



DAYANANDA SAGAR UNIVERSITY

KUDLU GATE, BANGALORE – 560068

**Bachelor of Technology
in
COMPUTER SCIENCE AND ENGINEERING**

Major Project Phase-II Report

CLINICAL MANAGEMENT FOR AYURVEDA DOCTORS

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(2022-2023)



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CERTIFICATE

This is to certify that the Phase-II project work titled “**CLINICAL MANAGEMENT FOR AYURVEDA DOCTORS**” is carried out by **N S Gagan (ENG19CS0194), Pavan B (ENG19CS0220), Shaswat Sahu (ENG19CS0294), Shishira S (ENG19CS0296)**, bonafide students of Bachelor of Technology in Computer Science and Engineering at the School of Engineering, Dayananda Sagar University, Bangalore in partial fulfillment for the award of degree in Bachelor of Technology in Computer Science and Engineering, during the year **2022-2023**.

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LIST OF ABBREVIATIONS

AWS	Amazon Web Services
MVC	Model View Controller
UI	User Interface
JS	Java Script
JSX	JavaScript XM
HDMS	Hospital Database Management System
MySQL	My Structured Query Language
DOM	Document Object Model
NPX	Node Package Execute
API	Application Programming Interface

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Abstract

The project clinic management is software that will be developed to simplify the communication process between the doctor and the receptionist especially in the field of Ayurveda. The software would be operated by two users, doctor and receptionist. Receptionist would be responsible for assigning token numbers to the patient visiting the clinic and save it along with their details. These token numbers along with respective patient details are sent to the doctor. The doctor can thus view patient details and after checking up the patient, recommends medicines for the particular patient and are fed into the database by the doctor. The medicines are prescribed according to the availability at the pharmacy. Doctors can order lab investigations to be made, which will pop up in lab login against that patient, Lab Technician will take the lab tests and enter the values which the patient gets. The receptionist can then generate bills and feed them into the database. The system also maintains a patient's history so that doctor or receptionist can view them anytime. The system can thus reduce complexity in maintaining patient's records. The project is developed using React.js, Node.js and is supported by a MySQL database to store the details.

CHAPTER 1

INTRODUCTION

Clinic Management System is a system that can help the clinic to manage their daily activity. This system helps reduce the problems that occur when using the manual system. This system enables doctors and clinic assistants to manage patient records, medicine stock, and appointments and produce reports.

1.1 ABOUT THE PROJECT:

Managing a clinic manually brings in a lot of issues like loss of data, duplication of data, modification of data. That data isn't secure either. Communication between different departments like receptionists, doctors and the pharmacy is not seamless. Our goal is to computerize the management by building a web application. Web applications will make it seamless and the management of the clinic will become easy. The clinic management system is very beneficial for a clinic/doctor. It will store a complete patient record. The most important thing is it will make it easier for the retrieval of history information of the patient. In case, if a patient is allergic to certain medicine, the doctor may detect what type of medicine. For security, before the user enters the system, they have to input their username and password before log in to the system. The system has different access for the different users. For the management of the clinic, they may view the daily report of the clinic. This project is tailored for an ayurvedic clinic. The scope for the system will involve staff, doctor, pharmacy and labs of the clinic. The staff will register the patient. The doctor will diagnose the patients and give them medication. Reports are automatically generated. Our project boundaries include token generation, integration of the patients details with the doctor's database, ordering lab tests, ordering medicines according to the availability at the pharmacy, generating automatic patient reports, automatic SMS and mail service for the patients. We would be using opensource resources for this project. AWS would require a financial investment which is kept optional as of now. Our project deliverance would be that this software will be deployed and running by an ayurvedic clinic.

1.2 FEATURES OF THE SYSTEM:

1. *Doctor login*: Doctor has an account in the system from where he checks all patient details.
2. *Receptionist login*: Receptionist is allowed to login and perform token assigning and bill generation.
3. *Token generation*: System automatically generates token number for new arrivals.

4. *Doctor login*: Doctor has an account in the system from where he checks all patient details.
5. *Receptionist login*: Receptionist is allowed to login and perform token assigning and bill generation.
6. *Token generation*: System automatically generates token number for new arrivals.
7. *Patient information*: Patient information is stored in a database along with their prescription.
8. *Bill information*: System generates bill for the patient as requested by the receptionist.
9. *Prescription Sending*: Doctor sends prescription to receptionist from where receptionist may provide those medicines to the patient.
10. *Resources tracking*: Admin can even maintain a track of resources being utilized in the hospitals by the doctors and patients.
11. *Patient bill generation*: The system automatically calculates the patient bill by considering the number of days of stay, and bed and resources charges incurred.

1.3 SCOPE

This project is tailored for an ayurvedic clinic. The scope for the system will involve staff, doctor, pharmacy and labs of the clinic. The staff will register the patient. The doctor will diagnose the patients and give them medication. Reports are automatically generated. The receptionist can then generate bills and feed them into the database. The system also maintains a patient's history so that doctor or receptionist can view them anytime. Our project boundaries include token generation, integration of the patients details with the doctor's database, ordering lab tests, ordering medicines according to the availability at the pharmacy, generating automatic patient reports, automatic SMS and mail service for the patients. We would be using open-source resources for this project. AWS would require a financial investment which is kept optional as of now. Our project deliverance would be that this software will be deployed and running by an ayurvedic clinic. For this project, we would be utilising open-source materials. AWS would need a monetary investment, which is now kept as an option. Our project's deliverable would be that an ayurvedic clinic would use this software and run it.

1.4 SOCIETAL / ENVIRONMENTAL IMPACT / NOVELTY OF IDEA

A clinical management system includes reduced human interaction for paperwork, less paperwork, lower staff headcount for tasks that can be handled simply within the software system, faster operations, lower error rates, and data protection and safety. The user must submit their username and password before logging in to the system for security reasons. Different users can access the system in different ways. The daily report of the clinic may be viewed by the administration of the clinic. An ayurvedic clinic is the ideal audience for this project. The clinic's personnel, doctor, pharmacy, and labs will all be included in the system's scope. The personnel will record the patient. The patient will receive medication after the doctor has made a diagnosis. Reports are created automatically. A clinical management system contains fewer interactions with humans for paperwork, less paperwork, fewer staff members needed for simple software-based tasks, faster operations, lower error rates, and data security.

CHAPTER 2

PROBLEM DEFINITION

A clinic is unquestionably a perfect choice for data management software due to the significant amounts of data, the number of patients, and the numerous activities involved. Clinics cannot hope to operate effectively, deliver top-line care, secure patient and other data confidentiality, and function without a strong clinical management system software. Communication between different departments like receptionists, doctors and the pharmacy is not seamless. Our goal is to computerize the management by building a web application. Some advantages of a clinical management system include reduced human interaction, less paperwork, lower staff headcount for tasks that can be handled simply within the software system, faster operations, lower error rates, and data protection and security.

CHAPTER 3

LITERATURE REVIEW

We referred to multiple IEEE papers related to Hospital management system and the technology associated with which is ReactJs.

From reference [1] we infer that, using a virtual pre-booking and queuing system, Virtual Queue (VQ) enables hospitals and other facilities to manage the number of people within the facility and decrease the number of individuals waiting in line. In order to confirm that the person in the profile and the check-in are the same, the project is developing a Web portal for hospital virtual queuing and face recognition. The Raspberry Pi carries out this by processing and extracting data from the Firebase cloud in order to confirm the patient identification. a pi camera to take a picture of the patient at check-in. React(.JS), which constructs the user interface and creates the on-screen menu, search bars, and buttons in the web portal, is used to design the front end of the web portal. Express and Node.JS are used to develop the backend of the web portal (.JS). Patients use the website to schedule appointments, and their information is stored. With the help of this project, patients will have a better way to make doctor appointment reservations. This reduces crowding and increases social distance. It will be excellent. Solution under epidemic circumstances. With the help of this initiative, patients will have a better platform to easily schedule doctor visits. This reduces crowding and increases social distance.

From reference [2] we infer that, Organizational Structure of a hospital and flow of Access Control. Software is designed to include program modules to handle the medical centre information. Methods of keeping records. Problems and weakness of the current system. This paper aimed at designing and implementing an automated system that will alleviate the problem of handling patients' data in a hospital. The researchers were motivated to embark on this project because of the inherent problems of the manual system of hospitals file management. This manual system has so many problems associated with it such as insecurity of files, poor file retrieval system and inefficient file update system etc. This paper examines an existing information system of a hospital and designs an automated system that can help Medical Doctors and those who handle hospitals' data to perform their work more effectively and efficiently. The System would be developed with Windows, Apache, MySQL and PHP (WAMP) software. The HDBMS would be a web application that runs in a computer network. It would provide easy and fast access to stored data as needed by different users with security against unauthorized access. Any authorized user can add, delete and update data into the database based on their user-assigned-role. It would equally have the facility to give a unique

identity for every person and store the details of every patient and the staff automatically. It includes a search facility to know the current status of each room in the hospital. A user can search availability of doctors and the details of a patient using the system. The interface is very user-friendly.

From reference [3] we infer that, online connectivity is now a must for all the well organized and well managed establishments. One such field is Healthcare where the digitization of information should happen rapidly and efficiently. This paper addresses that particular region and paves a way for the creation of a software that helps to an easy transition from paperwork to e-papers. The paper describes an idea of such a web-based platform that eliminates the need of paper prescriptions in the Hospitals that proposes E- Medical Management which will increase the efficiency of patient management, schedule management of the doctors and give universal access to the patient data anywhere in the hospital. Using digital software transfer of patient data would be seconds compared to the traditional way. Since hospital management system is essential for maintaining patients record, about doctors and management staff's digital way would be sufficient rather than manual work.

From reference [4] we infer that, the proposed technique will be able to assist automated health management based on cloud computing. This technique will enhance the processing of patient files in various health departments for the extraction of accumulated complete health records. It will integrate a centralized repository for securing, archiving, retrieving and managing data remotely. Moreover, our proposed model supports all advanced file formats of attachments, and it is also featured with a competent search engine and retrieval tools that can fetch exact information within a few seconds with document integrity and corporate control. The system also allows communications through multiple channels. The proposed model may be deployed over recent advanced cloud computing technologies where different users will access the health management system remotely.

From reference [5] we infer that, since the Hospital Management System is essential for maintaining detail about the Doctor, Patient, Hospital staff etc. It is understood that on the introduction of the Hospital Management Project into play, the work at the hospitals would be seamless and efficient. Transferring the patient data would take only seconds compared to the traditional way of sending the file manually. Usually boring and mundane accounts work will also be automated and simplified.

From this paper we infer, that how the software system is helpful for the hospitals for maintaining the patient's records compared to the old manual system which is not secured and patients details can be retrieved anytime where all the details are stored in the database for easy access.

From reference [6] we infer that, the developed system and its evaluation so far have been carried out to improve the database system and management. Thus, care was taken to handle the way information about the hospital and patients were treated from the first. provide the necessary information of the hospital and also will be compatible, accurate, flexible, secured and efficient for the desired purpose it is to serve. Inferring from this paper, we can see how the software system helps hospitals maintain patient records in contrast to the outdated manual system, which is not secure and allows for anytime access to patient information because all the information is stored in a database. From this paper we infer that, A hospital management system not only gives the facility the chance to improve patient care, but it also has the potential to boost revenue. The operational control might be greatly enhanced by hospital administrators, which would streamline operations. Since this automates the process of gathering, compiling, and retrieving patient information, it would enhance the response time to demands for medical care.

From reference [7] we infer that, Hospital Management System not only provides an opportunity to the hospital to enhance their patient care, but also can increase the profitability of the organization. Hospital administrators would be able to significantly improve the operational control and thus streamline operations. This would improve the response time to the demands of patient care because it automates the process of collecting, collating and retrieving patient information.

From Reference [8] we infer that, the population in various countries is increasing rapidly every year, and a lot of people have seen the need of health care. Health cares are one of the most essential needs of a man. The hospital is an institution for health care that provides patient treatment by specialized staff and equipment. Hospitals are largely staffed by professional physicians, surgeons, and nurses. It is a place where patients visit for medical check-ups or treatment. Hospital workflows are done within twenty-four hours. Due to this reason, the hospitals need efficient management. According to

Toussaint (2015), hospitals can't improve without better management systems. In Toussaint's perspective, management is a significant part of today's cost and quality crisis in health care. This is the reason why suitable hospital needs and appropriate medical management must be present to deliver applicable healthcare facilities. However, there are still several hospitals in the country that uses paper works in the management. In line with this, the researchers found out that the Malita District Hospital located at National Highway Road, Poblacion, Malita, Davao Occidental is using Microsoft Excel format in most of their computer transactions. Though they have computers on each department, the work process is still laborious and time consuming. The employees still need to check the excel files every time there are inquiries about hospital records without proper system. Five modules were provided that were able to meet the objectives of the study. These modules were able to handle specific functions for the hospital transaction. Thus, there were five system users through administrator, receptionist, head nurse, pharmacist and billing officer A module that administers patient and admission information was provided. The administrator, receptionist, and head nurse can generate patient reports being saved and monitor status A module that manages medicine inventory and handles pharmaceutical orders was provided. The pharmacist can update stock inventory and print pre-ordered list A module that monitors the patient status was provided. The head nurse can update the patient status and release the patient from admission through the head nurse module. A module that manages the billing transaction was provided. The billing officer can check the patient statement of accounts and generate official receipts.

From Reference [11] React is a fantastic framework with a unique method for addressing the performance problems that Web applications frequently encounter. But even without that, the display can still be deteriorated when creating intricate apps that must cope with a lot of data processing. This causes the application to slow and become less responsive. Enterprise Applications frequently experience issues like these. This essay suggests several doable solutions for dealing with these issues in the online application. The solutions discussed seek to reduce the superfluous computations and enhance the application's performance. Regardless of the application's framework, other techniques, such as search engine optimization and multithreading, are related to the performance of the application itself and can be used.

CHAPTER 4

PROJECT DESCRIPTION

Manual clinic management has many drawbacks, including the loss, duplication, and alteration of data. That information is also insecure. There are communication gaps between various departments including the pharmacy, doctors, and receptionists. Our objective is to create a web application that will computerize management. It will be frictionless thanks to web applications, and clinic management will be simple. A clinic or doctor can benefit greatly from the clinic management system. A complete patient record will be kept there. The recovery of the patient medical history will be made simpler, which is the most crucial aspect. Due to the sizeable amounts of data, the quantity of patients, and the multiple activities involved, a clinic is certainly the ideal setting for data management software. Without a reliable clinical management system software, clinics cannot hope to function, provide top-notch care, safeguard patient and other data confidentiality, or run effectively. There are communication gaps between various departments including the pharmacy, doctors, and receptionists. Different users can access the system in different ways. The daily report of the clinic may be viewed by the administration of the clinic. An ayurvedic clinic is the ideal audience for this project. The clinic personnel, doctor, pharmacy, and labs will all be included in the system scope. The personnel will record the patient. The patient will receive medication after the doctor has made a diagnosis. Reports are created automatically. Our project boundaries include creating tokens, integrating patient information with the doctor database, ordering lab tests, ordering medications based on what is in stock at the pharmacy, generating automatic patient reports, and providing patients with automatic SMS and mail services. For this project, we would be utilizing open-source materials. AWS would necessitate an optional financial investment. it is now retained as an option. Our project deliverable would be that an ayurvedic clinic would use this software and run it. A clinical management system includes fewer interactions with humans for paperwork, less paperwork, fewer staff members needed for simple software-based tasks, faster operations, lower error rates, and data security. Less human interaction is required for paperwork, there is less paperwork, fewer staff members are required for straightforward software-based tasks, operations are faster, mistake rates are reduced, and data security are all features of a clinical management system.

4.1 SYSTEM DESIGN

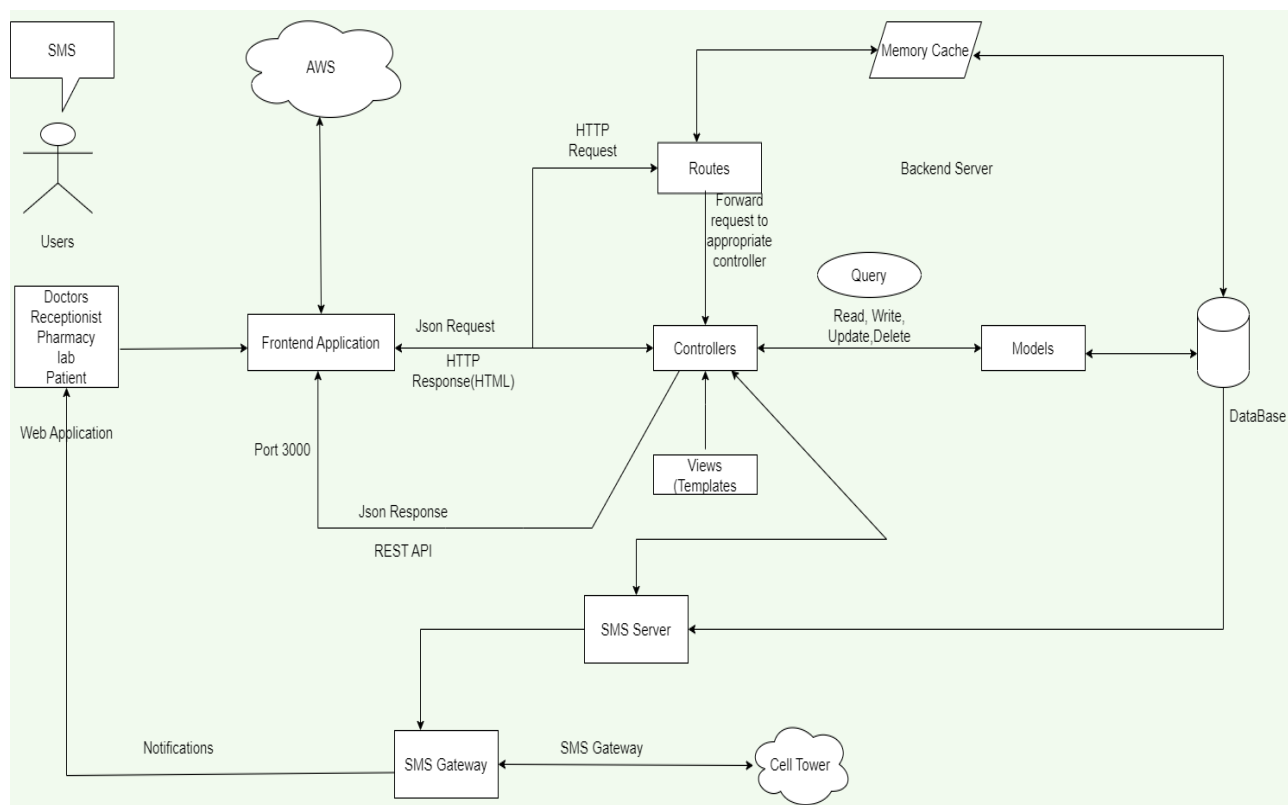


Fig.4.1(a) – High Level Design

Figure 4.1(a) represents the High-Level Design of Clinical Management System which includes the SMS Integration and list of API's Used. The high-level diagram of our web-based software that uses MVC structure where, all of the user's data-related logic is represented by the Model component. This could be any other data related to business logic or the data that is being transferred between the View and Controller components. A Customer object, for instance, can obtain customer information from a database, edit it, and then update the data back into the database or utilize it to render data. The application's entire UI functionality is implemented in the View component. In order to handle the business logic and incoming requests, manipulate data using the Model component, and interact with Views to generate the output, controllers serve as an interface between the Model and View components.

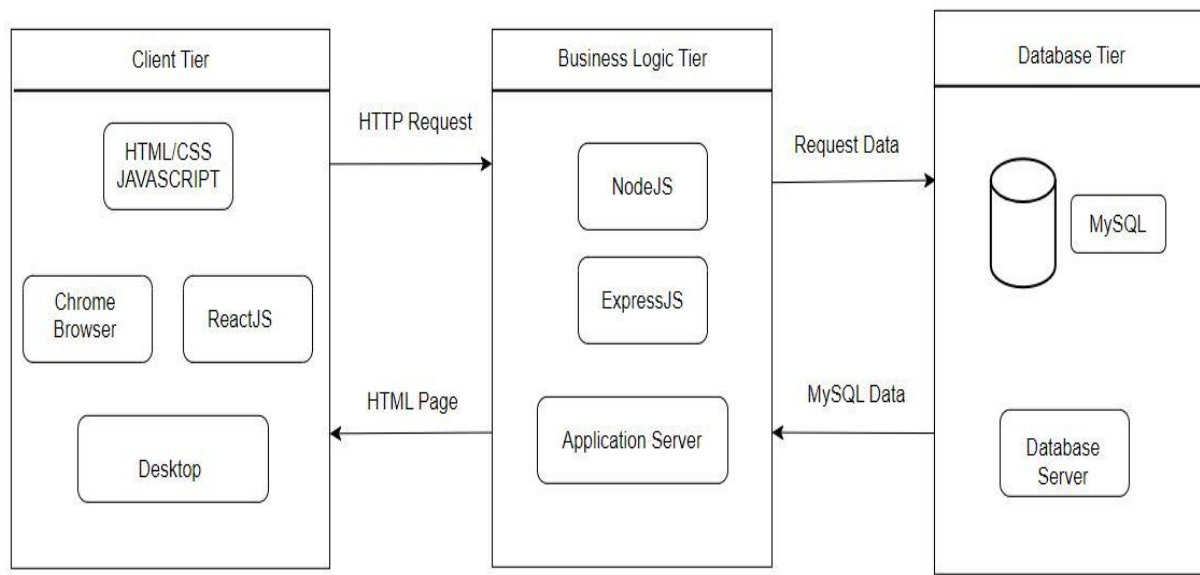


Fig. 4.1(b) – Workflow Design

Figure 4.1(b) represents the workflow of the clinical management system, and how the subsystems interact with each other.

Motion Steps

Step 1: A request is sent by the client browser to the MVC application.

Step 2 Global.ascx accepts this request and, using the Route Table, Route Data, URL Routing Module, and MVC Route Handler objects, performs routing depending on the incoming request's URL.

Step 3: Using the Execute function of the MVC Handler object and the I Controller Factory object, this routing operation summons the relevant controller and runs it.

Step 4: The Controller uses the Model to process the data and the Controller Action Invoker object to call the appropriate method.

Step 5: The View receives the processed Model and renders the finished product.

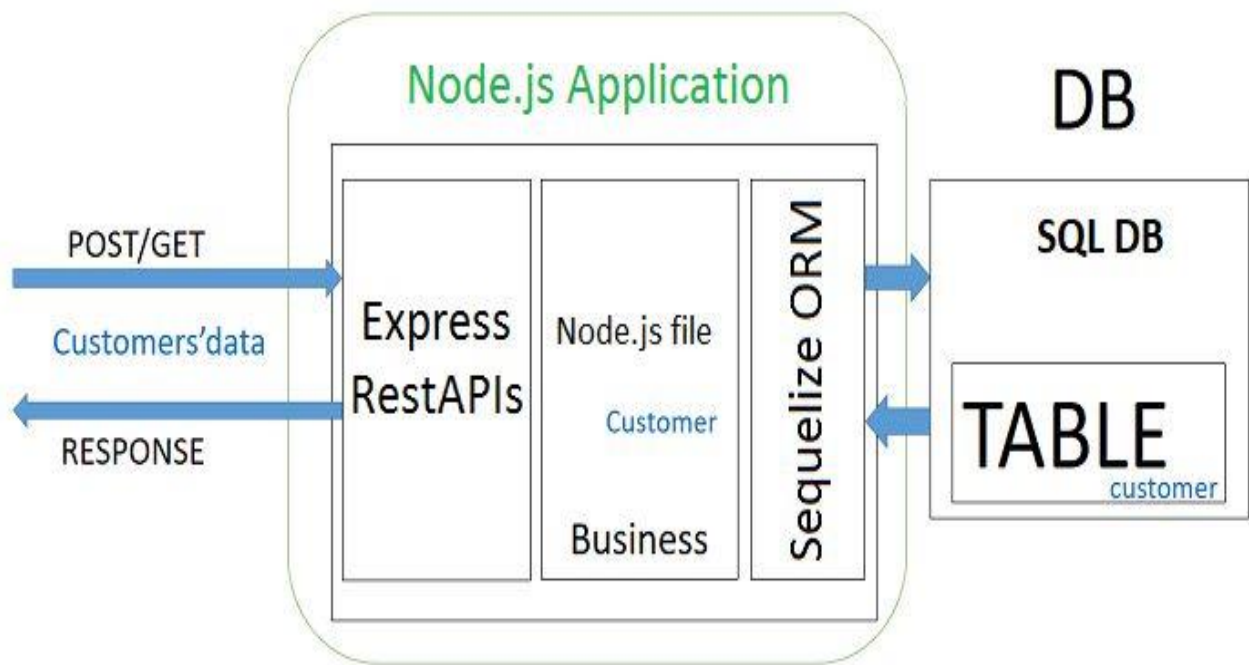


Fig. 4.1(c) – Backend workflow

Figure 4.1(c) shows how the backend works to the customer's request. An open-source backend runtime environment for java-script is node.js. It serves as a backend service for applications that use java-script on the server. Java-script is utilized in this fashion for both the front end and the back end. Node.js is extremely scalable, light, quick, and data-intensive. It uses the Chrome v8 engine, which turns Java-script code into machine code. While processing the request, Node.js accepts requests from clients and sends responses. They are managed by a single thread in node.js. Node.js uses the idea of threads to manage requests or I/O activities. A thread is a set of operations that the server must carry out. In order to deliver the information to numerous clients, it runs concurrently on the server. An event loop single-threaded language is Node.js. Without blocking it for a single request, it may manage several requests in a single thread. Node.js basically works on two concept Asynchronous Non-blocking I/O

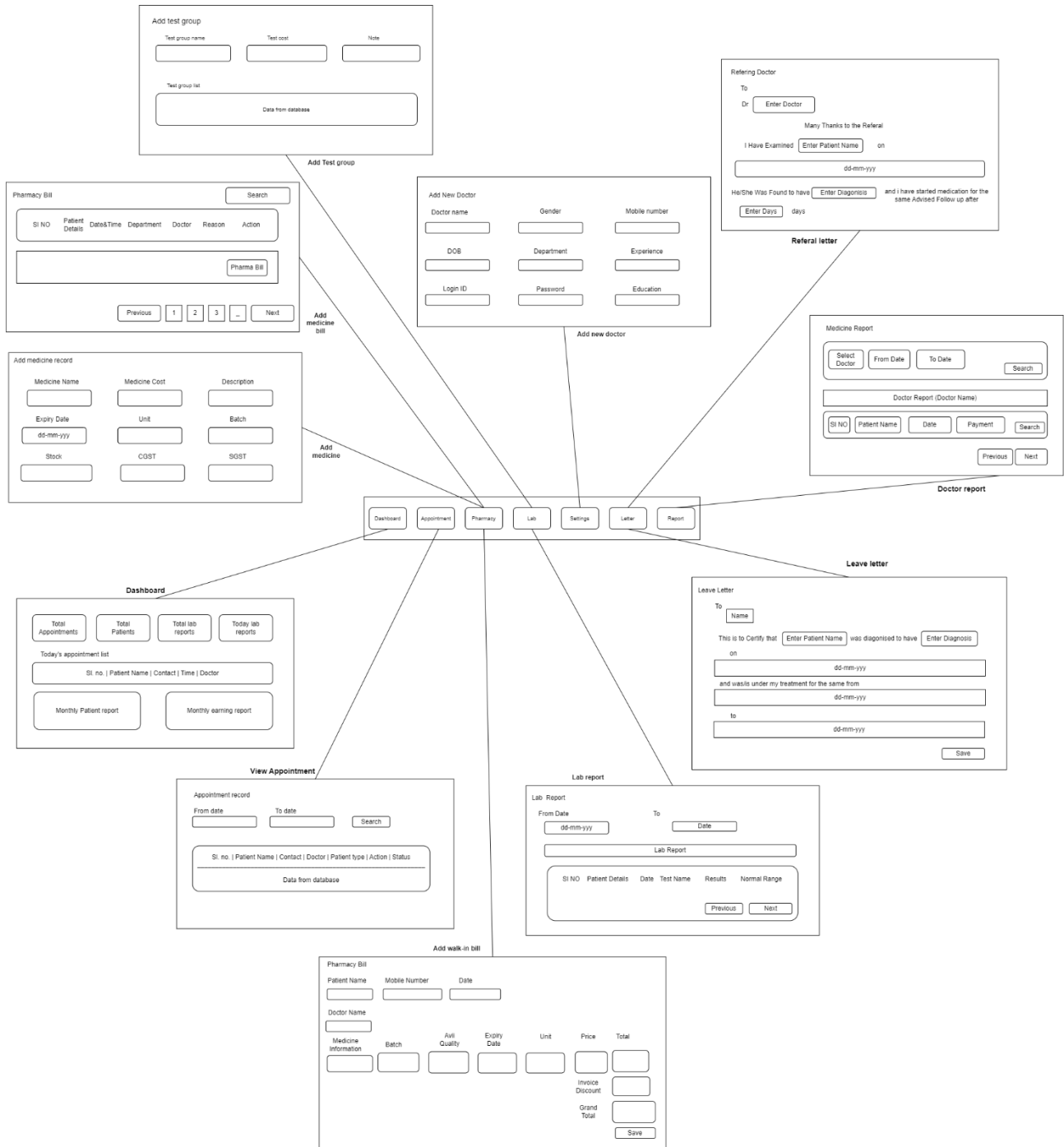


Fig.4.1(d) – Front-end Design

Figure 4.1(d) represents the Front-end UI of the various webpages that can be navigated from the Navbar.

Figure 4.1(e) Contains the entire database structure of clinical management system.

1. Each user must have a valid user id and password.
2. Server must be running for the system to function.
3. Users must log in to the system to access any record.
4. Only the Administrator can delete records.
5. Patient Must Share the Reason why he has come to visit Doctor.

CHAPTER 5

REQUIREMENTS

5.1 FUNCTIONAL REQUIREMENTS

S.NO.	MODULE NAME	APPLICABLE ROLES	DESCRIPTION
1.	LOGIN	PATIENT DOCTOR ADMIN PHARMASIST RECEPTIONIST	<p><i>PATIENT</i>: Can login using unique Id and Password after this system shall show his/her profile.</p> <p><i>DOCTOR</i>: Can login using unique Id and Password after this system shall show his/her profile.</p> <p><i>ADMIN</i>: Can login using unique Id and Password after this system shall show a profile with links to maintain the website.</p> <p><i>PHARMACIST</i>: Can login using unique Id and Password after this system shall show his/her profile.</p> <p><i>RECEPTIONIST</i>: Can login using unique Id and Password after this system shall show his/her profile.</p>
2.	REGISTRATION	PATIENT	<p><i>PATIENT</i>: Can Register by filling all the required details, after this the system will verify the details and check if already registered or not</p>

3.	MAKE APPT.	PATIENT	<i>PATIENT</i> : Can Select doctor, date time and make an appointment request after this system shall show a confirmation for appointment request
4.	CANCEL APPT.	PATIENT DOCTOR	<i>PATIENT</i> : Can Cancel appointment if want to by just one click after this system shall ask for re-schedule or refund of payment. <i>DOCTOR</i> : Can Cancel appointment if want to by just one click after this system shall send a message to the patient
5.	PAYMENT	PATIENT	<i>PATIENT</i> : Enter payment details and make payment after this system shall show the generated bill by the hospital.
6.	PATIENT MODULE	PATIENT	<i>PATIENT</i> : Can view payment history or can search for a particular bill also after this system shall show a bill or history. Can also See or search for a doctor by entering dept. name or doctor id if known after this system will check for the doctor if found shall show doctor's profile. Can also update details after this system shall ask for re-enter password and after verifying password shall update details
7.	DOCTOR MODULE	ADMIN	ADMIN: Can add a new doctor by filling all the details after this system shall show a confirmation message. Can Remove a

			doctor by just one click after this system shall show confirmation message.
8.	ADD PRESCRIPTION	DOCTOR	<i>DOCTOR</i> : Enter Patient Id and after this all the treatment details and medicine, remark and advice for the patient after this system shall show a message for update
9.	PHRAMACY MODULE	PHARMACIST	<i>PHARMACIST</i> : Ensuring that the supply of medicines is within the law.

5.2 NON-FUNCTIONAL REQUIREMENTS

1. **USABILITY**: Software can be used again and again without distortion.
2. **AVAILABILITY**: The system shall be available all the time.
3. **CORRECTNESS**: Bug free software which fulfills the correct need/requirements of the client.
4. **MAINTAINABILITY**: The ability to maintain, modify information and update fix problems of the system.
5. **ACCESSIBILITY**: Administrator and many other users can access the system but the access level is controlled for each user according to their work scope
6. **SECURITY**
 1. *Patient Identification*: The system needs the patient to recognize herself or himself using the phone.
 2. *Login ID*: Any users who make use of the system need to hold a Login ID and password.
 3. *Modifications*: Any modifications like insert, delete, update, etc. for the database can be synchronized quickly and executed only by the ward administrator.

4. **Front Desk Staff Rights:** The staff at the front desk can view any data in the Hospital Management system, and add new patients records to the HMS but they don't have any rights to alter any data in it.
5. **Administrator rights:** The administrator can view as well as alter any information in the Hospital Management System.

7. PERFORMANCE

1. *Capacity:* The system needs to support at least 1000 people at once.
2. *User-Interface:* The user interface acknowledges within five seconds. Maintainability:
3. *Back-Up:* The system offers efficiency for data backup.
4. *Errors:* The system will track every mistake as well as keep a log of it.

5.3 SOFTWARE/SYSTEM REQUIREMENTS

1. *Front End* – HTML, CSS, Java Script – React.Js
2. *Back End* – MySQL Database, ExpressJS, MongoDB
3. *APIs* – Node.js
4. *API Testing Tool* – Postman
5. *Hosting* – AWS (Optional)
6. *Email Service* – AWS Simple Email Service
7. *SMS* – Fast2SMS Integration

CHAPTER 6

METHODOLOGY

We are using the agile methodology in sprints of 1 week, where work is reported to the company and checked with our clients for any changes in the design. Our team of 4 members are split into front-end and back-end team for efficient and faster working. The clients have currently asked for multiple users like doctor, admin, pharmacist and the receptionist. Each of them would have access to only certain information that they require. A complete front end module design and backend structure have been presented and approved by the company.

The website for the hospital management system is divided into 5 models or components.

1. Patient module
2. Lab module
3. Admin Module
4. Patient module
5. Doctor module

The patient is asked to provide some personal information in the patient section in order to facilitate their experience. This information is collected using HTML forms and stored in the SQL database with the aid of Node.js. Similar to how a doctor logs in, an admin can do so on the admin section by providing their login ID and password. Similar to the doctor login, the admin has complete authority over the website after logging in. He or she has the ability to add and remove doctors from the list. Additionally, the admin has the authority to make or cancel patient appointments, with the result that all data is updated in the database.

The Navigation bar consists of 6 components namely Appointment, Pharmacy, Lab, Letters, Settings and Report. Each page is designed in JSX format and linked together in a JavaScript file named the router. Additionally a Dashboard would consist of graphs and reports of the current month's income, patient appointment made and the appointment for the day. This would be directly picked up from the database.

For the backend, we have created a NodeJS application that works along with a SQL Database. Node.js can be used with a variety of web browsers. It facilitates the unification of application development into one language. JavaScript is omnipresent in the NodeJS paradigm, making it a friendly platform for the software industry and businesses.

Express and a node.js framework that is versatile and basic can be used to build mobile and online applications with a variety of capabilities. It involves building routing tables, setting up middleware, and dynamically producing HTML pages by passing arguments into pre-built templates.

Larger SQL databases will be difficult to handle, but you can recover them with the aid of Sequelize. An object-relational mapper called Sequelize translates object syntax into database schemas.

MySQL is connected to NodeJS using REST CRUD API's. While CRUD (Create, Read, Update, and Delete) is just an abbreviation describing how to work with stored data, REST (Representational State Transfer) aids in establishing how the API appears. CRUD is the typical HTTP action verb format for REST API.

Tools like Sequelize, Express and MySQL were used to write the REST CRUD Applications.

Creating a NodeJS Application

Importing the required modules - To load the Node JS modules, you have to import the necessary directives.

Creating a server - If you want to attend to your user's request, you need to create a server

Reading the request & return response - The server you have created will read the HTTP request and respond in return.

To build REST API in a node.js environment, here are the steps to follow:

- Open an Express web server
- Add the configuration data for an existing MySQL database
- Open a sequelize
- In sequelize, create a tutorial model
- Write the controller
- Define all the routes to handle each CRUD function
- Open Postman
- Test the REST CRUD API

After these steps, MySQL connection with node js is completed.

Tools required to build REST CRUD API:

Many available tools can be deployed to build the REST CRUD API effectively. Some of the most widely used tools are as below:

1. Sequelize: A sequelize is a promise-based ORM for Node.js which incorporates robust reading applications, transaction relationships, support, and loading. Sequelize enables users in managing larger SQL databases. It also makes MySQL with node.js viable.
2. Express: Express is a web application framework for node.js. It is considered a de-facto for the node.js framework, mainly because it is open-sourced, free, and minimalist.
3. MySQL: It is an RDBMS (relational database management system). MySQL is backed by the Oracle Corporation and it is available for free. Also, the source code in MySQL can be customized as per your requirements.

CHAPTER 7

EXPERIMENTATION

The Front-end User Interface requires constant live monitoring to check for spacing and placement of various components on the screen. Majority of the users in the clinic would use laptops or large screen devices like tablets. So, the padding is done as such to match all the requirements.

To,

Enter Name

This is to certify that was diagnosed to have On

and was/is under my treatment for the same from

to

.

Save

Figure 7.1 – Padding experiment

Figure 7.1 shows the screen before spacing of the elements.

Sl. No.	PID	Name	Admission Date & Time	Address	Contact No	Patient Profile	Action
1	SKC-324	MR. V A BYATNAL	2022-12-01 20:54:26	HUBLI	9448360897	Blood group - Gender - MALE Age - 66	<div>Edit</div> <div>Follow Up</div>

Fig 7.2 – Button positioning experimentation

The figure 7.2 shows the action buttons could be side by side or even one above the other

To,

Dr.

Many Thanks for the referral.

I have Examined OnHe/She was found to have and I have started medication for the same. Advised follow up after days.

Fig 7.3 – Padding experimentation

The figure 7.3 shows the spacing experimentation for referral letter page.

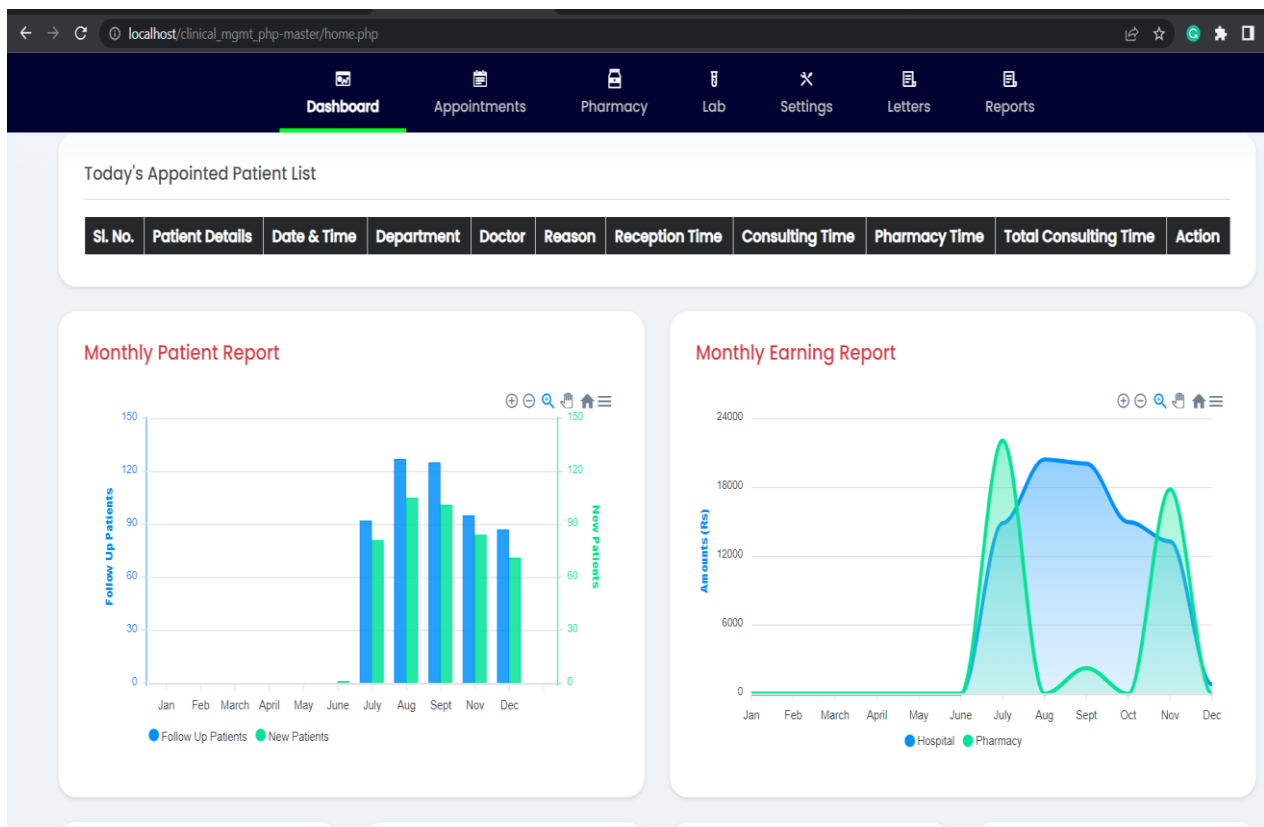


Fig 7.4 – Statistics experimentation

Fig 7.4 shows statistical experimentation collected from the database.

CHAPTER 8

TESTING AND RESULTS

The date section only allows numbers to be filled and not letters or special characters

```
<input type="text" class="form-control mw-100 w-25 ml-5 " placeholder="Enter Diagnosis" name="diagnosis" id="diagnosis" />  
<input type="date" class="form-control mw-100 w-15 ml-5 " name="date" id="date" />{ " "  
and was/is under my treatment for the  
same from { " "  
<input type="date" class="form-control mw-100 w-15 ml-5 " name="fdate" id="fdate" />{ " "
```

The date function helps to make sure that only numbers can be entered.

Dashboard Appointments Pharmacy Lab Settings Letters Reports

Patient Name Mobile Number Date 2022/12/23

Doctor Name

Medicine Information	Batch	Avail Qty	Expiry date	Unit	Quantity	Price	Total	Action
Enter Medicine No	ACLEAR OINTMENT [91]22V01	2025-03-10		0	0	0	0	
	ACNOVIN CREAM [78]S124							
	AKINOCK CREAM [234]RA22327	2024-06-30				invoice Discount	0	
	AROGYAVARDHINI VATI [114]DU522103	2026-01-09				Grand Total		
	ARSHA HIT OINTMENT [103]AUS510	2024-12-31						
	ARSHOPY OINTMENT [6]RA2201	2023-12-31						
	ASHWAGANDHA CHOORNA [80]1	2026-12-31						
	AYUSH DROPS [39]							
	CAP BALA TAILA21 AVARTI [64]SYBT3	2024-03-31						
	CAP BALA TAILAM 600MG [217]SYBT3	2024-03-31						
	CAP COLWIN [165]SYCW5	2025-03-31						

Name ADITI HANAGAL Batch Avail Qty Expiry date Unit Quantity Price Total Action

ADITI HANAGAL CAP GREYGEN 0 -40 2024-01-31 1 120 19 2220 Print

Save

Fig 8.3 – Drop down menu visibility in large screen view

This figure shows the drop-down menu in the large screen view

SKC Logout

Medicine Information Batch Avail Qty Expiry date

Enter Mec 1 5 xyzzz

ACLEAR OINTMENT [91]22V01 2025-03-10

ACNOVIN CREAM [78]S124

AKINOCK CREAM [234]RA22327 2024-06-30

AROGYAVARDHINI VATI [114]DU522103 2026-01-09

ARSHA HIT OINTMENT [103]AUS510 2024-12-31

ARSHOPY OINTMENT [6]RA2201 2023-12-31

ASHWAGANDHA CHOORNA [80]1 2026-12-31

AYUSH DROPS [39]

CAP BALA TAILA21 AVARTI [64]SYBT3 2024-03-31

CAP BALA TAILAM 600MG [217]SYBT3 2024-03-31

CAP COLWIN [165]SYCW5 2025-03-31

The same dropdown menu in the mobile screen view. Here we can notice that the menu is scrollable vertically but not horizontally.

Fig 8.4 – Drop down menu visibility test in mobile view


Patient Registration

Patient Name * <input type="text" value="Patient name"/>	Appointment Date <input type="text" value="2023-04-29"/>	Appointment Time <input type="text" value="01:39:04 PM"/>
Mobile Number * <input type="text" value="944875632"/>	City* <input type="text" value="Enter City Name"/>	Address* <input type="text" value="Enter Address"/>
Pincode <input type="text"/>	Age* <input type="text"/>	Gender * <input type="text" value="Select"/>
Blood group <input type="text" value="Select"/>	Department * <input type="text" value="Select Department"/>	Doctor * <input type="text" value="Select Doctor"/>
Appointment Reason* <input type="text"/>	Payment Mode <input type="text" value="CASH"/>	Amount* <input type="text"/>

Fig 8.5 – Registration Testing

The figure 8.5 shows patient registration validation

RESULTS

 **Shri Krishna Clinic** [Logout](#)

[Dashboard](#) [Appointments](#) [Pharmacy](#) [Lab](#) [Settings](#) [Letters](#) [Reports](#)

Patient Registration

Patient Name * <input type="text" value="Patient name"/>	Appointment Date <input type="text" value="2023-02-27"/>	Appointment Time <input type="text" value="10:35:11 PM"/>
Mobile Number * <input type="text" value="Patient Mobile Number"/>	City* <input type="text" value="Enter City Name"/>	Address* <input type="text" value="Enter Address"/>
Pincode <input type="text"/>	Age* <input type="text"/>	Gender * <input type="text" value="Select"/>
Blood group <input type="text" value="Select"/>	Department * <input type="text" value="Select Department"/>	Doctor * <input type="text" value="Select Doctor"/>
Appointment Reason* <input type="text"/>	Payment Mode <input type="text" value="CASH"/>	Amount* <input type="text"/>

Patient History On Allopathic Medicine *

Fig 8.6 – Patient details registration

Patient registration page, that collects data about patients

Shri Krishna Clinic

Logout

Dashboard Appointments Pharmacy Lab Settings Letters Reports

Medicine Report

Select Doctor: From Date: To Date:

Doctor Report(Dr.Parinita)

Copy Excel CSV PDF Print Column visibility

Search:

Sl. No.	Patient Name	Date	Payment
No data available in table			
Grand Total			0

Showing 0 to 0 of 0 entries

Fig 8.7 – Medicine report

Figure 8.7 shows the available medicine report

Shri Krishna Clinic

Logout

Dashboard Appointments Pharmacy Lab Settings Letters Reports

Medicine Report

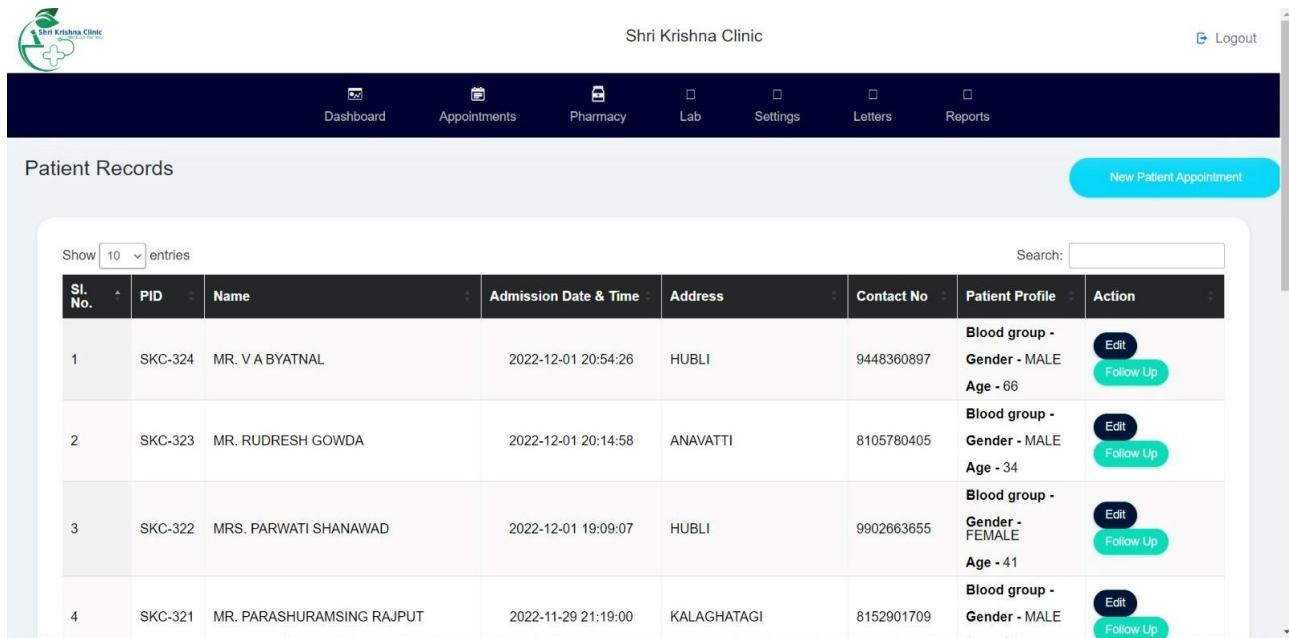
Copy Excel CSV PDF Print Column visibility

Search:

Sl. No.	Medicine Name	Stock	Cost	Stock Cost
1	NEPH-X	310	16.50	5115
2	TAB DIA-P	-699	65.00	-45435
3	CAP NEURON	-158	70.00	-11060
4	TAB ARSHOPY	-80	65.00	-5200
5	ARSHOPY OINTMENT	10	95.00	950
6	HAEMOGUARD SYP	3	175.00	525
7	OZOLIV SYF	0	135.00	0
8	MANASAMITRA VATI (P)	-17	460.00	-7820
9	PRABHAKAR VATI (P)	0	150.00	0
10	SWITHRAHARA LEPA(R)	0	150.00	0
Grand Total		12188		-355042.5

Fig 8.8 – medicine stock report

Figure 8.8 shows the stock details pulled from the database



Shri Krishna Clinic

Logout

Dashboard Appointments Pharmacy Lab Settings Letters Reports

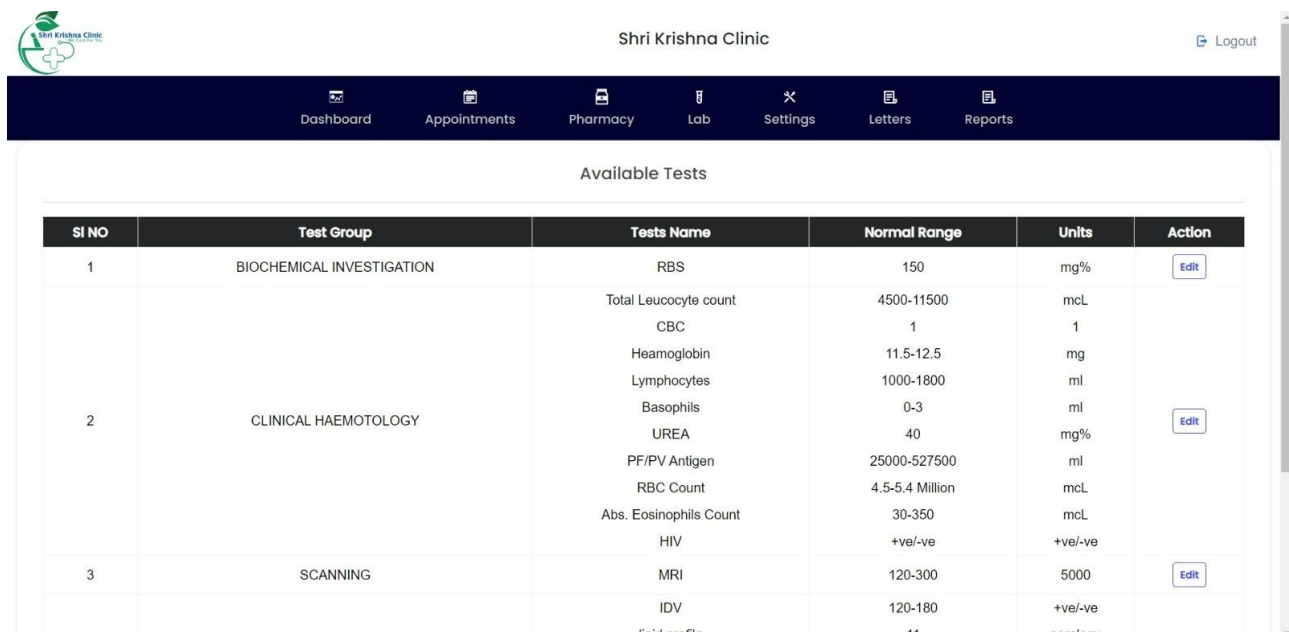
Patient Records [New Patient Appointment](#)

Show 10 entries Search:

Sl. No.	PID	Name	Admission Date & Time	Address	Contact No	Patient Profile	Action
1	SKC-324	MR. V A BYATNAL	2022-12-01 20:54:26	HUBLI	9448360897	Blood group - Gender - MALE Age - 66	Edit Follow Up
2	SKC-323	MR. RUDRESH GOWDA	2022-12-01 20:14:58	ANAVATTI	8105780405	Blood group - Gender - MALE Age - 34	Edit Follow Up
3	SKC-322	MRS. PARWATI SHANAWAD	2022-12-01 19:09:07	HUBLI	9902663655	Blood group - Gender - FEMALE Age - 41	Edit Follow Up
4	SKC-321	MR. PARASHURAMSING RAJPUT	2022-11-29 21:19:00	KALAGHATAGI	8152901709	Blood group - Gender - MALE	Edit Follow Up

Fig 8.9 – Patient records

Figure 8.9 shows the patient records from the database.



Shri Krishna Clinic

Logout

Dashboard Appointments Pharmacy Lab Settings Letters Reports

Available Tests

Sl NO	Test Group	Tests Name	Normal Range	Units	Action
1	BIOCHEMICAL INVESTIGATION	RBS	150	mg%	Edit
		Total Leucocyte count	4500-11500	mcL	
		CBC	1	1	
		Heamoglobin	11.5-12.5	mg	
		Lymphocytes	1000-1800	ml	
2	CLINICAL HAEMATOLOGY	Basophils	0-3	ml	Edit
		UREA	40	mg%	
		PF/PV Antigen	25000-527500	ml	
		RBC Count	4.5-5.4 Million	mcL	
		Abs. Eosinophils Count	30-350	mcL	
3	SCANNING	HIV	+ve/-ve	+ve/-ve	Edit
		MRI	120-300	5000	
		IDV	120-180	+ve/-ve	
		fluid profile	44	mcL	

Fig 8.10 – Tests available

Figure 8.10 shows the tests that are available for the patients.

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INTERN OFFER LETTER

Dear **Pavan B.**,

On behalf of **Nexenstial™**, I am pleased to extend to you this offer of **Intern** for **Nexenstial™**, reporting to both Director Skill Development (Mr. Abhishek Badiger) and Director, Business Operations (Mr. Gurusiddeshwar S H). If you accept this offer, you will begin your internship with the Company on **12th Sept, 2022** and will be expected to work **honestly**.

As an intern, you will be working on **Project Clinical Management for Ayurveda Doctors/Consultants** and you will be receiving **"temporary employment"** status. As a temporary employee, you will not receive any of the employee benefits that regular Company employees receive, including, but not limited to, health insurance, vacation or sick pay, paid holidays, or participation in the Company's 401(k) plan.

Your internship is expected to end on **12th March, 2023**. However, your internship with the Company is "at-will," which means that the Company has complete control over your internship at point in time.

During your employment, you may have access to trade secrets and confidential business information belonging to the Company. By accepting this offer of employment, you acknowledge that you must keep all of this information strictly confidential, and refrain from using it for your own purposes or from disclosing it to anyone outside the Company. In addition, you agree that, upon conclusion of your employment, you will immediately return to the Company all of its property, equipment, and documents, including electronically stored information. *Any Source-Code being shared at any point in time/any Code being generated by you remains under the Company's Rights and will hold complete authenticity of **Nexenstial™** and should not be used for any personal use.

By accepting this offer, you agree that throughout your internship, you will observe all policies and practices governing the conduct of our business and employees. This letter sets forth the complete offer we are extending to you, and supersedes and replaces any prior inconsistent statements or discussions. It may be changed only by a subsequent written agreement.

-1-





By accepting this offer, you agree not to be bound by any other Company/Firm in any manner either it may be related to Development/Sales. You'll be sole property of **Nexenstial™** until your term ends and you will have to strictly adhere to the same. If found that any individual is bound by any other company/firm in any means he/she's Intern position with **Nexenstial™** may be terminated without being intimated and complete rights will be with **Nexenstial™**.

The suitable remuneration will also be offered to freelancing consultants against the project allocation. The project allocation will be purely with **Nexenstial™** and all allocations will be made known to selected Freelancing consultants from us. **Nexenstial™** has full rights of its own way of evaluation and need not to give any explanation to any one regarding the project assessment. Every project should have the mention of **NEXENSTIAL's** Details without mistakes.

I hope that your association with the Company will be successful and rewarding. Please indicate your acceptance of this offer by signing below and returning it to both **Director, Business Operations (Mr. Gurusiddeshwar S H)** and **Director, Creative Head (Mr. Abhishek Badiger)**. If you have any questions, please contact do not hesitate.

Regards,

Mr. Gurusiddeshwar S H,
Director, Business Operations,
Nexenstial LLP, Hubli.



Mr. Abhishek Badiger,
Director, Skill Development,
Nexenstial LLP, Hubli.

-2-

Dated: 09th Sept,2022

INTERN OFFER LETTER

Dear **N S Gagan**,

On behalf of **Nexenstial™**, I am pleased to extend to you this offer of **Intern** for **Nexenstial™**, reporting to both Director Skill Development (Mr. Abhishek Badiger) and Director, Business Operations (Mr. Gurusiddeshwar S H). If you accept this offer, you will begin your internship with the Company on **12th Sept,2022** and will be expected to work **honestly**.

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Regards,

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Director, Business Operations,
Nexenstial LLP, Hubli.



Mr. Abhishek Badiger,
Director, Skill Development,
Nexenstial LLP, Hubli.

-2-

INTERN OFFER LETTER

Dear **Shishira S.**,

On behalf of **Nexenstial™**, I am pleased to extend to you this offer of **Intern** for **Nexenstial™**, reporting to both Director Skill Development (Mr. Abhishek Badiger) and Director, Business Operations (Mr. Gurusiddeshwar S H). If you accept this offer, you will begin your internship with the Company on **12th Sept, 2022** and will be expected to work **honestly**.

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Director, Business Operations,
Nexenstial LLP, Hubli.



Mr. Abhishek Badiger,
Director, Skill Development,
Nexenstial LLP, Hubli.

-2-

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+91-7899874446 | info@nexenstial.com | www.nexenstial.com

INTERN OFFER LETTER

Dear **Shaswat Sahu**,

On behalf of **Nexenstial™**, I am pleased to extend to you this offer of **Intern** for **Nexenstial™**, reporting to both Director Skill Development (Mr. Abhishek Badiger) and Director, Business Operations (Mr. Gurusiddeshwar S H). If you accept this offer, you will begin your internship with the Company on **12th Sept, 2022** and will be expected to work **honestly**.

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Director, Business Operations,
Nexenstial LLP, Hubli.



Mr. Abhishek Badiger,
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LINKS

Research paper link:

http://www.ijaresm.com/uploaded_files/document_file/Pavan_B5FX2.pdf

GitHub link:

https://github.com/CSE-DSU/Ayurvedic_Clinical_Management_System_Team_56

Building a Scalable Ayurvedic Clinic Management System: A User-Centred Approach

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ABSTRACT

This paper describes the design and implementation of a clinical management software system for Ayurvedic clinics. The system is developed using React.js, Node.js, and Express. Js, and is supported by a MySQL database for data storage. The software simplifies communication between the doctor and the receptionist and reduces complexity in maintaining patient records. The system is designed to be operated by two users, the doctor and the receptionist. The system includes features specific to Ayurvedic medicine, such as personalized herbal treatments and dietary advice based on the patient's unique constitution. The system also allows the doctor to recommend medicines according to their availability at the pharmacy and to order lab investigations, which are fed into the database by the doctor. The software system is expected to improve patient outcomes by streamlining administrative tasks, allowing doctors to focus more on patient care, and by providing personalized treatment recommendations based on the patient's unique constitution. The system is a valuable tool for Ayurvedic clinics and practitioners.

Keywords: clinical management, software system, Ayurvedic clinics, personalized treatment recommendations, patient records, herbal treatments, dietary advice, React.js, Node.js, Express. Js, My SQL database.

INTRODUCTION

A Clinic Management System (CMS) is a software application that can help clinics manage their daily activities efficiently. It can reduce errors that may occur when using a manual system and enable doctors, clinic assistants, and staff to manage patient records, medicine inventory, appointment schedules, and generate reports. CMS can improve patient care, automate administrative tasks, enhance communication and collaboration among different departments, and ultimately, bring significant benefits to the clinic, staff, and patients.

About the project: The manual management of a clinic has several issues, such as loss, duplication, and modification of data, which can compromise the security of patient information. Additionally, communication between different departments, such as receptionists, doctors, and the pharmacy, can be cumbersome and not seamless. To address these challenges, this research paper presents the development of a web-based clinic management system. The proposed system aims to computerize the clinic's management processes and make them more efficient by providing a seamless platform for communication and data management.

The clinic management system presented in this paper is specifically designed for an ayurvedic clinic and involves different stakeholders, including staff, doctors, pharmacy, and labs. The system's main goal is to store complete patient records, making it easier to retrieve patient history information and detect patient allergies to certain medicines. To ensure the system's security, users are required to input their login credentials before accessing the system, and different users have different access levels.

The proposed system's functionalities include generating patient tokens, integrating patient details with the doctor's database, ordering lab tests and medicines from the pharmacy, generating automatic patient reports, and providing automatic SMS and mail services to patients. The project is based on open-source resources, and AWS is optional, depending on the clinic's financial investment capabilities.

The deliverance of this project is the deployment of the software and its successful implementation by an ayurvedic clinic. By using this system, clinics can automate their management processes, reduce the risk of data loss, and provide better patient care.

Scope

This project is tailored for an ayurvedic clinic. The scope for the system will involve staff, doctor, pharmacy and labs of the clinic. The staff will register the patient. The doctor will diagnose the patients and give them medication.

Reports are automatically generated. The receptionist can then generate bills and feed them into the database. The system also maintains a patient's history so that doctor or receptionist can view them anytime. Our project boundaries include token generation, integration of the patients details with the doctor's database, ordering lab tests, ordering medicines according to the availability at the pharmacy, generating automatic patient reports, automatic SMS and mail service for the patients. We would be using open-source resources for this project. AWS would require a financial investment which is kept optional as of now. Our project deliverance would be that this software will be deployed and running by an ayurvedic clinic.

Societal Environment a limp act

The implementation of a CMS project can improve access to information and knowledge, foster more informed and educated societies, improve communication and collaboration within organizations, leading to increased productivity and better outcomes, and a more cohesive and effective organization overall.

This project can reduce paper usage, decrease deforestation and associated environmental impacts, reduce the need for physical storage space, decrease energy consumption and carbon emissions, reduce travel requirements for meetings and other collaborative activities, and help to reduce the carbon footprint of organizations, leading to positive environmental effects.

Project Description

our research paper aims to address the technical challenges associated with manual clinic management. The conventional approach to clinic management is prone to data loss, duplication, and unauthorized access, leading to inconsistent and unreliable data. In addition, there are communication gaps between departments, such as pharmacy, doctors, and receptionists, which can further exacerbate the situation.

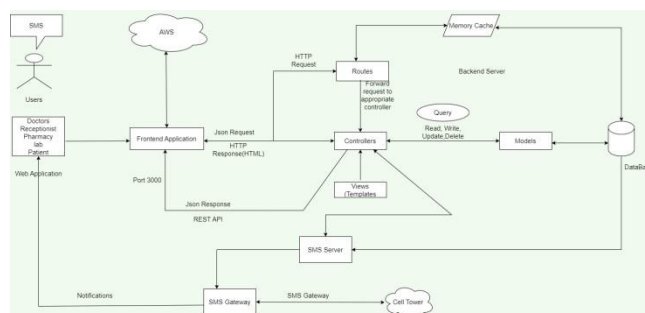
To address these issues, we propose a web-based clinical management system that uses advanced data management techniques to ensure data consistency and security. The system will provide a comprehensive and unified view of the patient's record, including medical history, test results, and prescribed medication. Our system's scope will cover all the aspects of the ayurvedic clinic, including patient management, appointment scheduling, prescription management, and lab test management.

The system will have multiple user roles, including the administrator, doctors, pharmacy, and lab technicians, each with different privileges and access levels. The system's architecture will be based on the client-server model, with a centralized database storing all the relevant data. The system's front-end will be designed using modern web development frameworks, ensuring a responsive and user friendly interface.

To achieve our goals, we will use a combination of opensource and proprietary technologies, such as Node.js, React, MongoDB, and AWS. These technologies will enable us to create a scalable, robust, and secure system that can handle a large number of patients and users.

The deliverables of our project will include a functional clinical management system that is ready to be deployed and used by ayurvedic clinics. We will evaluate the system's performance in terms of data consistency, security, user satisfaction, and system uptime. We believe that our proposed clinical management system will have a significant impact on the efficiency and effectiveness of ayurvedic clinics, providing better patient care, improved data security, and reduced administrative overhead.

SYSTEM DESIGN



This is the High-Level Design of Clinical Management System which includes the SMS Integration and list of API's used.

METHODOLOGY

Frontend

Our current project involves the development of a hospital management system, which includes multiple user types such as doctors, admins, pharmacists, and receptionists. Each user type is granted access only to the relevant information they require. The website for the hospital management system is divided into 5 modules.

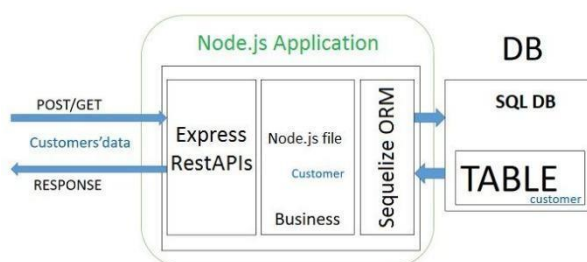
Patient Module: This module is responsible for managing patient information, including demographics, medical history, and test results. In the frontend, we use React components such as forms, tables, and modals to display and collect patient data. We also utilize state management libraries like Redux to keep track of the data throughout the application. On the backend, we use Node.js with Express to handle API requests and connect to the SQL database.

Lab Module: The lab module is responsible for managing lab tests ordered for patients. The frontend is designed with React components to display lab tests and allow for test ordering. We also utilize React hooks such as use State and use Effect to manage component state and control component rendering. The backend is built with Node.js and Sequelize to handle the database models and manage relationships between patient information and test results.

Admin Module: The admin module is designed to provide administrators with complete control over the website. It includes functionality such as managing user accounts, updating site settings, and managing patient appointments. The frontend is built with React components such as forms and tables to display and manage user accounts and appointment data. We also utilize React Router to manage page routing and user authentication. On the backend, we use Node.js with Express and Sequelize to manage the API routes and database models.

Pharmacy Module: The pharmacy module is responsible for managing medications prescribed to patients. The frontend is designed with React components to display medication information and manage prescriptions. We also utilize libraries like React Bootstrap to style and organize the components. On the backend, we use Node.js with Express and Sequelize to manage the API routes and database models.

Doctor Module: The doctor module is designed to provide doctors with a streamlined interface for managing patient appointments and medical information. The frontend is built with React components such as forms, tables, and modals to display patient information and manage appointments. We also utilize React hooks like use Context to manage state across multiple components. On the backend, we use Node.js with Express and Sequelize to manage the API routes and database models.



The patient is asked to provide some personal information in the patient section in order to facilitate their experience. This information is collected using HTML forms and stored in the SQL database with the aid of Node.js. Similar to how a doctor logs in, an admin can do so on the admin section by providing their login ID and password. Similar to the doctor login, the admin has complete authority over the website after logging in. He or she has the ability to add and remove doctors from the list. Additionally, the admin has the authority to make or cancel patient appointments, with the result that all data is updated in the database..

Backend

The backend of the project utilizes Node.js, a powerful, server-side, JavaScript runtime environment. We have created a NodeJS application that works with a MySQL database to provide a reliable and scalable backend. Node.js provides an event-driven, non-blocking I/O model that makes it lightweight and efficient. It also supports a variety of web browsers, allowing us to create a platform that is flexible and accessible.

To build the web application, we utilized Express.js, a minimal and flexible Node.js framework. It enables us to create web and mobile applications with various capabilities such as routing tables, middleware setup, and dynamically generating HTML pages by passing arguments into pre-built templates. This framework allows us to design APIs with ease and helps us to manage RESTful API endpoints.



The SQL database we use in this project is MySQL, which is an open-source relational database management system. It is a robust and widely used database system that is well-suited for large-scale applications. Sequelize, an object relational map per, is utilized to handle larger SQL databases with ease. It translates object syntax into database schemas, making it easier to manipulate data from the database.

REST API is the architectural design for web services, and it aids in establishing how the API appears. We utilized RESTful CRUD (Create, Read, Update, and Delete) API in this project. The CRUD actions are typical HTTP action verbs that REST API uses to manage stored data. RESTful APIs are designed around resources, and these resources can be manipulated using a set of HTTP methods. Our project uses RESTful APIs to provide communication between the frontend and the backend.

In our project, we used Sequelize, Express.js, and MySQL to create RESTful CRUD APIs. Configuring the MySQL database with Sequelize is crucial in development and configuration as the combination of Node.js and Sequelize works based on the configuration. The use of these technologies enables us to build a scalable, efficient, and robust backend for the hospital management system.

Deliverables

The project will deliver a fully functional web portal for Ayurvedic clinics that is compatible with modern web browsers. The portal will be developed using React JS, Node JS, Express JS, My SQL, and REST APIs. It will include the following features:

Appointment Booking System: Patients can book an appointment with doctors or therapists online. Doctors or therapists will be notified of the booking via email or SMS.

Patient Management System: The portal will provide a centralized database of all patient information including demographics, medical history, and treatment plans. Doctors or therapists will be able to access patient information and update it in real-time.

Prescription and Billing System: Doctors or therapists will be able to generate electronic prescriptions and send them to patients via email. Patients will also be able to view their billing information and make payments online.

Inventory Management System: The portal will include an inventory management system that allows clinics to manage their inventory of Ayurvedic medicines, herbs, and oils.

Reporting and Analytics: The portal will provide detailed reporting and analytics on appointments, patient history, and billing information. It will allow clinics to track their financial performance and identify areas for improvement.

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