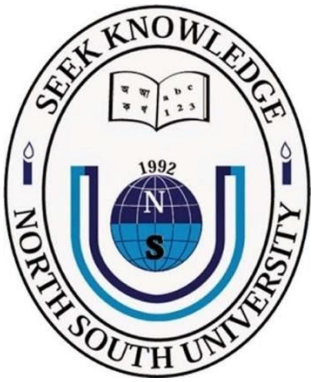

North South University

Department of Electrical and Computer Engineering (ECE)

CSE 482 Project Report

Semester: Fall 2019

Course: CSE 482- Internet and Web Technology

Faculty Initial: RAH1

Section: 5

Group: 12

GitHub Repository Link: https://github.com/Arshi-28/Mediment

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Abstract:

Medico is a web application which allows you to find a doctor suitable for the user condition. At present, there is a gaping hole in the market, where the users have a hard time in trying to find the correct doctor and setting appointments. Medico aims to fix the problem of users having to waste time in setting appointments, and also brings forward the information of doctors required for users to choose an appropriate doctor. This helps in allowing users to gain access to all the information required for choosing a doctor, and also allowing to set appointments with the doctor of their choice. Future scope of the work includes the implementation of machine learning in order to predict the diseases of the symptoms experiences by the user, along with additional developments of the web application itself.

Introduction

People are not always aware of the different doctors available throughout the country, who are specialized for treating a medical condition. Often times, we end up going to the same doctor over and over again, without getting any fruitful treatment, and many people do not want to face the burden of physically going to hospitals to check their available doctor's list. The primary aim of this website is to help a patient or user find a doctor specific to the condition and set up an appointment from home, online. Most of the cases, doctor lists are available for particular hospitals, but not all doctors across all hospitals. This website aims to have all the list of doctors from all hospitals, and also provide all the necessary details about the doctor, and their locations. The patient can login and select a suitable doctor specific to the condition by selecting the doctors specialized to treat the probable disease, from the list of diseases. The patient will be able to set an appointment with any of the doctors in the list of doctors and select a suitable time. The doctor will send a confirmation message to the patient after confirming the appointment, so that there is no clash with prior appointments of the doctor from other sources. Doctors can also register and login and check their list of appointments.

Background and Product Context

At present, the process of finding doctors in Bangladesh is very tedious and not user-friendly. While several hospitals have now treaded towards the technological side, building websites and allowing appointments to be conducted online, they are all separate and there is no one online based application which pertains all the information of all doctors across different hospitals. With the gaping hole in the market, we have decided to implement the web application, Medico. Nowadays, it has become extremely difficult to commute from one place to another due to the rising traffic congestion, and mostly, as people remain busy, they sometimes may not even have the time to call and fix up an appointment with the doctor in hospitals by the traditional way. An online platform is far more suitable in this scenario as it helps cut the middle man, and users can create and book appointments with their doctors at any time they want. Even though the services have been transferred online, most people

have to switch and look back and forth in order to find out the different specialists from the different hospitals.

Medico comprises of solutions to all the aforementioned problems. The website consists of information about doctors from all the hospitals, so users can view doctors by specialization and also see the entire list of doctors available, along with their education details and hospital names, so that they can decide which doctor to pick on their own. Further, the users can set appointments with the doctor they wish to, and hence, can also view their own set of appointment lists. The underlying motivation of the project is to make the entire process of appointment creation with doctors, simpler.

Considering all these, the user can view doctor lists without even registering, as the list of doctors is available for all. The user will register, and the registration will be approved by the admin and once a successful registration is completed, the user can login and can see the list of doctors with all their information; name, education qualification, hospital name, specialization. User can search for doctors, view the doctors based on specialization, and can also create appointments with the doctor they choose.

User Story

Use Case 1:

Mrs. Melissa has a very high fever, and need medical assistance. She can use medico to search for a doctor based on the specialization of doctor required, or she can browse through all the doctors and then chose a doctor to book an appointment.

Use Case 2:

Mrs. Melissa wants to change her doctor and does not know who to visit. She visits Medico and checks the list of doctors available at different hospitals from Medico. She checks the education background and then decides on a doctor for herself.

Use Case 3:

Mr. Zia could not remember to call and set up appointment with the doctor of the hospital due to his busy schedule. Mr. Zia comes back home at night and creates an appointment with his doctor using Medico. Mr. Zia can now get appointments with his doctor even after coming home from work late.

Limitation:

We have faced several challenges throughout the making of this project. First, we wanted use a template for our front end. We downloaded a template and started working on it but after some time we realized, editing a template is very inconvenient. So, then we decide to try to build the front end from scratch. We followed some tutorials on YouTube and made a simple template that we can use for all of our frontend pages. We used a common navigation bar and footer for all of our pages. For the backend we used my SQL for all the database queries. The problems that we had in the backend were with integrating Facebook login. Facebook was requesting for a developer account, and we had a problem configuring it. We had problems integrating google maps API as well. We later could implement API in our project using maps, and could integrate social media login using Google account to an extent, but not fully. The other limitation would be the inability to integrate the review and rating option.

Project Scope:

This system will provide a very well sorted out environment which abstracts a lot of unnecessary information and helps reduce time, efficiency and discrepancies. Once the people find this application it will help them in various aspects, this platform will help them narrow down their search and find an appropriate doctor for the condition the person is suffering from.

Solution Description

Architecture

The web application fundamentally will follow the Model-View-Controller Architecture, with interaction between the components of the application, and sending and receiving requests from the client side and the server side.

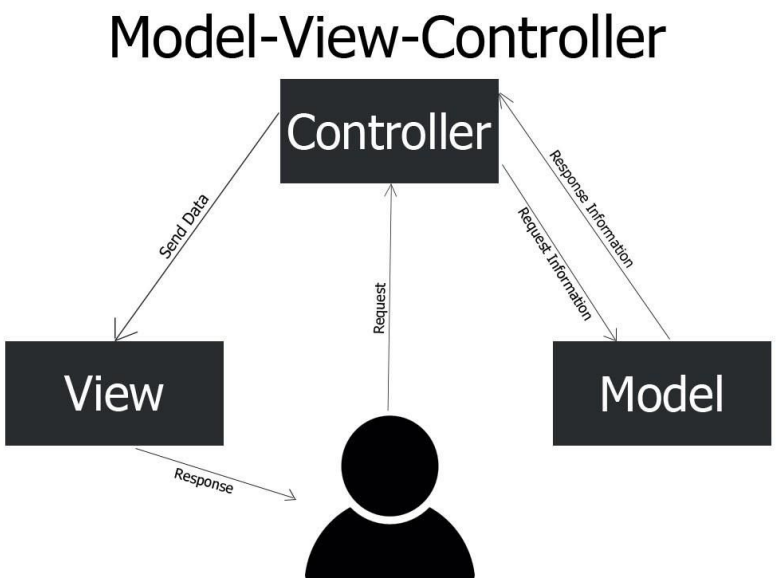

Figure 1: Model-View-Controller Architecture

Currently we are using MySQL Database for the data, comprising of all the information such as doctor details, appointment details and patient details. In future, we plan on expanding the project and using MongoDB. We used PHP for the server side programming, and implemented front end using HTML, CSS, JavaScript. For API integration, we used Google account API, and maps API from here maps.

Front-end plan

1. About/ Home Page
2. Registration Page
3. Login Page
4. Doctor List Page

5. List of Appointments Page
6. Specialization List Page
7. Doctor List based on Specialization Page
8. User Profile Page
9. Create Appointment Page
10. Live Search Page
11. Contact Page with Map

Back end development

1. Registration and Account Creation:
    a. Sign up form
    b. Login
    c. Admin approval of User registration
    d. Google account login
    e. MySQL Database
2. Profile Management:
    a. MySQL Database
    b. User Profile
    c. User
3. Searching facility:
    a. List of all doctors
    b. Specialization based
    c. Live search of doctors
4. Admin approval:
    a. Admin approval for appointments
    b. Admin approval for user registration
    c. Addition of data by admin

Development Flow

The development procedure used agile methodology. Agile has been used for the iterative approach, in which Scrum process has been followed. Sprint meetings were conducted and the entire team worked together to solve the problems involved. The project first started off with front end development of the pages, then proceeded to the back end development. Overall, an estimated 6 weeks were required for the completion.

Phase 1

The very first phase consisted of planning the project out, by deciding which approach to take and what functionalities to combine. This comprised of planning and mapping out the structure, ER diagram, use case diagrams.

Deliverables:

A detailed project proposal with a use case diagram, and ER diagram.

Phase 2

Phase 2 comprised of front end development, where the primary focus was to map out the structure, and start by creating the HTML pages with the use of CSS. Client side validation was added when required, and the probable pages were made.

Deliverables:

Front-end pages, which were static, and had no connection to the backend was established.

Phase 3

Phase 3 was more challenging as it involved back-end development, where PHP was used and database connections were established. The database tables were created, and the admin panel work started. Sessions were also implemented, and API integration was a matter of concern, and was being worked upon.

Deliverables:

Backend connections were established, some functionalities were working, and sessions had been implemented.

Phase 4

Phase 4 came as more daunting as the API integration were carried out, along with the connection of the backend to the frontend were established. The queries were run in order to generate dynamic responses, and functional login, registration and features of the website were running. The end of the phase 4 saw the website working in full fledge.

Deliverables:

The working website which can be used to carry out the functionalities of the website Medico. A final report has been prepared as well.

Hardware and Hosting Plan:

Currently, we do not have any plan of implementing cloud services, but we hosted the website already.

Project Schedule:

The project schedule outlining the deliverables are as follows:

		Week					
SL	**Deliverable**	**1**	**2**	**3**	**4**	**5**	**Man-week**
1	Project Proposal	- -	- - -				1
2	Front-end development		- - -				1.5
3	Back-end work, Session			- - -			1.5
4	Final Website			- - - -			2.0
5	Final Report				-	- -	1.0
	Total duration	**1**	**2.5**	**2.5**	**1.5**	**0.5**	**6**

Table 1: Schedule and deliverables

Technology List:

For project management purpose, GitHub repository has been used. For the front end development of the web application, HTML, CSS, Bootstrap and Java script has been used. For the back end development, PHP and MySQL database has been used. So, overall:

- HTML
- CSS
- JavaScript
- Bootstrap
- PHP
- SQL Lite

Conclusion and future scope:

Overall, we embarked on the project with the intention of developing a web application which will aid in solving the problem of setting appointments with the doctors. We have been able to create and host a functional appointment system, facing road blocks along the way particularly with the implementation of APIs. The future scope of the work involves developing the website itself, and integrating machine learning in order to predict diseases for user input symptoms.