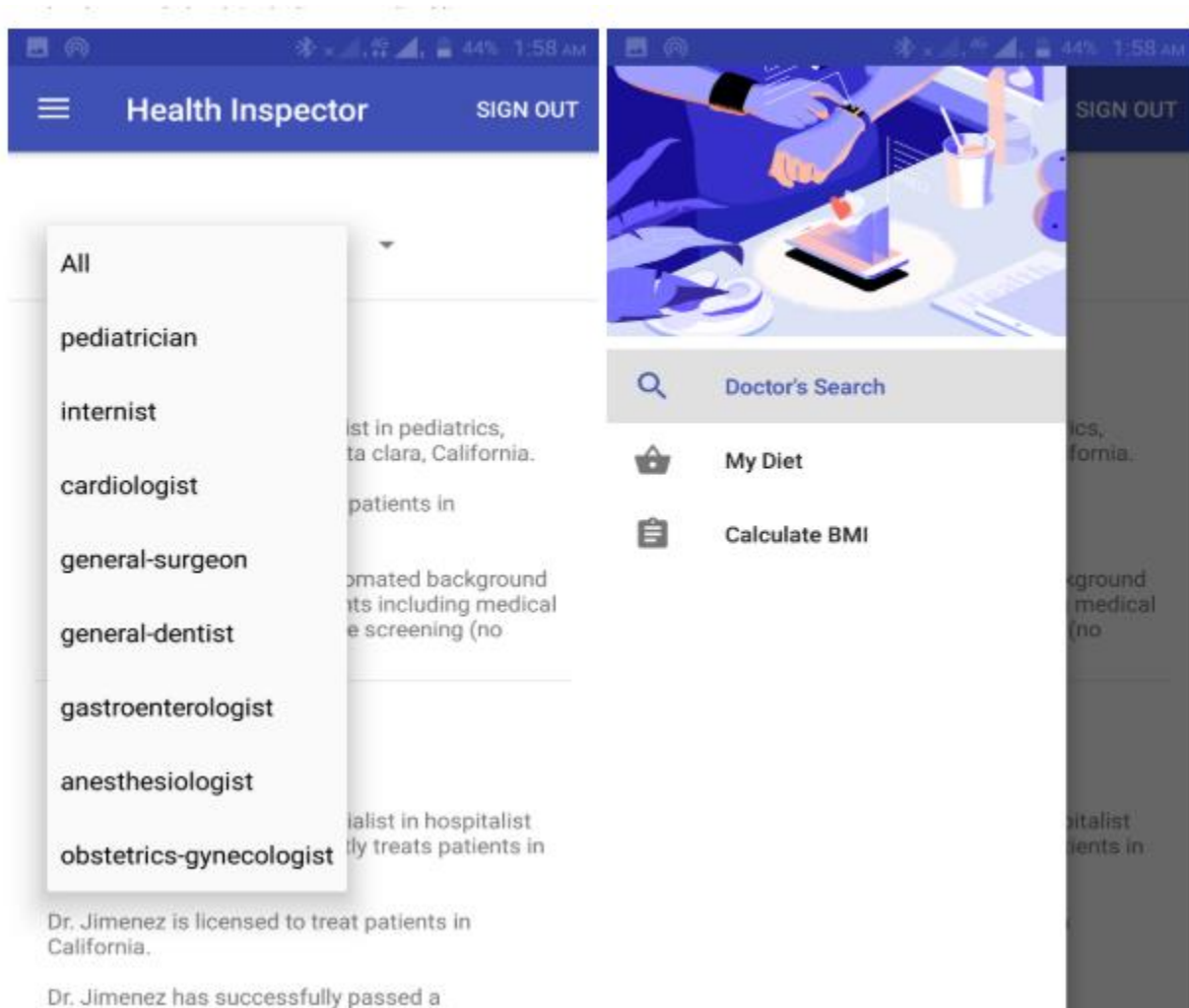
## CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR



- The implementation based on the doctors specialization has been developed.

## CS5551 – ADVANCED SOFTWARE ENGINEERING

### HEALTH INSPECTOR



#### Calculating Meals for given target calories using Spoonacular API:

- Taking Calories per day input through EditText
- Making REST Call with target calories per day

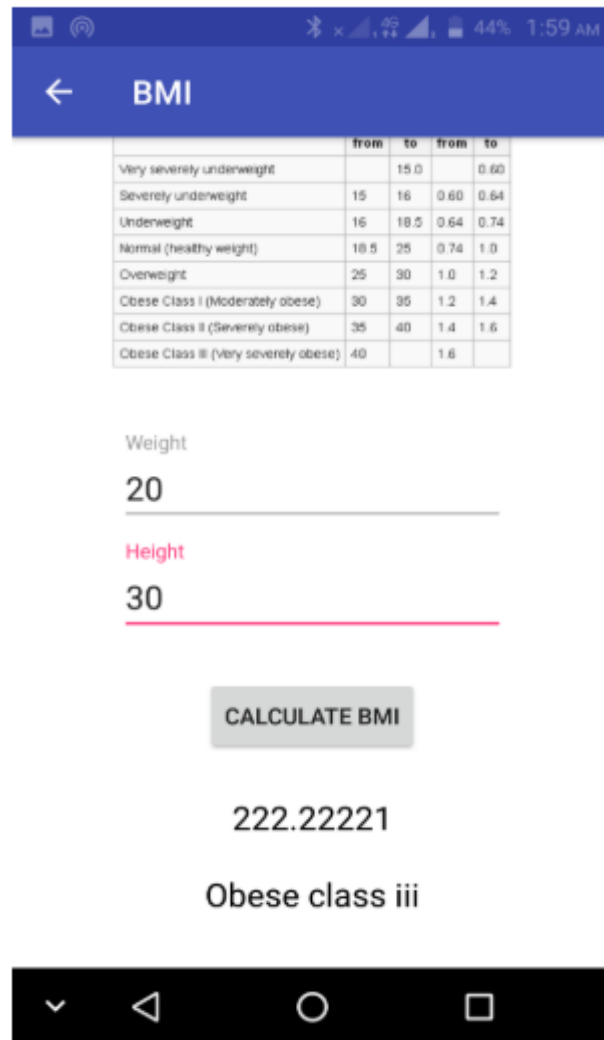
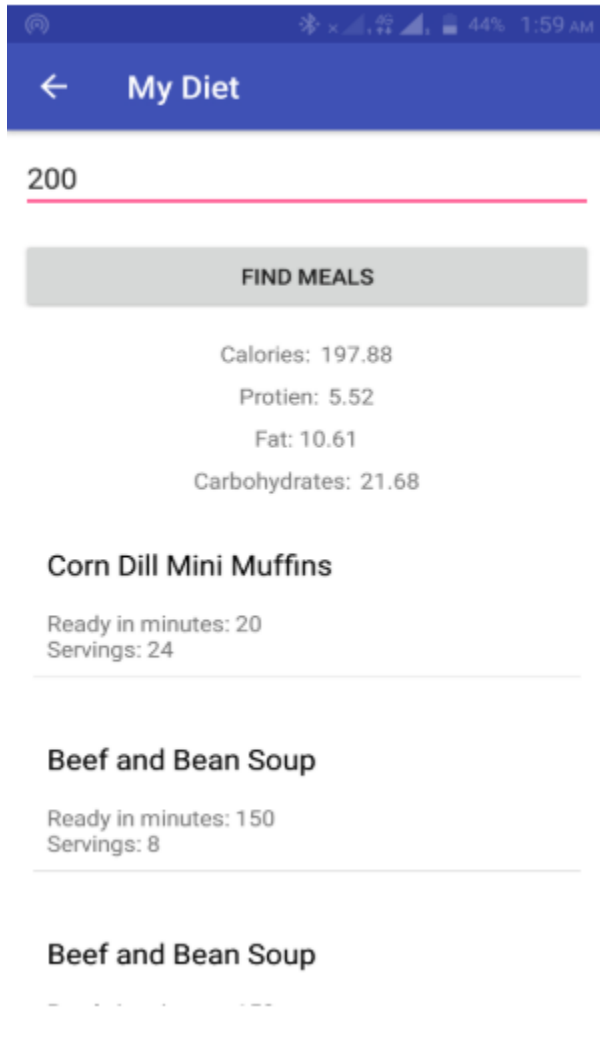
@GET <https://spoonacular-recipe-food-nutrition-v1.p.mashape.com/recipes/mealplans/generate?timeFrame=day&targetCalories=2000> +  
Pass Keys in header

# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

X-Mashape-Key: 1Dnz7LuzBVmshia88a9IKqmf7n82p1v8KSGjsnP7R2gBashGJA (key)  
 X-Mashape-Host: spoonacular-recipe-food-nutrition-v1.p.mashape.com (key)

And parsing it in MyDiet Activity with Recycler View and in Nutrients View



### Libraries Used / Dependencies:

1. Firebase Auth UI for social login.
2. Retrofit, OkHTTP for making network calls
3. GSON to parse JSON response to java object
4. Google Maps API for location

# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

### Tasks remaining:

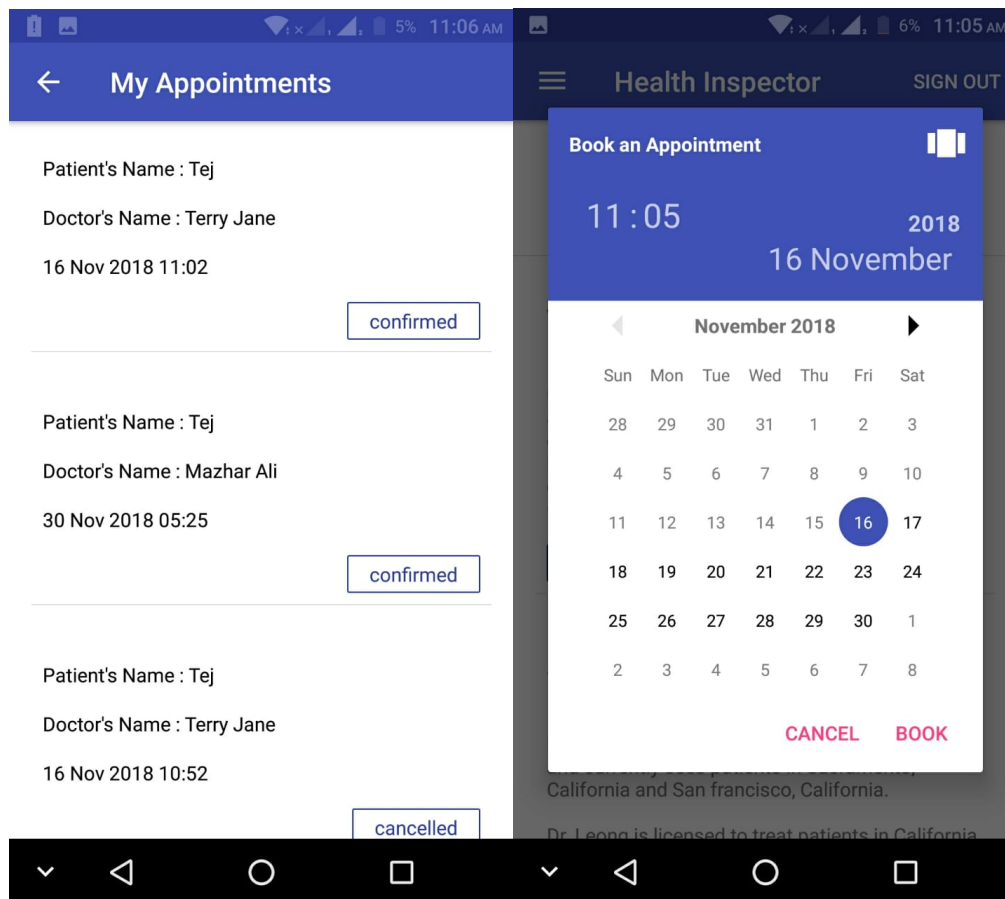
1. Writing test cases
2. Using geolocation for displaying the doctors nearby

### Third Increment Report:

- In the third increment we have implemented displaying the nearby doctors.
- A feature of sending notification has been added as a key feature.
- A user can be able to book an appointment with the doctor and a particular appointment details can be shown in the “My Appointments” tab.
- The user gets notified 15 min prior to his/her appointment as a remainder.
- In case of timings mismatch, the user can also cancel the booked appointment.
- Notifications are sent using Google Calendar and using AWS server.

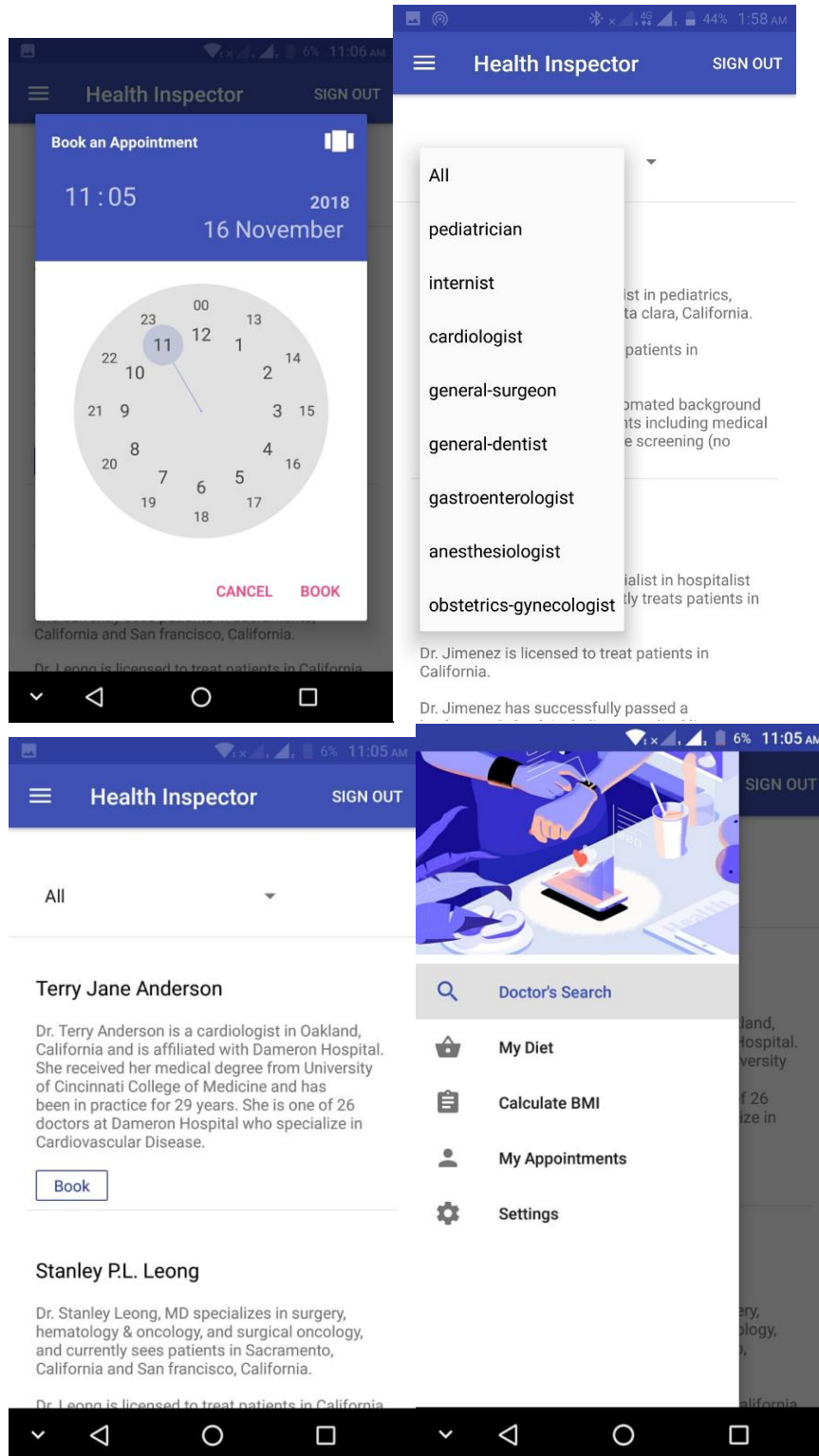
### Changes in the Diet plan:

- Instead of showing the user a single diet plan multiple diet plans have been shown, which is similar to a week's plan.



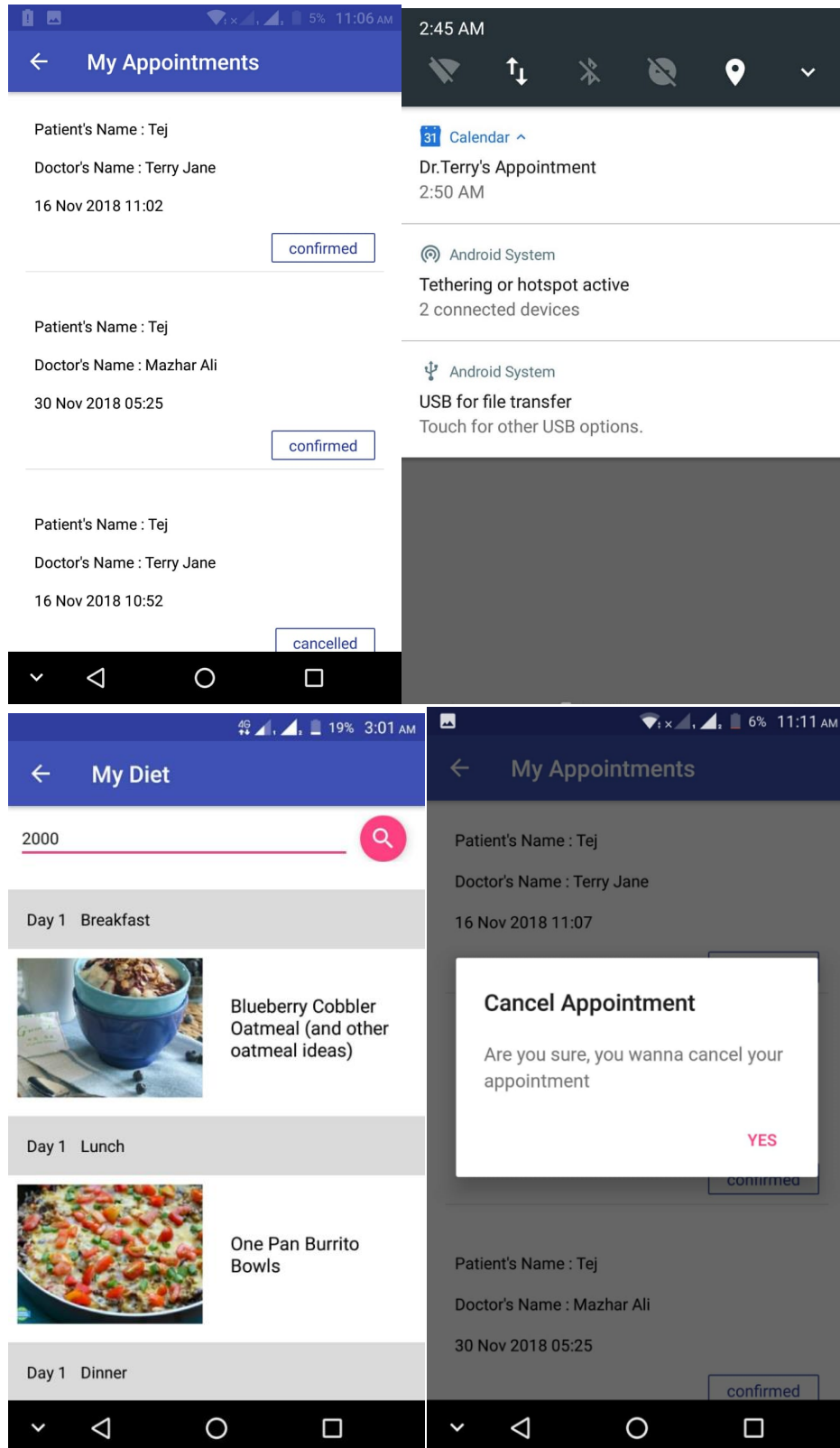
# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR



# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR



## CS5551 – ADVANCED SOFTWARE ENGINEERING HEALTH INSPECTOR

### Setup:

#### Steps to follow for the server installation:

Server Setup (Optional & As server is hosted in cloud) cd server

- npm install
- node server.js
- Mongo DB used
- Hosted in AWS

Server has three api calls

#### **bookappointment**

Creates an appointment to user

#### **getappointments**

Returns all the appointments made by user, given user id as parameter

#### **cancelappointment**

Cancel's the appointment made by user

### Conclusion:

Health inspector is a personal health care companion which is used to guide you in various aspects of your health which includes the BMI calculation, getting the doctors in emergency, booking an appointment for the respective doctor, cancellation of the particular appointment, giving the user the diet plan for the user based on the particular number of calories.

### Future work:

Further developments can be made to improvise the features

1. providing the nearby pharmaceuticals
2. integrating the BMI and diet plan together so that instead of the user giving particular number of calories, after calculating the BMI getting the plan based on BMI.

# CS5551 – ADVANCED SOFTWARE ENGINEERING

## HEALTH INSPECTOR

### **Related information:**

Project Demo: <https://www.youtube.com/watch?v=zxz3Ldange8&t=5s>

Project increment-1 report:

[https://github.com/SaitejaswiK/CS5551\\_team12\\_project/blob/master/Increment%201/Documentation/ASE\\_phase1.pdf](https://github.com/SaitejaswiK/CS5551_team12_project/blob/master/Increment%201/Documentation/ASE_phase1.pdf)

Project increment-2 report:

[https://github.com/SaitejaswiK/CS5551\\_team12\\_project/blob/master/Android\\_increment%202/Documentation/ASE\\_project\\_inc\\_2%20edited.pdf](https://github.com/SaitejaswiK/CS5551_team12_project/blob/master/Android_increment%202/Documentation/ASE_project_inc_2%20edited.pdf)

Project increment-3 report:

[https://github.com/SaitejaswiK/CS5551\\_team12\\_project/blob/master/Increment-3/Documentation/ASE\\_project\\_inc\\_3-converted.pdf](https://github.com/SaitejaswiK/CS5551_team12_project/blob/master/Increment-3/Documentation/ASE_project_inc_3-converted.pdf)

### **References:**

<https://developer.android.com/docs/>

<https://developer.android.com/guide/>

[https://www.tutorialspoint.com/android/android\\_studio.htm](https://www.tutorialspoint.com/android/android_studio.htm)

<https://stackoverflow.com/questions/tagged/android-studio>

<https://developer.betterdoctor.com/>

<https://developer.betterdoctor.com/documentation15>

<https://developer.betterdoctor.com/code-samples>

<https://market.mashape.com/spoonacular/recipe-food-nutrition>

<https://spoonacular.com/food-api>

[https://www.google.com/search?q=BMI+table+universal&rlz=1C1CHBF\\_enUS771US771&source=lnms&tbn=isch&sa=X&ved=0ahUKEwj8NvgYzVfAhVF6YMKHb\\_DCp0Q\\_AUIDigB&biw=1280&bih=530#imgsrc=5cOVqm5\\_84bskM:](https://www.google.com/search?q=BMI+table+universal&rlz=1C1CHBF_enUS771US771&source=lnms&tbn=isch&sa=X&ved=0ahUKEwj8NvgYzVfAhVF6YMKHb_DCp0Q_AUIDigB&biw=1280&bih=530#imgsrc=5cOVqm5_84bskM:)

<https://www.diabetes.ca/diabetes-and-you/healthy-living-resources/weight-management/body-mass-index-bmi-calculator>

<https://aws.amazon.com/what-is-aws/>