



Synopsis
On
“PatDoc – Online Appointment Management System”

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Introduction

Many of the actions we conduct on a daily basis have been streamlined by web applications, making our lifestyle more productive. Most of the web applications are extensively utilized to help us solve difficulties in our enterprises and personal lives including appointment scheduling.

Before Online appointment systems came into existence, the appointment process was done manually with the help of support staffs, and as a result, the manual system faced numerous incidents of patients overfilled booking scenarios and also mistreated for the cancellation of appointments.

The demand for healthcare services is increasing as the population grows, and the number of patients seeking health care at hospitals, medical facilities, holistic groups, and physicians' offices has greatly increased.

To solve these issues, we have developed an web application which makes the process of scheduling appointments uncomplicated, and remove human mistake caused by manually setting appointments.

The developed application also known as "PATDOC", which is an web-based application to make appointments easier and to connect the patients with specialized doctor in less time.

An individual or a patient can schedule an appointment at any time using the online appointment management system. According to records, more than 55 percent of all appointments are booked through online scheduling appointment systems after business hours.

Literature survey

With respect of the existing Appointment Management Systems, there are mostly in two types:

- Manual Appointment Management Systems, that makes doctors and patients to face many problems and errors during booking appointments and managing appointments.
- Online Appointment Management Systems, that are specified to a specific hospital and patients are not allowed to book an appointment to a doctor out range of that hospital.

In most countries, there is a huge trend of private medical clinics and hospitals. Doctors run their own private clinics and consult patients during the evening or any time of the day depending on their availability. Some are popular and known to all while some are known by few people.

This situation proves to be a challenge for new practitioners as they are known to very few people even if they have a good academic background. On the other side, patients also face difficulty in finding and choosing a nearby doctor, unscheduled appointments, long waiting lines and keeping medical files in physical form are also the common problems faced by the people/ patients.

Other Problems in Existing Systems: Managing paper-based medical files, High level of stress on support staff, Error prone, Hospital dependency.

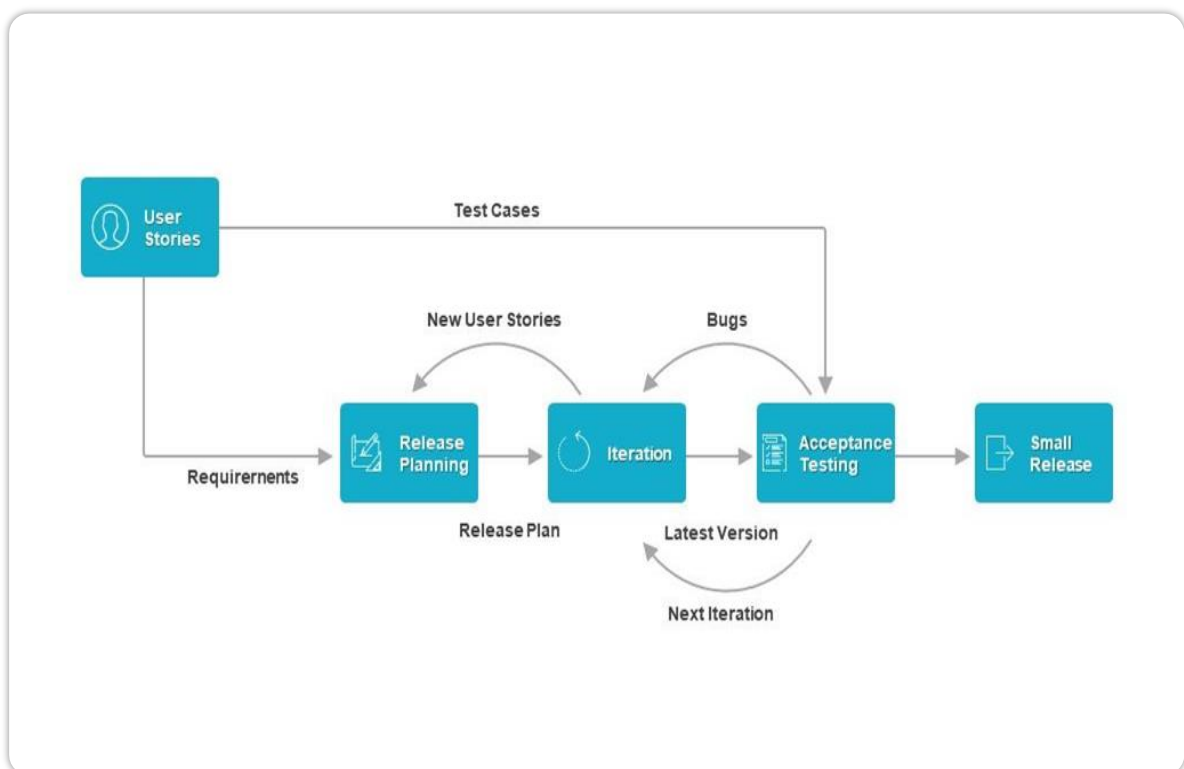
Proposed methodology

This project primarily demands Incremental development and proper Testing. This project also requires better communication between team members, to understand the requirements properly for implementing it.

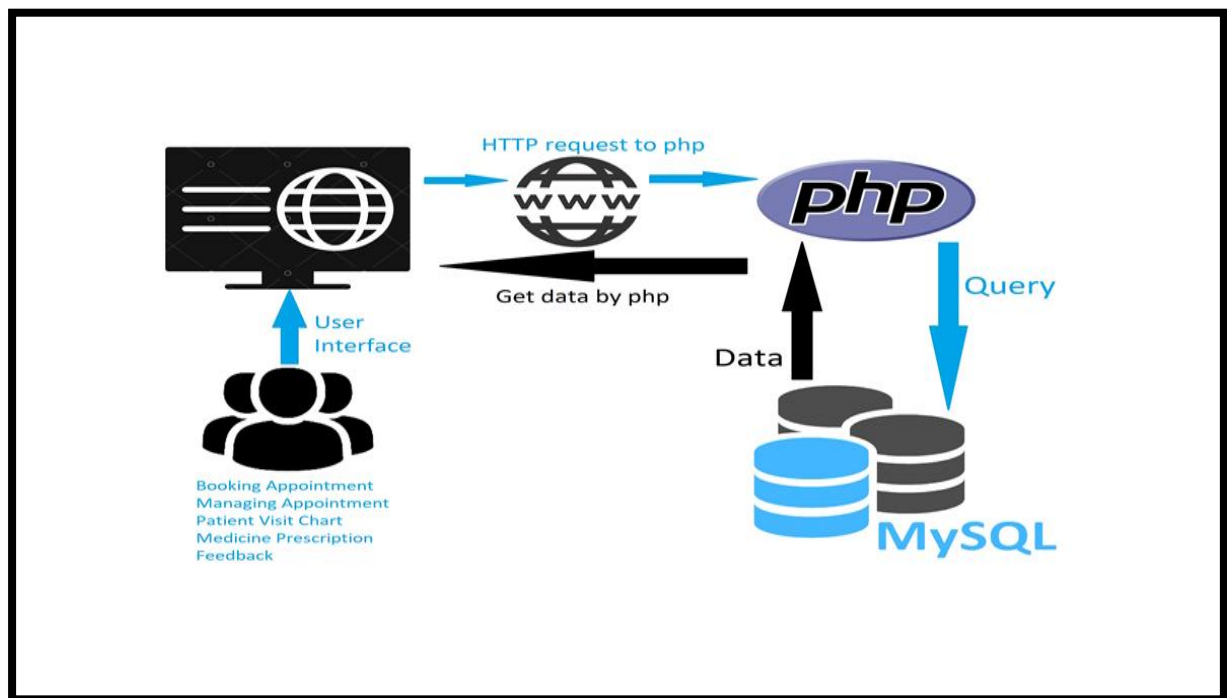
Hence, we are using Extreme Programming methodology (XP) for our project development. Through this model, our software project gets improved in five essential ways; communication, simplicity, feedback, respect, and courage.

Application Technologies:

- HTML, CSS, JavaScript, Bootstrap - (Front end)
- PHP, MySQL - (Back end)



Implementation Technique:



Here The Web application is implemented considering the two aspects of the project, which is Front end and the back end. At front end, User will have the static view of the web application, which contains certain pages which are linked to each other.

When it comes to back end, all the users' data are stored in the MySQL database, which includes both the patients and doctor's information. PHP is used to perform the client-side validations and handle requests and also used to fetch data from the Database.

The application workflow is as follows, first from the front-end side user requests for a webpage, the webpage is fetched and at the same time a HTTP request to PHP is sent, by which the data from the database is retrieved and it is displayed at the front end as formatted by the stylesheets.

Fetch () Method:

For getting few API responses, one of the methods from JavaScript is used, which works Asynchronously. The Fetch API allows you to asynchronously request for a resource. `fetch ()` method returns a promise that resolves into a Response object.

To get the actual data, we need to call one of the methods of the Response object e.g., `text ()` or `json ()`, which will give us the response data in JSON Format, which is a lightweight format for storing and transporting data.

Hardware Requirements:

This system doesn't require any hardware interface but the system should have these hardware requirements:

Memory: 4GB or above (RAM)

Storage: 50 GB (Minimum)

Browser: Chrome/Edge/Firefox/Brave (Etc.)

Stable internet connection required: Yes

Software requirements:

Users are free to use any Operating System which they are comfortable with. For front-end we have used PHP (hypertext pre-processor) which is a scripting language mainly suited for web development.

For back-end we have used MySQL which is a fully managed database service to deploy application. it will store all database of patients, doctors and admin also. User can update their profiles and that will also be stored.

There are many reasons to go with PHP when it comes to developing web applications, and the motive of choosing PHP for this project is because it works with MySQL, which is the database we've chosen. We can securely store many types of user data in the database, as well as conveniently perform CRUD operations, with the help of PHP and MySQL integrated together.

The technology stack used in this application:

HTML	CSS	Open FDA API
Bootstrap	DOM	Chart.JS
JavaScript	MySQL Database	Node.JS

Tools Description:

We used **Visual Studio Code** as Code Editor, which is a user-friendly editor that works on any OS platform. It gives only the tools a developer requires for a short code-build-debug cycle, leaving more sophisticated processes to IDEs with more features, such as Visual Studio IDE.

XAMPP Server:

It is an open-source package of web solutions that includes Apache distribution for many servers and command-line executables along with modules such as Apache server, MariaDB, PHP, and Perl.

Future scopes

In general, the system's future scope will be expanded to include pharmacies and laboratories. Any form of pharmacy or laboratory, for example, can be enlisted with the framework. At the point when a specialist recommends medication or orders testing for a patient, the patient must travel to a licensed pharmacy and provide identification to obtain the medication. Only registered users of pharmacies and laboratories will have access to some restricted areas.

They can access patient data such as what the doctor has ordered, and they can only upload the report result to the patient's database so that the doctor can understand it and we also have an idea to include certain features which tells the availability of certain test instruments in the clinic or Hospital, so that patients can be aware of the different medical tests that can be taken

Another function we would like to have in the system at a later time is consulting doctors via video call feature and also to build a mobile application for the same platform with some extended features.

The idea of this feature is because during a pandemic, patients are unable to visit a doctor's clinic, and people from other states are required to come numerous times for simple tests and consultations with doctors.

After the research facility tests, patients simply need to plan an online discussion and have an online talk for a reduced charge. As there is a feedback option in this application as well, the system will be constantly developed with the help of user's feedback.

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