Ayurvedic Drug Recommendation System

SUBMITTED IN PARTIAL FULFILLMENT FOR THE REQUIREMENT OF THE AWARD OF DEGREE OF

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE

Submitted by

DIMPI SENGAR (2300290129002)

SUSHMITA SINGH (2300290129012)

Supervised by

MR. NISHANT RAJ

Assistant Professor

Session 2025-26

DEPARTMENT OF COMPUTER SCIENCE

KIET GROUP OF INSTITUTIONS, GHAZIABAD

(Affiliated to Dr. A. P. J. Abdul Kalam Technical University, Lucknow, U.P., India)

May 2026

DECLARATION

I/We hereby declare that this submission of the assignment titled "Prakriti-Care: Ayurvedic Drug Recommendation System" is our own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Name: Dimpi Sengar

Roll No.: 2300290129002 **Signature**

Date:

Name: Sushmita Singh

Roll No.: 2300290129012 **Signature**

Date:

CERTIFICATE

This is to certify that Project Report entitled "Prakriti-Care: Ayurvedic Drug Recommendation System" which is submitted by DIMPI SENGAR, SUSHMITA SINGH in partial fulfillment of the requirement for the award of degree B.Tech. in Department of Computer Science of Dr. A.P.J. Abdul Kalam Technical University, Lucknow is a record of the candidates own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

Mr. Nishant Raj	**Dr. Ajay Kumar Shrivastava**
(Assistant Professor)	**(Dean, CS)**

Date:

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the report of the B. Tech Project undertaken during B. Tech. Final Year. We owe special debt of gratitude to Professor Mr. Nishant Raj, Department of Computer Science, KIET, Ghaziabad, for his/her constant support and guidance throughout the course of our work. His/Her sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his cognizant efforts that our endeavors have seen light of the day.

We also take the opportunity to acknowledge the contribution of Dr. Ajay Kumar Shrivastava, Dean of the Department of Computer Science, KIET, Ghaziabad, for his full support and assistance during the development of the project. We also do not like to miss the opportunity to acknowledge the contribution of all the faculty members of the department for their kind assistance and cooperation during the development of our project.

Last but not the least, we acknowledge our friends for their contribution in the completion of the project.

Date:	**Date:**
Signature:	**Signature:**
Name: Dimpi Sengar	**Name: Sushmita Singh**
Roll No: 2300290129002	**Roll No: 2300290129012**

ABSTRACT

The Ayurvedic Drug Recommendation System is a web-based totally utility designed to offer Ayurvedic remedy hints based totally on sicknesses and signs and symptoms entered through users. Ayurveda, an historical machine of drugs originating in India, emphasizes natural recovery via herbs, formulations, and lifestyle practices [1], [2], [3]. However, accessing Ayurvedic understanding from conventional texts or professionals may be tough for commonplace users. This undertaking goals to digitize Ayurvedic information and make it easily accessible thru a modern internet primarily based platform [7], [8].

The system is developed the use of a PHP primarily based backend with a frontend built the usage of HTML, CSS, and JavaScript, and using MySQL database to store information associated with sicknesses, herbs, and Ayurvedic formulations [11], [12], [13], [15]. The software helps customers search for a disease or symptom. Then it finds the herbal medicine treatments and shows the customer how to use them. The system is easy to use. Customers can quickly find information about Ayurvedic medicines.

The software has a part that people do not see that figures out what the customer is looking for. It looks at the database. Makes suggestions based on what diseases are helped by which herbs. The database has lots of information about diseases, herbs and how they are related. This makes it easy to store and find the information that customers need. The software can be used on a server. People can access it from any computer with a web browser [9] [10].

The main goal of the company that made the software is to make Ayurvedic information more available. They want to make it easier for people to find information about herbal medicines. The company wants to bridge the gap, between Ayurvedic knowledge and the modern digital world by providing a platform that gives good recommendations.The evolved device improves the accessibility of Ayurvedic healthcare records and demonstrates how records era can guide traditional medicine systems [4], [5], [6]. In the destiny, the system can be more advantageous by means of integrating synthetic intelligence techniques, cellular programs, and multilingual assist to provide greater superior and personalized healthcare tips.

TABLE OF CONTENTS

DECLARATION……... II

CERTIFICATE……... III

ACKNOWLEDGEMENT……...…… IV

ABSTRACT…… V

TABLE OF CONTENTS……..... VI

LIST OF FIGURES……..... IX

LIST OF TABLES……..……... X

LIST OF ABBREVIATIONS……...XI

SDG MAPPING…… XII

CHAPTER 1: INTRODUCTION…….. 1

1.1 Introduction to Ayurvedic Drug Recommendation System…….. 1

1.2 Objectives of the Project…….. 3

1.3 Limitations of Existing Systems……... 4

1.4 Benefits of the Proposed System…….. 6

1.4.1 Faster Access to Ayurvedic Drug Information…….. 7

1.4.2 Accurate Drug Recommendation Based on Disease……. 8

1.4.3 Efficient Storage of Ayurvedic Knowledge……... 8

1.4.4 Scalability of the Web-Based Application……..... 9

1.4.5 Data Security and User Privacy……..... 9

1.4.6 Improved Healthcare Information Accessibility……..... 10

CHAPTER 2: LITERATURE SURVEY…….. 11

2.1 Introduction…… 11

2.2 Traditional Ayurvedic Knowledge Systems……... 12

2.3 Healthcare Recommendation Systems……... 12

2.4 Literature Review on Digital Health Systems…… 13

2.4.1 Previous Work on Herbal Drug Recommendation Systems…… 13

2.5 Existing Ayurvedic Information Systems……... 14

2.6 Summary of Literature Review…….. 14

CHAPTER 3: PROBLEM STATEMENT AND PROPOSED SYSTEM……. 16

3.1 Introduction…… 16

3.2 Problem Statement……. 16

3.3 Proposed Web-Based Ayurvedic Drug Recommendation System…….. 17

3.4 System Architecture and Workflow…… 21

CHAPTER 4: METHODOLOGY……... 25

4.1 Introduction…… 25

4.2 System Implementation Strategy……... 26

4.2.1 Data Collection (Ayurvedic Herbs, Diseases, Formulations)…….. 28

4.2.2 Database Design and Data Processing……. 30

4.2.3 System Architecture Design…… 32

4.2.4 Backend Development using PHP…….. 35

4.2.5 Frontend Development using HTML, CSS, and JavaScript…… 36

4.2.6 Database Integration using MySQL…… 37

4.3 Tools / Software Requirements……..…… 38

4.3.1 Software Requirements……... 38

4.3.2 Development Tools …… 40

CHAPTER 5: RESULTS AND DISCUSSION…… 41

5.1 System Output and Results……. 41

5.2 User Interface Screenshots……. 42

5.3 Drug Recommendation Output…….. 45

5.4 Database Structure Explanation……. 47

5.5 System Performance Analysis…… 50

5.6 Discussion on System Efficiency……... 52

5.7 Application Scope…….. 53

CHAPTER 6: CONCLUSION AND FUTURE SCOPE…….. 54

6.1 Conclusion……. 54

6.2 Future Enhancements……. 55

6.2.1 Mobile App Integration……... 55

6.2.2 AI-Based Disease Prediction……... 56

6.2.3 Integration with Doctor Consultation System……. 57

6.2.4 Multilingual Interface Support…… 57

6.2.5 Expansion of Ayurvedic Database……... 58

6.2.6 Integration with Wearable Health Devices…….. 58

6.3 Conclusion of Future Scope……... 59

REFERENCES…… 60

APPENDIX……. 61

Appendix I: Plagiarism Report of Project Report (≤20%)…… 61

Appendix II: Research Paper…….…….. 62

Appendix III: Proof of Research Paper Publication……..…... 74

LIST OF FIGURES

FIGURE NO.	FIGURE TITLE	PAGE NO.
1.1	Overview of Ayurvedic Drug Recommendation System	2
1.2	Traditional vs Digital Ayurvedic Healthcare Information Flow	6
3.1	System Architecture of the Proposed Ayurvedic Drug Recommendation System	18
3.2	Workflow of Ayurvedic Drug Recommendation System	22
3.3	Interaction between User Interface and Database	23
4.1	Flowchart of Drug Recommendation Process	27
4.2	Data Collection Process for Ayurvedic Herbs and Diseases	30
4.3	Database Schema Diagram	32
4.4	System Architecture Design Diagram	33
4.5	Backend Processing Workflow using PHP	35
4.6	Frontend Interface Structure using HTML, CSS, and JavaScript	36
4.7	MySQL Database Integration Process	38
5.1	Home Page of Ayurvedic Drug Recommendation System	42
5.2	Disease or Symptoms Input Interface	43
5.3	Drug Recommendation Result Page	44
5.4	Drug Recommendation Saved Page	46
5.5	Disease Management Module in Admin Panel	49
5.6	Herbal Drug Management Interface in Admin Panel	49
5.7	Ayurvedic Formulations Management Module	50
5.8	Admin Dashboard – Recommendations Tracking Interface	52
6.1	Integration of Mobile Application and Wearable Devices with the System	57
6.2	Future Scope Architecture for AI-Based Recommendation System	58

LIST OF TABLES

TABLE NO.	TABLE TITLE	PAGE NO.
1.1	Comparison of Traditional and Digital Healthcare Systems	4
3.1	Key Functional Modules of the Proposed System	19
4.1	Disease and Symptom Dataset Structure	28
4.2	Sample Ayurvedic Herbs Data Used in the System	29
4.3	Database Tables Used in the System	31
4.4	Software Requirements for System Development	39
5.1	Example Drug Recommendation Output for Diseases	45
5.2	Description of Database Tables	47
5.3	System Performance Evaluation Results	51

LIST OF ABBREVIATIONS

Abbreviation	Full Form
AYUSH	Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy
CSS	Cascading Style Sheets
DB	Database
DBMS	Database Management System
HTML	HyperText Markup Language
HTTP	HyperText Transfer Protocol
JS	JavaScript
JSON	JavaScript Object Notation
MySQL	My Structured Query Language
NLP	Natural Language Processing
PHP	Hypertext Preprocessor
SDG	Sustainable Development Goals
SQL	Structured Query Language
UI	User Interface
UML	Unified Modeling Language
URL	Uniform Resource Locator
UX	User Experience
WHO	World Health Organization

SDG MAPPING

SDG Goal	Relevance to the Project
SDG 3: Good Health and Well-being	The Ayurvedic Drug Recommendation System promotes preventive healthcare by providing natural and personalized Ayurvedic remedies. It improves access to healthcare information and encourages holistic well-being.
SDG 4: Quality Education	The system digitizes Ayurvedic knowledge and makes it accessible to students, researchers, and the general public, supporting learning and awareness of traditional medicine.
SDG 9: Industry, Innovation and Infrastructure	The project uses modern technologies like Java, NLP, and web development to create an innovative and scalable healthcare platform integrating traditional knowledge with digital solutions.
SDG 11: Sustainable Cities and Communities	It promotes eco-friendly healthcare practices by encouraging the use of natural medicines, contributing to healthier and more sustainable communities.
SDG 12: Responsible Consumption and Production	The system supports responsible use of medicinal resources by promoting herbal treatments and reducing reliance on synthetic drugs.

CHAPTER 1

INTRODUCTION

1.1 Introduction to Ayurvedic Drug Recommendation System

Ayurveda is one of the oldest traditional medical systems in the world. Originating in India more than 5,000 years ago, Ayurveda focuses on maintaining health and preventing disease through natural remedies, herbal medicines and balanced lifestyle practices [1], [2], [3]. Unlike modern medicine, Ayurveda emphasizes holistic treatment, which includes physical, mental and spiritual well being [7], [8].

The word "Ayurveda" is derived from the Sanskrit words "Ayur", meaning life and "Veda", meaning knowledge. Thus, Ayurveda literally means "science of life". Ayurvedic treatment is primarily based on the balance of three fundamental energies known as doshas: Vata, Pitta and Kapha. Any imbalance between these doshas can lead to various diseases [1], [3].

Traditional Ayurvedic knowledge is preserved in classical texts such as Charaka Samhita, Sushruta Samhita and Ashtanga Hridaya. These texts contain extensive information about diseases, herbs, medicinal plants and treatment procedures. However, the large amount of information and complexity of traditional texts may make it challenging for modern users to access this knowledge.

With the advancement of information technology, it has become possible to digitize traditional medical knowledge and develop intelligent health care systems that can assist users in finding appropriate treatments [4], [6]. Drug recommendation system is a type of information system that suggests suitable drugs based on specific inputs such as symptoms or diseases.

Ayurvedic drug recommendation system is designed to provide accurate Ayurvedic drug suggestions to users based on disease input. The system stores information about diseases, herbs and formulations in a structured database. When a user enters the name of a disease, the system retrieves relevant Ayurvedic medicines from the database and presents them as recommendations.

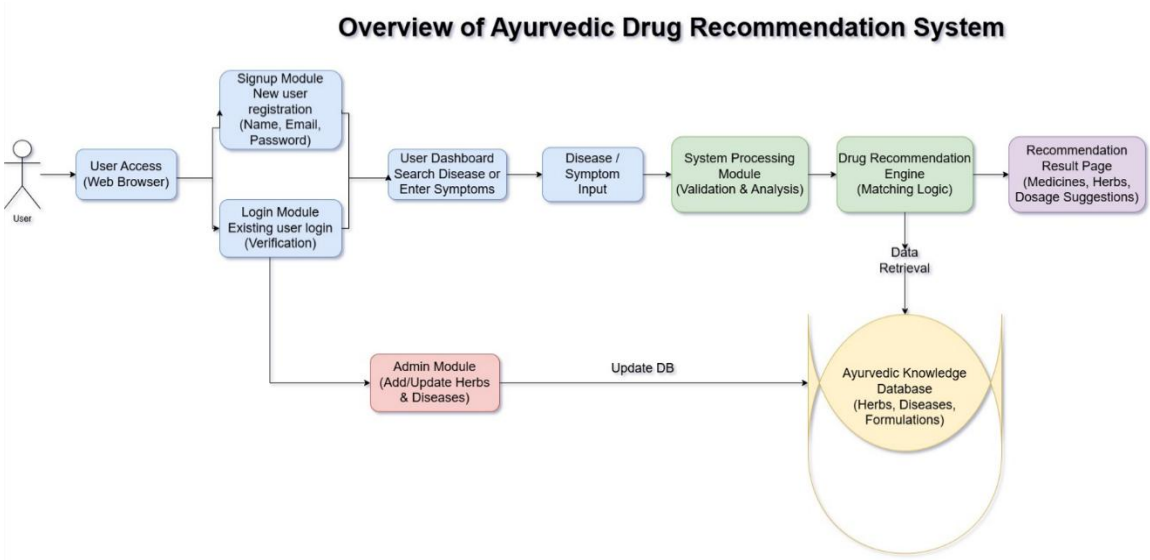


Figure 1.1 Overview of Ayurvedic Drug Recommendation System

Ayurvedic drug recommendation system is designed to provide accurate Ayurvedic drug suggestions to users based on disease input. The system stores information about diseases, herbs and formulations in a structured database. When a user enters the name of a disease, the system retrieves relevant Ayurvedic medicines from the database and presents them as recommendations.

The proposed machine is carried out as an internet primarily based utility, allowing users to access the platform via an internet browser. The tool brings together front end tech like HTML, CSS and JavaScript with back end tech like PHP and MySQL. This helps manage records and database tasks.

- It lets customers quickly find information without reading huge texts.
- The tool also helps store find and manage medical info.

The Ayurvedic Drug Recommendation System is useful for:

- Students
- Researchers
- Health professionals
- People curious about remedies

This system provides information, like a manual. It does not replace advice.

By mixing Ayurvedic knowledge with modern internet tech this tool helps make old healthcare knowledge easy to access.

1.2 Objectives of the Project

The Prakriti-Care Ayurvedic Drug Recommendation System wants to make a website that makes it easy for people to get advice from Ayurvedic experts. The main goals of this project are:

1. **Putting knowledge on the computer:** We want to take what we know about Ayurvedic medicine and put it into a computer system. This way we can store information about diseases what they look like, herbs and medicines in one place. This makes it easier to find and use this information, which's often hard to find in old books.
2. **Making a website that's easy to use:** We want to make a website that is simple and easy to use even for people who are not good with computers. People can use this website to find out about diseases what medicines are recommended and learn about herbs and medicines in a way that's easy to understand.
3. **Storing information in a way that makes sense:** We also want to make a system that stores information like diseases, natural remedies and medicines in a way that is organized and easy to use. This helps us keep track of information find what we need quickly and makes the website work better on phones and computers. The Prakriti-Care Ayurvedic Drug Recommendation System is about making Ayurvedic medicine more accessible and these goals are important, to making that happen. The Prakriti-Care Ayurvedic Drug Recommendation System will help people get the information they need about medicine.
4. **Implementation of an intelligent recommendation system:** The gadget will offer reliable Ayurvedic drug suggestions based entirely on user enter. When a person enters a disease name or signs and symptoms, the tool techniques the query and retrieves the applicable medications, along with their uses, blessings, and effectiveness. This helps consumers to make knowledgeable healthcare choices [7], [8].
5. **Improving accessibility and integration of technology in healthcare:** The initiative seeks to effectively make data on Ayurvedic medicine online for clients in various locations. It additionally indicates how modern web technology can draw attention and motivate the use of herbal treatments alongside traditional healthcare structures [4], [5].

1.3 Limitations of Existing Systems

Although many virtual healthcare systems exist these days, many of them are awareness mainly about current medical treatments instead of traditional medical structures like Ayurveda [4]. One of the main limitations of the current structure is that an included Ayurvedic Treatment Foundation. Many apps only offer basic information approximately herbs or diseases without providing sensible suggestions [6].

Table 1.1 Comparison of Traditional and Digital Healthcare Systems

Feature	Traditional Ayurvedic Healthcare System	Digital Ayurvedic Healthcare System
Information Access	Information is mainly stored in ancient texts, books, and practitioner knowledge.	Information is stored digitally and can be accessed through web applications and databases.
Speed of Information Retrieval	Retrieving information from books or experts takes time.	Information can be retrieved instantly using search features and automated systems.
Accessibility	Access to Ayurvedic knowledge depends on availability of practitioners and physical texts.	Accessible anytime through internet enabled devices such as computers and smartphones.
Data Storage	Records are stored manually in physical documents or written registers.	Data is stored electronically in structured databases such as MySQL.

Accuracy of Recommendations	Recommendations depend heavily on the knowledge and experience of practitioners.	The system uses stored datasets to provide consistent and systematic recommendations.
Scalability	Difficult to scale because information must be manually documented and distributed.	Easily scalable as new diseases, herbs, and formulations can be added to the database.
Information Sharing	Sharing knowledge requires physical documents or verbal communication.	Information can be shared instantly through digital platforms and online systems.
User Convenience	Patients must physically visit Ayurvedic practitioners for consultation.	Users can access recommendations through web applications from anywhere.
Record Maintenance	Maintaining patient records manually is time consuming and prone to errors.	Digital systems maintain records efficiently and allow easy updates.
Integration with Technology	Traditional systems have minimal integration with modern technologies.	Digital systems can integrate with AI, mobile applications, and wearable devices.

Another disadvantage is the issue of accessing traditional Ayurvedic knowledge. Most statistics are stored in classical texts written in Sanskrit or various traditional languages, making it difficult for modern customers to interpret and follow the knowledge [1], [2], [3].

Existing systems often lack user-friendly interfaces. Users may additionally want to navigate complex menus or search through large amounts of information to find relevant treatments. Another problem is the absence of intelligent search and recommendation mechanisms. Most existing platforms characterize only as

information databases in preference to as selection assistance systems [7], [8]. Additionally, many fitness care systems currently do not integrate current technologies that include natural language processing, which can improve query information and increase user delight. Due to these limitations, there is a need for a machine that blends Ayurvedic scientific knowledge with modern software technology to provide intelligent recommendations for medical drugs [9], [10].

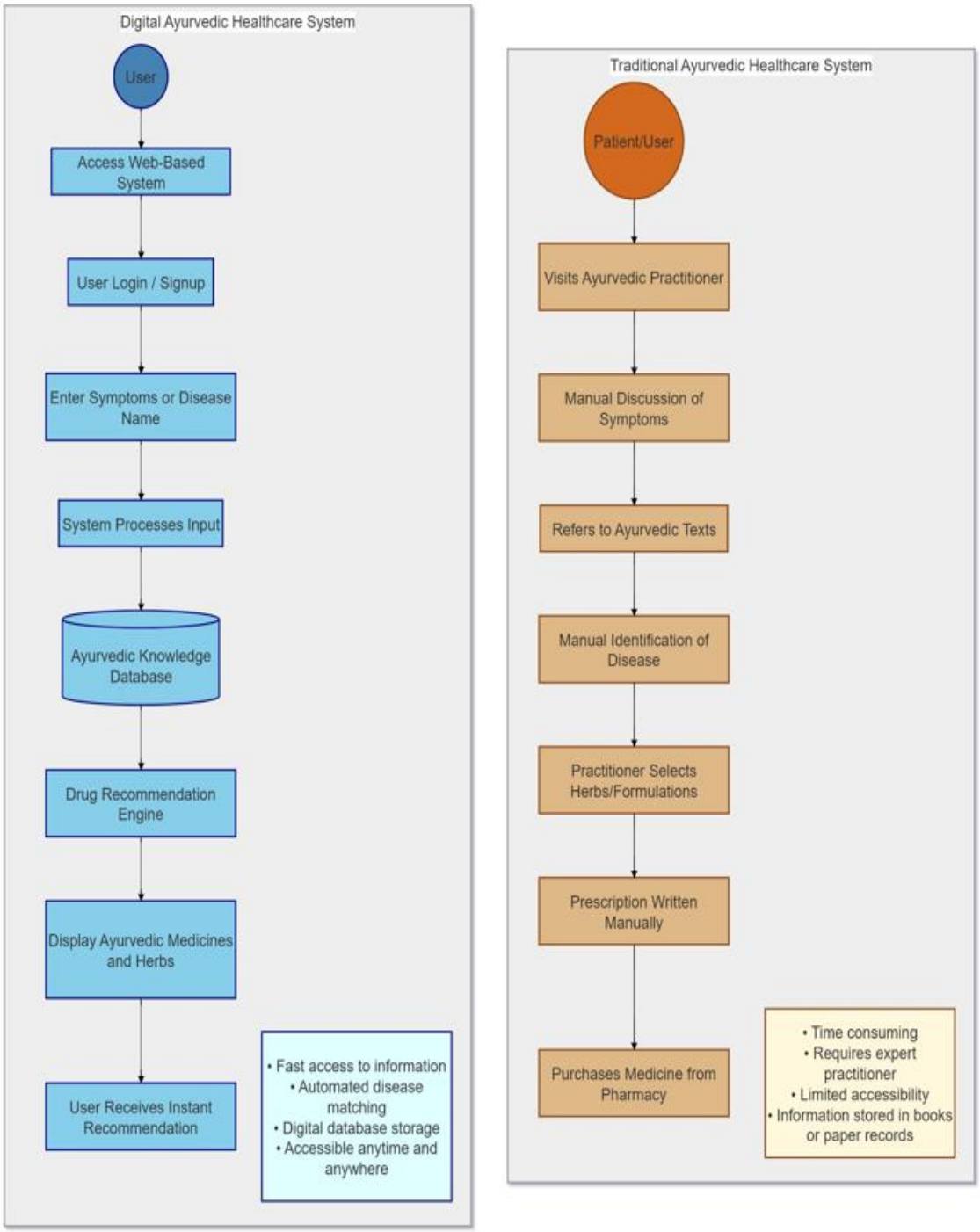


Figure 1.2 Traditional vs Digital Ayurvedic Healthcare System Flow

1.4 Benefits of the Proposed System

The Prakriti-Care Ayurvedic Drug Recommendation System has several advantages over the existing methods to access Ayurvedic knowledge. The system combines traditional healthcare knowledge and contemporary web solutions to offer users a quick and simple way to access information on Ayurvedic drugs and treatments [4], [5].

One of the benefits of the proposed system is the digital storage of Ayurvedic medical knowledge. While traditional Ayurvedic books are a good source of information, accessing the information contained in them is a slow and time consuming process. By digitizing this information and putting it into a structured database, users can access the information almost instantaneously.

Another important advantage is improved accessibility and ease of use. The system is web-based; therefore, it can be accessed from any place on any device that has internet access. This is of significant advantage to students, researchers, and healthcare practitioners who are able to access the information from any place at any time and to those who don't need to physically visit a library or flip through different books for the required information [4].

Further, the system is able to provide users of the system with accurate drug recommendations for a given disease on input of that particular disease. Users can obtain Ayurvedic drug recommendations without the need to seek for treatments manually. This increases the efficiency of the system and reduces the effort of the users required to identify the information that is needed for treatment [7], [8]. Additionally, the system enhances the efficiency of data management and storage. All information relating to a particular disease, herbs, and treatments will be stored in a structured relational database supporting the system. Managing, updating, and using the information will be efficient.

In essence, the system enhances the ease of access and use of the traditional healthcare systems [9], [10].

1.4.1 Faster Access to Ayurvedic Drug Information

One of the major benefits of the proposed system is the provision of fast access to Ayurvedic drug data. Searching for Ayurvedic data through conventional approaches

often requires going through multiple sources such as books, manuscripts, or research papers. Such an approach may be quite inefficient and takes too much time [1], [2], [3].

A solution to this problem is provided by storing Ayurvedic data in a structured digital database. Such a database contains information regarding diseases, herbs, and formulations used in Ayurveda. With the help of the input disease name, users can access drug data in the database within seconds [14], [16].

This results in a reduction in the time required to obtain information. Users will be able to obtain precise recommendations quickly without having to search through different sources. Fast access to information is particularly important for students and researchers who regularly refer to their textbooks on Ayurveda. In addition, it is important for healthcare professionals who need quick access to medical information on the spot. Moreover, this system enables many users to work with it simultaneously. As a web-based system, the number of users accessing the application does not affect the system's performance [9], [10].

In summary, the system offers a significant increase in the efficiency of obtaining information on drugs prescribed in Ayurveda.

1.4.2 Accurate Drug Recommendation Based on Disease

Accuracy is very important in a healthcare system. The proposed Ayurvedic Drug Recommendation System will make drug recommendation with great precision based on the disease provided by the user. The system uses a database that holds the relationship of diseases and Ayurvedic formulations [7], [8]. Diseases in the database will be linked with their respective herbs/ formulations used in the Ayurvedic treatment.

Once the user types in the disease, the program searches for formulations for that particular disease in the database and presents them to the user in addition to the information such as drug name, description, and use. This is an automatic way through which users will get recommendations from information contained in the database. This means that chances of making errors during manual searches will be minimized [14], [15].

Moreover, the recommendation process will improve with time since the system can be updated with new drug/disease relationships that may improve the accuracy of

recommendations. With time, the database will remain relevant as new data becomes available, therefore maintaining the accuracy of recommendations [6].

In conclusion, the proposed system will ensure that users receive reliable Ayurvedic drug recommendations.

1.4.3 Efficient Storage of Ayurvedic Knowledge

Ayurvedic medicine is based on abundant information regarding herbs, formulations, diseases, and various techniques. Traditionally, these pieces of information are contained within classical books and papers. It goes without saying that those are crucial sources, but their accessibility is a challenge [1].

To address that problem, the proposed system will provide the possibility to store information regarding ayurveda in an electronic database. This database is comprised of tables where each one contains information regarding specific aspects of ayurveda, including diseases, formulations, herbs, etc. This process takes place in a database management system called MySQL [16].

In this case, there are several benefits of utilizing databases to store data. To start with, all information is stored in a systematic way. Secondly, there will be a possibility to make inquiries, and obtain the information very quickly. Thirdly, it will be easy to update information when needed. Finally, electronic storage eliminates risks of any kind of damage to paper sources.

Therefore, we come to the conclusion that using a database will be beneficial in terms of storing information.

1.4.4 Scalability of the Web Based Application

Scalability is an essential characteristic of all contemporary software systems. Scalability means the capability of the system to process more data and support more users without experiencing any performance-related problems [9], [10].

The suggested Ayurvedic Drug Recommendation System is a web-based software solution. This gives scalability to this system. With an increase in the number of herbs, diseases, and formulations, the system can store them in its database effortlessly.

Scalability enables the following future enhancements:

- Integration with machine learning models
- Addition of new herbal databases
- Development of a android application
- Multilingual support

With this flexible design, the system can grow and evolve over time without needing major structural changes.

1.4.5 Data Security and User Privacy

Data security is a necessity for any application built on the web platform. The proposed system will ensure that any user data and information stored in the system are secure from any form of breach [11]. The application will make use of secure database connections and server-side scripting to facilitate data management. Information like user authentication details can be secured using authentication services. Some actions can also be limited to the authorization of particular individuals only. For instance, altering the database can only be performed by the administrators of the system.

In addition to security provisions, the system will also ensure that user privacy is maintained. All user personal information will be stored securely and not released to anyone else apart from the users themselves.

1.4.6 Improved Healthcare Information Accessibility

With this suggested system, there will be greater availability of health care information concerning Ayurveda. Many individuals are fascinated by natural medicines and herbal remedies; however, finding authentic information is challenging for them. With the help of the web based Ayurvedic Drug Recommendation System, people can search for diseases and learn more about Ayurvedic medications.

The system may also be used as an educational tool by students learning traditional medicine to understand relationships between various diseases and drugs. This system may prove to be very helpful for researchers to understand the database system for Ayurvedic formulations [7].

Another benefit of using this system is that it can increase the awareness of herbal medicines among people [6].

CHAPTER 2

LITERATURE SURVEY

2.1 Introduction

One of the most ancient medical systems in the world is Ayurveda. This discipline has been used in India for thousands of years. It focuses on health maintenance and disease prevention using traditional approaches such as herbal medicines, nutrition guidance, and other means of enhancing well-being [1], [2]. The essence of Ayurvedic practice lies in the vast amount of written knowledge that describes various diseases, plants used for medicines, formulas, and treatment procedures.

As technology moves forward people are getting more interested in keeping traditions alive and using them in modern healthcare. It is really important to put knowledge into a digital format and connect it with health informatics systems. These days digital health and electronic medical records are a part of healthcare. Doctors and patients can easily get information about any topic.

Systems that recommend drugs are now a part of health informatics. They use computer techniques to find the information when someone asks for it. These systems help doctors find the medicines, treatments or steps to prevent certain diseases.

A smart system that recommends drugs could be a way to share and manage Ayurvedic knowledge. It could tell users about herbs, formulas and how they can help people feel better. Using Natural Language Processing, machine learning and good database management can make Ayurvedic drug recommendation systems work better.

When we look at what has been written about this topic we can see that there are some problems with the way things are done now. We need to make systems that can recommend Ayurvedic drugs. This will help us do a job of using Ayurvedic traditions, in modern healthcare and make sure people get the best treatment possible.

2.2 Traditional Ayurvedic Knowledge Systems

This traditional Ayurvedic knowledge continues to live on in classical books and orally from generation to generation for many years. Famous books like Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya which contain detailed descriptions about

diseases, herbs, treatment techniques are among the well-known classical Ayurvedic texts [3]. They continue to play a major role for practitioners and researchers working in this field.

However, searching information in them becomes problematic since most of them are written in the Sanskrit language requiring special skill and knowledge for reading them. Besides, it might be difficult to find particular treatment formulas since the knowledge is dispersed between multiple volumes of texts.

Many efforts have been made in recent times to convert these texts into an electronic format by digitalizing them. Nowadays there are many digital libraries storing all necessary information in digital format and allowing searching in them. However, these sources do not usually offer complex searches or intelligent recommendations.

One more difficulty is associated with the absence of structural organization of texts since the descriptions are written more like fairy-tales. That makes it hard for the computer-based knowledge extraction from texts.

Modern information systems may assist in structuring Ayurvedic knowledge in databases and providing effective search capabilities [14].

2.3 Healthcare Recommendation Systems

Recommendation systems are omnipresent; they are used in e-commerce applications, entertainment, and healthcare. These recommendation engines use input provided by users and provide recommendations, some systems applying pre-defined rules and others utilizing machine learning algorithms.

In the domain of healthcare, recommendation engines assist in the selection of appropriate therapies or drugs. For example, clinical decision support systems aid clinicians in selecting appropriate therapies for their patients on the basis of observed symptoms and existing medical history.

Healthcare recommendation systems primarily employ rule-based approaches:

Rule-based systems apply pre-defined rules for making recommendations. In Ayurveda, rules connect diseases, herbs, and formulations. For example, when patients exhibit symptoms of cough and cold, the recommendation engine suggests herbs such as Tulsi, Ginger, or Mulethi [3].

In case of Ayurvedic Drug Recommendation System, rule-based recommendation engines will be the preferred choice for connecting diseases with Ayurvedic formulations and herbs on the basis of existing literature [7].

2.4 Literature Review on Digital Health Systems

The advent of digital health care systems has gained much popularity due to the advancement in information technology in the past few years. The digital health system uses digital technology for storing and analyzing the healthcare data [4].

There are various advanced health applications available with features like EHR systems, telemedicine platforms, disease predicting models, and medication recommending applications.

Various studies have been conducted regarding the use of machine learning and artificial intelligence techniques in analyzing health-related data and suggesting treatments accordingly.

The digital health care system is advantageous in many ways, such as easier access to information, faster decisions, and better management of patients.

However, most of the health care systems available today are based on modern allopathic medicines and ignore traditional health care systems such as Ayurveda [8].

Hence there arises a need for designing new systems that can be designed specifically with the help of traditional medicines and their databases.

2.4.1 Previous Work on Herbal Drug Recommendation Systems

Several attempts have been made by various researchers to develop systems that provide herbal medication suggestions based on diseases or symptoms.

While some systems concentrate on developing herbal medicine databases storing data on medicinal herbs and their usage, other systems use machine learning techniques to determine probable treatment methods according to symptoms. Machine learning involves analysis of large amounts of data to find relationships between symptoms and potential remedies [6].

Regarding Ayurveda, several research efforts have been made towards developing a digital version of classic Ayurvedic literature and searchable databases [2], [3].

However, many of these systems have drawbacks, such as:

- Limited dataset coverage
- Lack of user friendly interfaces
- Absence of automated recommendation features
- Limited integration with modern web technologies

These points show the need for a more accessible Ayurvedic drug recommendation system.

2.5 Existing Ayurvedic Information Systems

Several information systems related to Ayurveda have been developed in the form of websites, apps, and research portals.

The majority of such systems provides general information about Ayurvedic herbs and remedies. Such resources can be used for educational purposes. However, these resources do not feature automated drug recommendations or efficient search engines.

It is also worth mentioning that several sources allow people to get acquainted with electronic texts of classical Ayurvedic literature [1]. Although useful from an informative perspective, they are not structured in any way and cannot serve as a basis for automated information processing.

Another issue associated with Ayurvedic resources relates to the fact that information about diseases, herbs, and formulas is stored independently of each other, which hampers the creation of adequate recommendations.

Finally, there is also an issue of poor design. Many applications lack efficient user interfaces [12].

All these problems point to the necessity to develop a modern information system.

2.6 Summary of Literature Review

The review of literature shows that it is really important to combine Ayurveda medicine with new technologies like computers. There are websites and databases about herbs but most of them do not have smart features that can suggest things to people or organize data in a good way.

We all know that systems that help with healthcare decisions have already been very helpful with handling information and supporting decisions. These systems can get

even better if we use language and manage databases in a good way like it is said in some studies.

There is no one place that can give people good advice on which Ayurvedic medicines to use for certain diseases or symptoms. This project will add to what we know by making a system that can recommend Ayurvedic drugs. The Ayurvedic drug recommendation system will be a thing that can help people. The Ayurvedic drug recommendation system is what this research is, about.

CHAPTER 3

PROBLEM STATEMENT AND PROPOSED SYSTEM

3.1 Introduction

Ayurveda is an ancient practice and one of the most prominent traditional health care systems used around the globe. It employs herbal plants, mineral-based, and lifestyle-based treatment for ensuring the general wellness of the individual. The system ensures harmony between the three vital energy factors present in the body—Vata, Pitta, and Kapha. These energy levels need to be in equilibrium; otherwise, their disequilibrium leads to numerous ailments [1], [3].

Ayurveda holds great importance and significance despite that the knowledge regarding Ayurveda is inaccessible to many. Most of this information is available in ancient literature, which is difficult to comprehend by present-day users. Moreover, identifying proper treatment usually requires expert knowledge and consumes a lot of time. Hence, there arises the need to integrate conventional medicine with technology in the current times [4].

The Prakriti-Care: Ayurvedic Drug Recommendation System fulfills this need and presents a solution through the use of a digital platform that suggests Ayurvedic drugs according to the diseases provided by the user.

3.2 Problem Statement

Despite the availability of knowledge in Ayurvedic medicine, there is still the problem of getting quality and relevant information about drugs and Ayurvedic treatment. The interest in herbal medicines is huge, but the information about them is scattered and unstructured [6].

Current health care systems connected with Ayurveda have several weaknesses; first of all, there is no digital platform where one could gather the information about diseases, herbs, formulas, etc. Most of the information about Ayurveda is contained in ancient

manuscripts and books; thus, it is not always available and requires profound knowledge.

Another problem is connected with searching for the right medicine for certain diseases. To understand how diseases connect with the use of herbs, an Ayurvedic practitioner has to study classical Ayurveda texts for years [7].

However, when it comes to regular users, it may turn out to be difficult and confusing. There are certain websites and online libraries where one can find the information on herbs and medicines, but there is no way for people to get advice based on their condition. Thus, people have to look through a vast amount of information manually.

What is more, the current systems lack the possibility to conduct the search according to the needs of users who are not familiar with technical language or Ayurvedic terminology. There is a considerable gap between Ayurvedic knowledge and modern technology; only a few smart algorithms exist [6].

This project aims to develop a web-based system where information would be organized and recommendations for medicines would be provided automatically.

Here's the main problem this project tackles:

- It's hard for people to quickly find Ayurvedic drug info.
- There's no central digital database for Ayurvedic medicine.
- Intelligent recommendation systems for Ayurveda are still rare.
- Traditional Ayurvedic texts are just too complex for most people.

To solve this, the project aims to build a web based application that recommends Ayurvedic drugs based on disease info entered by users.

3.3 Proposed Web Based Ayurvedic Drug Recommendation System

To overcome the deficiencies of the existing systems, this research develops a Web-based Ayurvedic Drug Recommendation System known as Prakriti Care.

This system attempts to give drug suggestions to the users as per the diseases entered by them. Disease names, herb names, and Ayurvedic formulations will be stored in the database of the system.

There is a three layer architecture of this system, which consists of:

Presentation Layer (Frontend): This layer provides the graphical user interface through which the interaction takes place. The presentation layer contains web pages developed using HTML, CSS, and JavaScript [12].

Application Layer (Backend): This layer processes user request and performs various functions. The backend will be developed in PHP [11].

Database Layer: This layer stores data about diseases, herbs, and formulation.

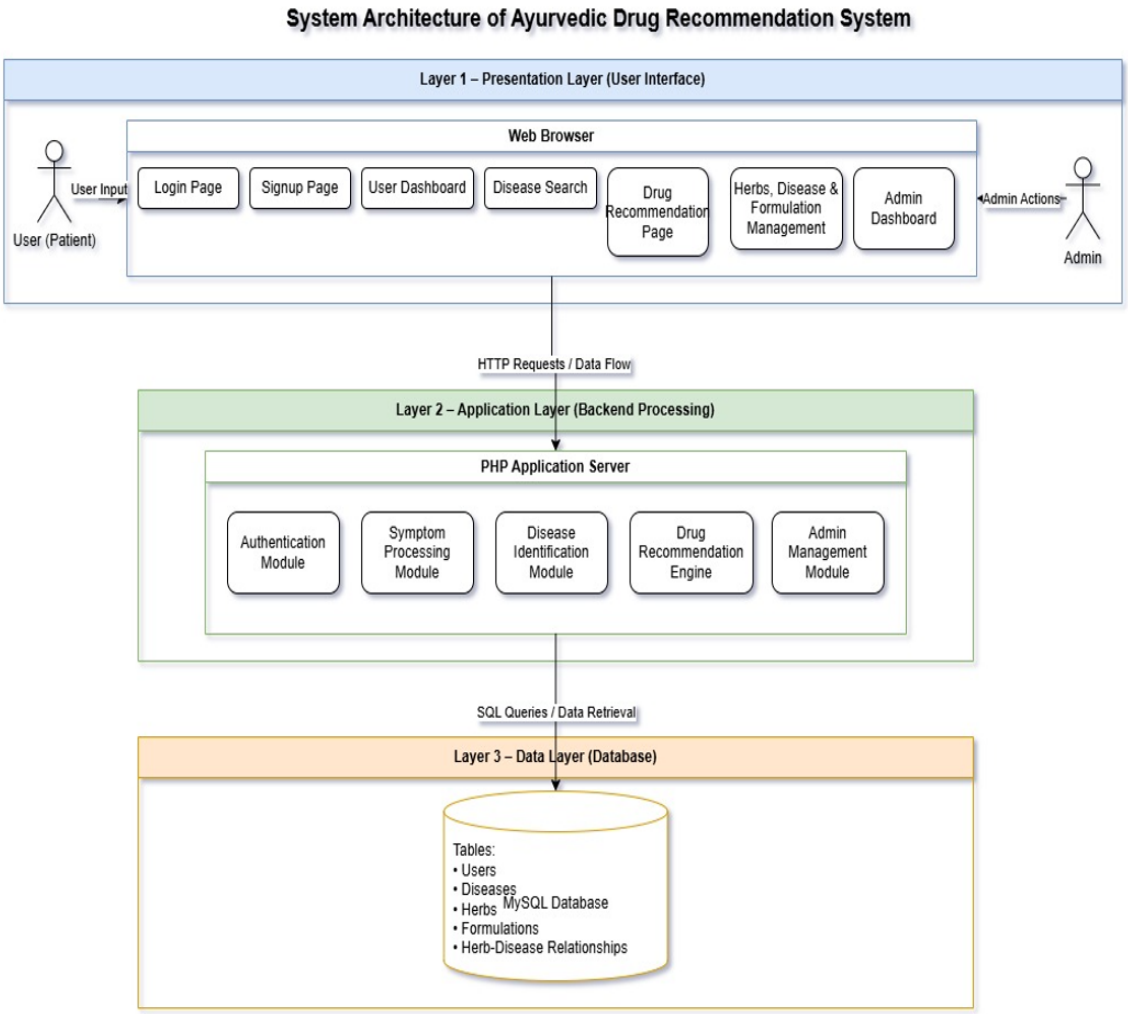


Figure 3.1 System Architecture of the Proposed Ayurvedic Drug Recommendation System

The process flow starts when the user types in a disease name on the web portal. This request is sent to the back-end server, where processing occurs followed by querying of the database to obtain the required results.

The results from the database come in the form of a list of Ayurvedic formulations that are connected to the disease.

The proposed system has many advantages:

- Quick retrieval of Ayurvedic drug information
- Structured storage of herbal knowledge
- User friendly web interface
- Efficient database management
- Scalability for future improvements

This system serves as an informative tool that helps users explore Ayurvedic treatment options.

Application Logic

The app handles user requests and connections to the database, which is built in PHP. When a user enters a disease name, here's how the system works:

- It grabs the input the user gives
- Checks to make sure the data is valid
- Looks up drug details in the database
- Pulls up any matching records
- Shows the results on the screen

This way, people always get accurate and relevant Ayurvedic drug suggestions.

Table 3.1 Key Functional Modules of the Proposed System

Module Name	Description	Main Functions
User Registration Module	Allows new users to create an account in the system.	User signup, user information storage, validation of user details.
User Login Module	Enables registered users to securely access the system.	User authentication, login verification, session management.

Disease Search Module	Allows users to search for diseases or symptoms in the system.	Accept disease name or symptoms, search database, display relevant disease information.
Drug Recommendation Module	Core module that recommends Ayurvedic drugs based on disease or symptoms entered by the user.	Analyze user input, match disease with herbal formulations, generate recommendation results.
Ayurvedic Herb Information Module	Provides detailed information about Ayurvedic herbs stored in the database.	Display herb name, medicinal properties, uses, and benefits.
Database Management Module	Responsible for storing and managing system data.	Manage tables for users, diseases, herbs, and formulations using MySQL.
Admin Management Module	Allows the administrator to manage system data and update the database.	Add, edit, or delete diseases, herbs, and formulations.
User Interface Module	Provides the graphical interface through which users interact with the system.	Display web pages, input forms, recommendation results.

Database System

Database holds all those required items that were essential for this application. Separate tables have been used for diseases, herbs, and formulations. The complete process is managed by MySQL with connections between different parts.

For example:

- One disease can have lots of recommended drugs
- Each drug might be made with several herbs
- Each herb comes with its own set of medicinal properties

By setting up the info in relational tables, the system can quickly pull out whatever's needed for recommendations.

Advantages of the Proposed System

This Ayurvedic Drug Recommendation System have different benefits:

- You get fast access to Ayurvedic drug info
- No need to sift through old texts
- Ayurvedic knowledge is easier to reach
- Helps spread healthcare awareness and education
- Offers a digital, easy to use platform for Ayurvedic medicine

3.4 System Architecture and Workflow

The architecture of the proposed system design is arranged in such a way that there are no difficulties in interaction between user interface, application processing, and database. The system architecture has the following components:

1. The User Interface Layer: This component constitutes the frontend of the application. It gets input from users and returns results. For its creation, web technologies have been used like HTML, CSS, and JavaScript [12].

The user interface is made user friendly and intuitive in use.

2. The Application Processing Layer: It is responsible for handling user requests and interacting with the database. PHP has been chosen for programming on the server side [11].

During the process of searching for diseases, the application processing layer will do the following things:

- Receives input from the user interface
- Validates the input data
- Generates a database query
- Retrieves relevant drug information
- Sends results back to the user interface

This layer guarantees the system operates smoothly and efficiently.

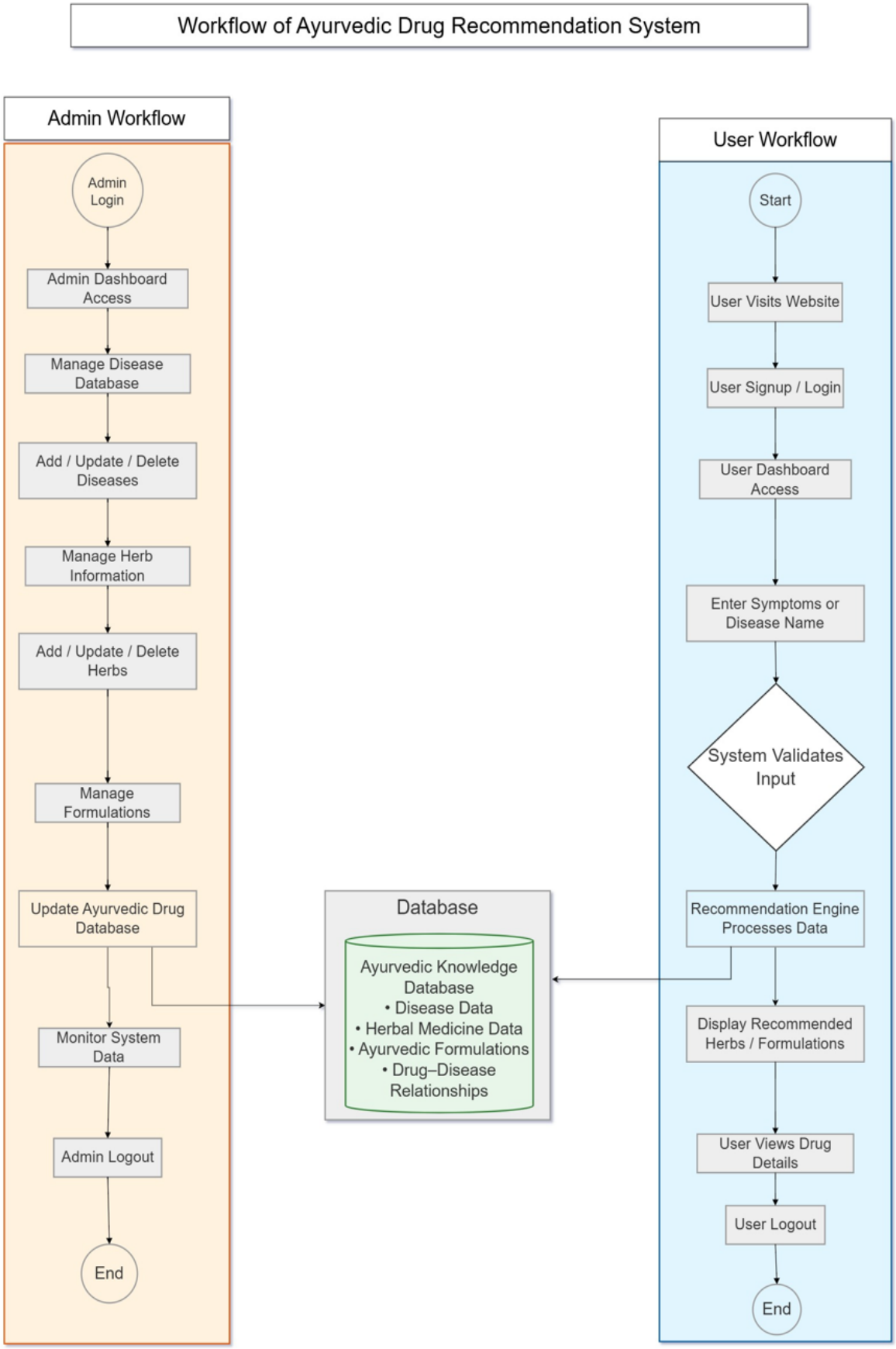


Figure 3.2 Workflow of Ayurvedic Drug Recommendation System

3. Database Layer

The system offers precise and quick medication suggestions. The database layer contains all the necessary information needed for the system. The MySQL database consists of multiple tables containing disease, herb, and formulation information [16].

System Workflow

The workflow of Ayurvedic drug recommendation system can be described as follows:

- The user accesses the web application through a browser.
- The user enters the name of a disease in the search form.
- The input data is sent to the server for processing.
- PHP application logic receives and validates input.
- The system generates a query to search the MySQL database.
- The database returns matching drug information.
- The application processes the retrieved data.
- The results are displayed on the web interface.

This workflow ensures that the

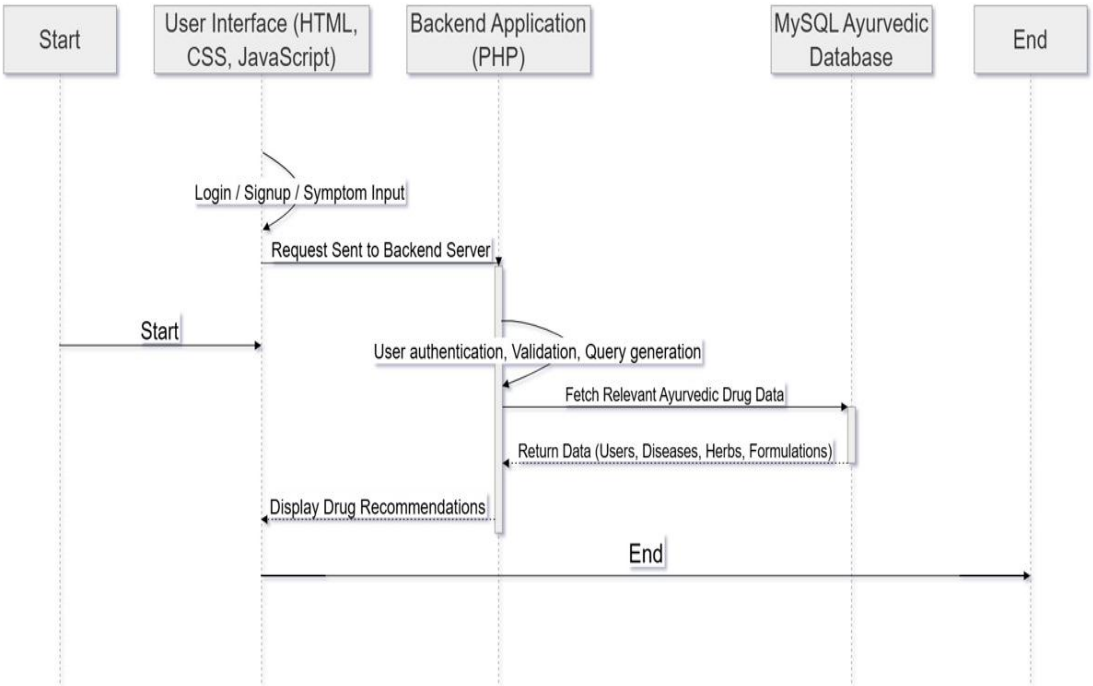


Figure 3.3 Interaction between User Interface and Database

Data Flow in the System

The flow of data in the system involves several stages:

- User Input → Application Processing
- Application Processing → Database Query
- Database Query → Data Retrieval
- Data retrieval → result display

Security Considerations

Security is an important point of any web application. Ayurvedic drug recommendation system includes many basic security measures to protect user data and system workflow.

The security consideration include:

- Input validation to prevent invalid queries
- secure database connection
- Controlled access to system resources

By implementing these safeguards, the system ensures safe and reliable operation.

CHAPTER 4

METHODOLOGY

4.1 Introduction

The methodological framework plays an integral role in any software project, since it helps in understanding the design, development, and implementation of the system. The methodology focuses on the design, development, and implementation of the software.

The methodology for Prakriti-Care: Ayurvedic Medicine Recommendation System aims at developing a web-based application that will store all the information related to Ayurvedic medicine and provide medicine recommendations based on the disease inputs. The process involves the following stages:

- Data collection,
- System design,
- Database development,
- Backend development,
- Frontend interface design, and
- Integration of all modules.

The system utilizes contemporary technologies, providing the ability to interact with the application via the internet using a web browser. An organized development process guarantees robustness, scalability, and effectiveness. The relational database system facilitates fast access to information related to diseases, herbs, and formulations [14]. This chapter also discusses the flow of the system, tools required for developing the application, database architecture, and implementation strategy.

- Data collection
- Database design
- System architecture design
- Backend development
- Frontend development
- Database integration
- Testing and evaluation

Each stage is essential for the successful implementation of the system.

4.2 System Implementation Strategy

The system implementation approach describes the methodology that was adopted for designing and developing the Ayurvedic Drug Recommendation System. It explains how various parts of the system work together and the flow of information within the system [10].

The system implementation approach involves the following:

- Collecting Ayurvedic data related to herbs, diseases and formulations
- Designing a relational database to store Ayurvedic information
- building system architecture
- Developing Backend Using PHP
- Designing Frontend Interface Using HTML, CSS and JavaScript
- Integrating the database with the application
- System functionality testing

Each of these steps plays an important role in ensuring that the system works correctly and efficiently.

System Flowchart Explanation

Flowcharts are used to illustrate the logical sequence of operations carried out in a system. The process flow of the system is shown clearly through its input processing and output generation [9]. The process flow of an Ayurvedic drug recommendation system can be stated as follows:

- start the application
- Display the home page of the web application
- User enters disease name in search field
- System validates input data
- The system searches the database for matching records.
- Retrieve relevant Ayurvedic medicines and formulations
- Display medication recommendations to the user
- end process

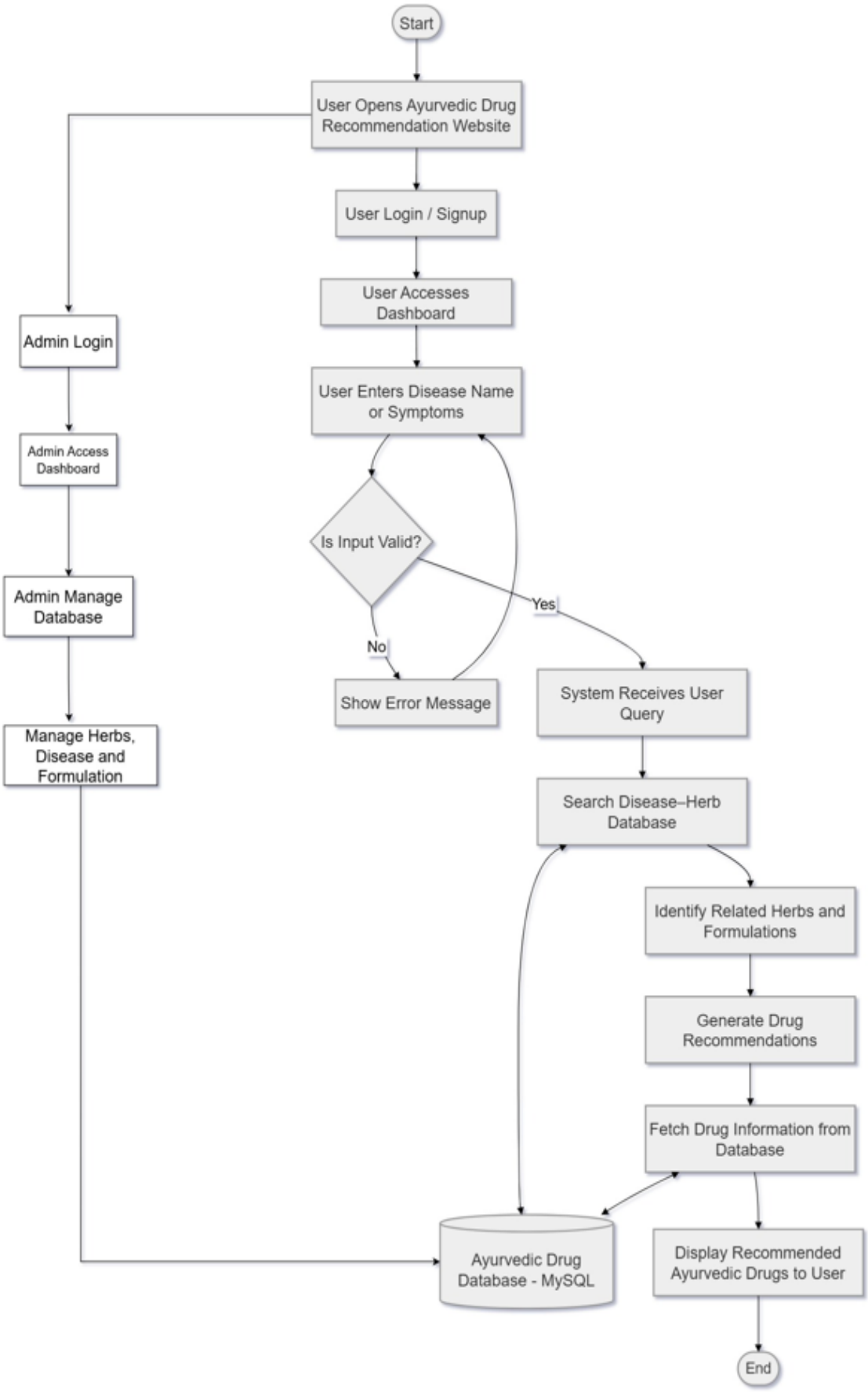


Figure 4.1 Flowchart of Drug Recommendation Process

4.2.1 Data Collection (Ayurvedic Herbs, Diseases, Formulations)

Collecting data is an important part of making the Ayurvedic Drug Recommendation System. The accuracy of the Ayurvedic Drug Recommendation System and how reliable the Ayurvedic Drug Recommendation System is depends a lot, on how good the data used in the Ayurvedic Drug Recommendation System's [6].

Table 4.1 Disease and Symptom Dataset Structure

Disease ID	Disease Name	Common Symptoms	Recommended Ayurvedic Herbs	Suggested Formulation
D001	Common Cold	Sneezing, runny nose, mild fever, sore throat	Tulsi, Ginger, Turmeric	Tulsi Kadha
D002	Fever	High body temperature, weakness, sweating	Giloy, Tulsi	Giloy Juice
D003	Indigestion	Stomach discomfort, bloating, acidity	Ginger, Amla	Triphala Churna
D004	Skin Infection	Itching, redness, skin irritation	Neem, Turmeric	Neem Paste
D005	Stress and Anxiety	Fatigue, irritability, disturbed sleep	Ashwagandha, Brahmi	Ashwagandh a Powder
D006	Constipation	Difficulty in bowel movement, abdominal discomfort	Triphala, Amla	Triphala Churna
D007	Joint Pain	Pain in joints, inflammation, stiffness	Turmeric, Ashwagandha	Turmeric Milk
D008	Weak Immunity	Frequent illness, fatigue	Amla, Giloy	Amla Juice

The data in the system includes information on:

- Diseases
- Ayurvedic herbs
- Ayurvedic formulations

This information is collected from various sources like Ayurvedic textbooks, research papers, and online medical resources.

Each disease entry includes details such as:

- Disease name
- Description
- Associated symptoms

Each herb entry contains information like:

- Herb name
- Medicinal properties
- Traditional uses

The formulation database includes Ayurvedic drugs that combine multiple herbs and formulations to treat diseases.

Table 4.2 Sample Ayurvedic Herbs Data Used in the System

Herb ID	Herb Name	Scientific Name	Medicinal Properties
H001	Tulsi	Ocimum sanctum	Antibacterial, anti inflammatory, immunity booster
H002	Ashwagandha	Withania somnifera	Adaptogenic, stress relief, energy booster
H003	Neem	Azadirachta indica	Antifungal, antibacterial, detoxifying
H004	Turmeric	Curcuma longa	Anti inflammatory, antioxidant
H005	Amla	Phyllanthus emblica	Rich in Vitamin C, antioxidant
H006	Ginger	Zingiber officinale	Anti inflammatory, digestive stimulant
H007	Giloy	Tinospora cordifolia	Immunity booster, anti fever
H008	Brahmi	Bacopa monnieri	Memory enhancer, neuroprotective

H009	Shatavari	Asparagus racemosus	Hormonal balance, reproductive health
H010	Triphala	Herbal Combination	Detoxifying, digestive support

All collected data is checked before adding to the system database.

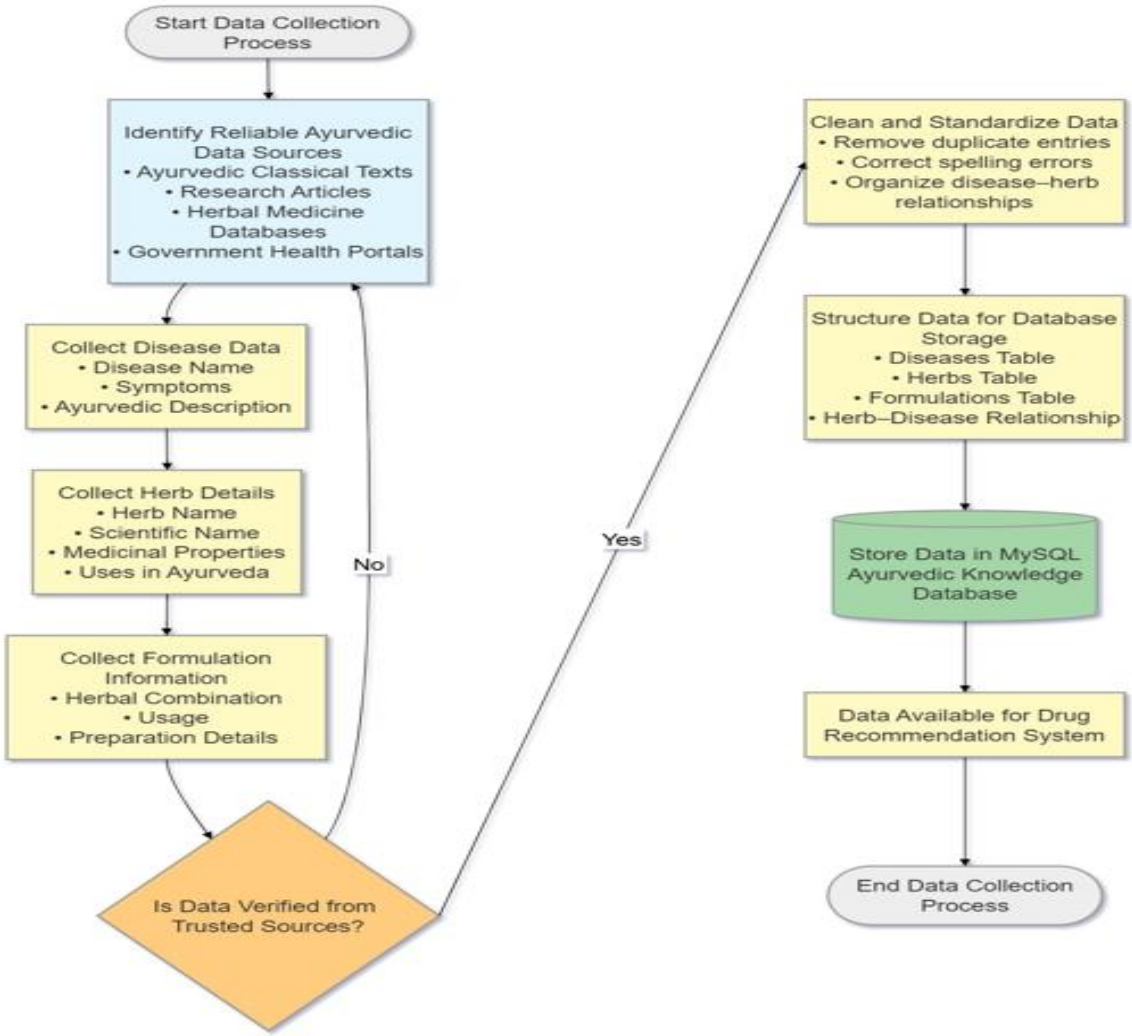


Figure 4.2 Data Collection Process for Ayurvedic Herbs and Diseases

4.2.2 Database Design and Data Processing

The database design is really important when we are making a system that recommends medicine. This database has all the information that the system needs and it helps us get the information quickly. We use a kind of database called a relational database model and we make it using MySQL [15] [16].

The database has tables and each table is like a container that holds information about different things in the system, like the Ayurvedic medicine recommendation system.

- users
- admin
- herbs
- diseases
- herb_disease_relation
- recommendations

Table 4.3 Database Tables Used in the System

Table Name	Description	Important Fields
users	Stores information about registered users of the system including login credentials and personal details.	user_id, name, email, password, gender, age, mobile
admin	Contains administrator login details used to manage the system, update datasets, and monitor user activities.	admin_id, username, password
herbs	Stores information about Ayurvedic herbs used for treatment recommendations.	herb_id, herb_name, scientific_name, description, benefits
diseases	Contains the list of diseases recognized by the system for recommendation purposes.	disease_id, disease_name, description
herb_disease_relation	Represents the relationship between herbs and diseases indicating which herb is useful for which disease.	id, herb_id, disease_id, effectiveness, dosage_notes
recommendations	Stores generated recommendations for users based on selected symptoms or diseases.	recommendation_id, user_id, disease_id, herb_id, date

Data Processing

Data processing includes obtaining and processing data from the database according to the inputs provided by users. Upon entering a disease name by the user, the system will follow a process that includes:

- Searches the disease table for matching records
- Recovers related herbs and formulations
- Processes the retrieved data
- displays results to the user

This process ensures that users receive accurate medication recommendations [7], [8].

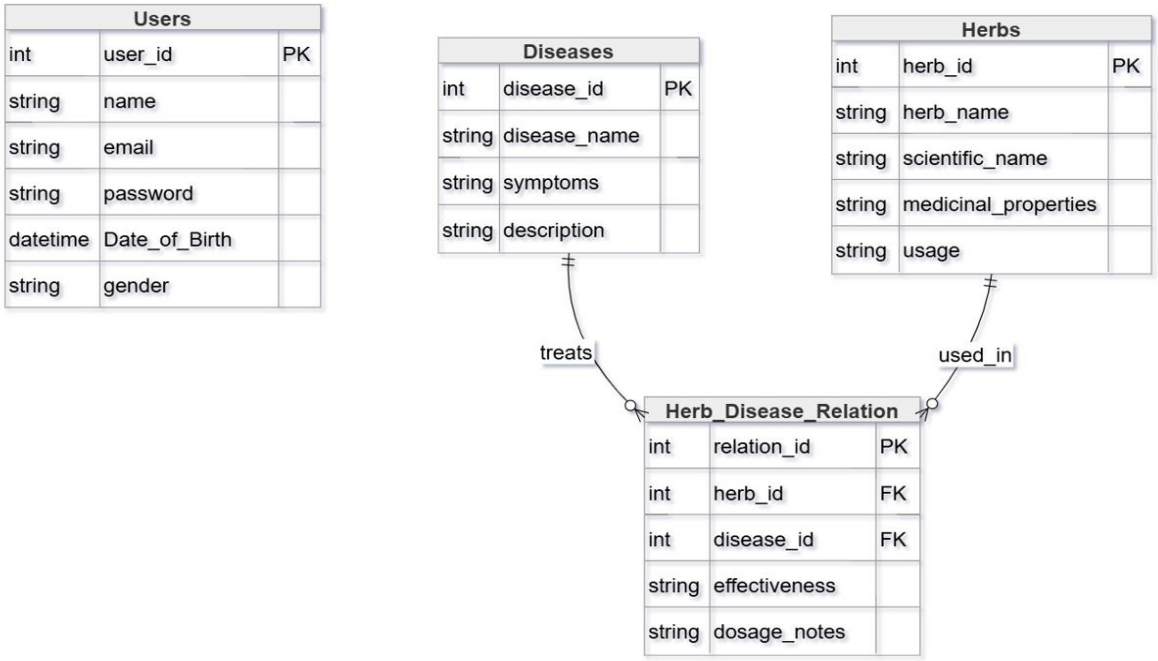


Figure 4.3 Database Schema Diagram

4.2.3 System Architecture Design

The way things are set up in the Prakriti-Care Ayurvedic Drug Recommendation System is really important for how all the different parts work. The Prakriti-Care Ayurvedic Drug Recommendation System is designed to be efficient to be able to handle a lot of users and to be easy to maintain. The Prakriti-Care Ayurvedic Drug Recommendation System is divided into three parts. This makes the Prakriti-Care Ayurvedic Drug Recommendation System more flexible and easier to change.

1. **Presentation Layer:** The presentation layer is which the user sees and interact with. This layer shows the user the results, from the Prakriti-Care Ayurvedic Drug Recommendation System. The user interface is made using HTML and CSS and JavaScript which're common tools for building websites.

The presentation layer provides:

- Disease search interface
- Drug recommendation display
- Navigation between different pages
- Informational pages about Ayurveda

The interface design emphasizes simplicity and usability, allowing users with limited technical knowledge to use the system easily.

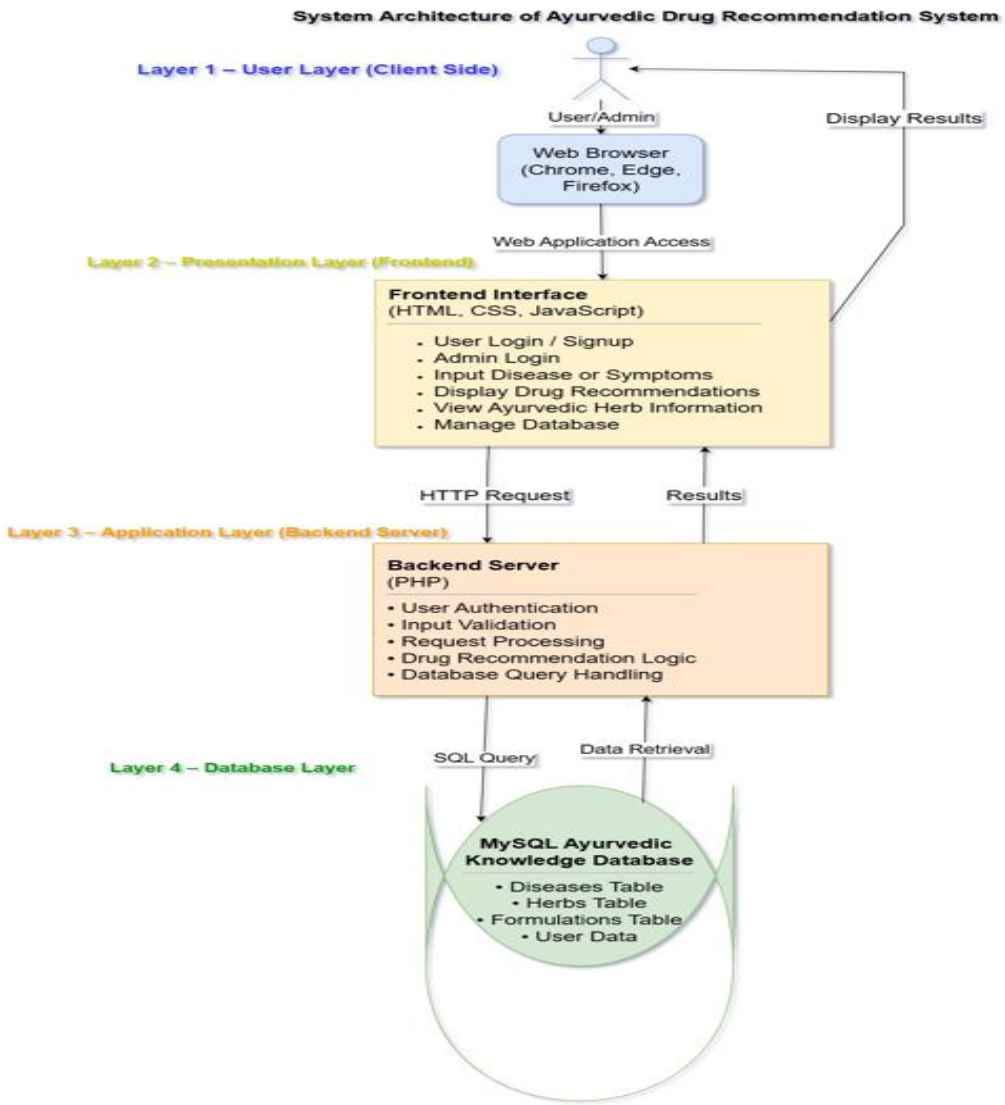


Figure 4.4 System Architecture Design Diagram

2. Application Layer: The Application Layer acts as the fundamental processor of the entire system. It takes care of all the logical processes and the interaction that occurs between the user interface and database. The Application Layer is created using the language PHP which is commonly used for server side scripting.

These tasks include:

- Processing user input
- Validating user requests
- Generating database queries
- Retrieving data from the database
- Formatting results for display

When a user enters a disease name, the application layer processes the request and searches for relevant Ayurvedic drugs in the database.

3. Database Layer: The database layer is used for storing and managing herbs, medicine, relation and users data. The application uses MySQL as the database management system.

The database stores structured information on:

- Diseases
- Herbs
- Ayurvedic formulations
- Relationships between diseases and drugs

The database architecture makes use of relations with tables linked using keys. This will ensure fast access to data. The database tier enables the system to process a huge amount of data and search for records.

Advantages of the Three Tier Architecture

Using a three tier architecture offers multiple benefits:

- Improved system organization
- Easier maintenance and updates
- Better scalability
- Enhanced security
- Faster performance

4.2.4 Backend Development Using PHP

Backend development involves developing the logic on the server side which processes the user's request and communicates with the database [11]. The backend of the Ayurvedic Drug Recommendation System is created using PHP due to its support with MySQL database and web servers.

The backend executes critical tasks:

- Receiving user input from the web interface
- Validating the input data
- Executing database queries
- Retrieving relevant records
- Returning results to the user interface

These operations are done using PHP scripts. For example, when a user inputs a disease name, the PHP script gets the information and runs a database query for related Ayurvedic drugs.

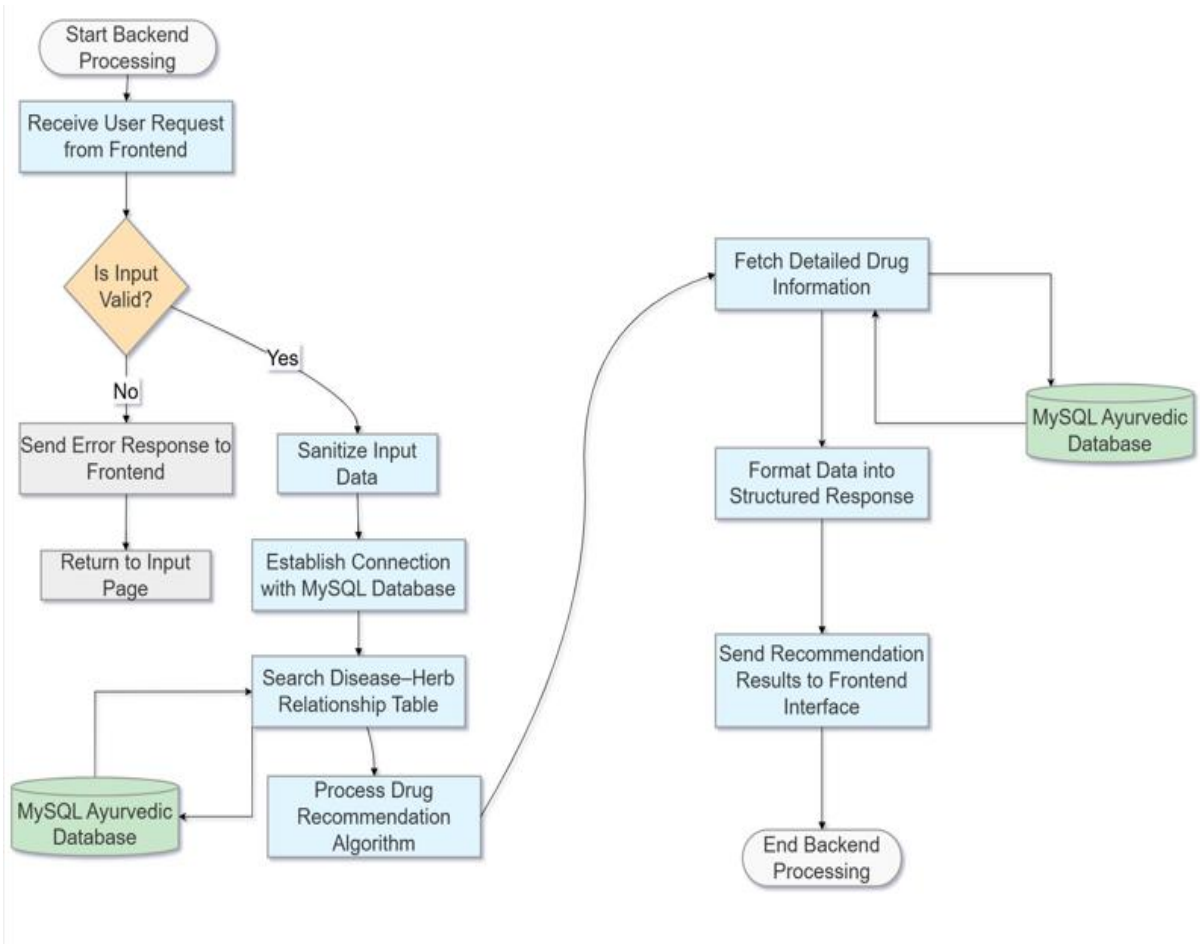


Figure 4.5 Backend Processing Workflow using PHP

The PHP backend also manages database connections using MySQL functions. Appropriate error handling ensures the system responds correctly in case of invalid input or database errors.

Backend development ensures the system processes user requests effectively and provides accurate results.

4.2.5 Frontend Development using HTML, CSS and JavaScript

The frontend of the Ayurvedic Drug Recommendation System is built using HTML, CSS and JavaScript.

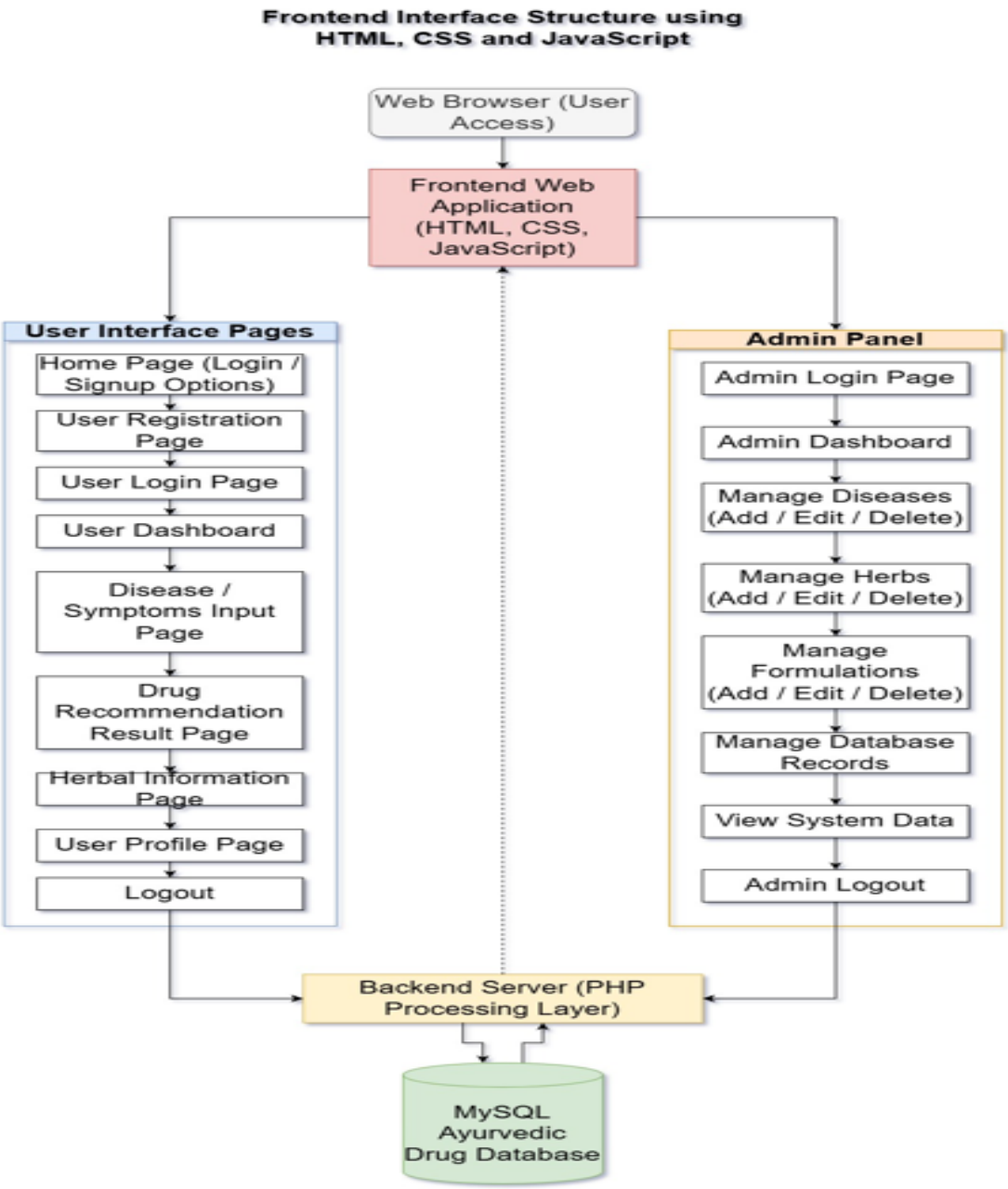


Figure 4.6 Frontend Interface Structure using HTML, CSS and JavaScript

1. HTML is used to create the structure of the web pages.
    - It defines elements such as headings, forms, buttons, tables and navigation menus.
    - The Ayurvedic Drug Recommendation System uses HTML to create the layout of the user interface.
2. CSS is used to enhance the appearance of the Ayurvedic Drug Recommendation System.
    - It controls aspects such as colors, fonts, page layout, spacing and responsive design.
    - Using CSS ensures that the Ayurvedic Drug Recommendation System has an visually appealing interface.
3. JavaScript is used to add features to the Ayurvedic Drug Recommendation System.
    - Allows behavior like Input Validation, Dynamic Content Update, Form Handling, and User Notification.
    - The Ayurvedic Drug Recommendation System employs JavaScript in order to make the system more usable for the user.

4.2.6 Database Integration Using MySQL

The integration of databases is one of the necessary components within the Ayurvedic Drug Recommendation System. For this, the system utilizes MySQL, which is known for its reliability, effectiveness, and wide availability. Several tables are present within the database for storing different types of data [15]. These tables include:

Disease Table: This table stores the details regarding diseases.

Fields include: Disease ID, Disease Name, Description

Herb Table: This table stores the details of herbs used for the treatment of diseases.

Fields include: Herb ID, Herb Name, Medicinal Properties

Relation Table: This table represents the relationships between diseases and herbs.

Fields include: Relation ID, Herb ID, Disease ID, Effectiveness

This relational database structure guarantees that the device can retrieve applicable drug guidelines efficaciously.

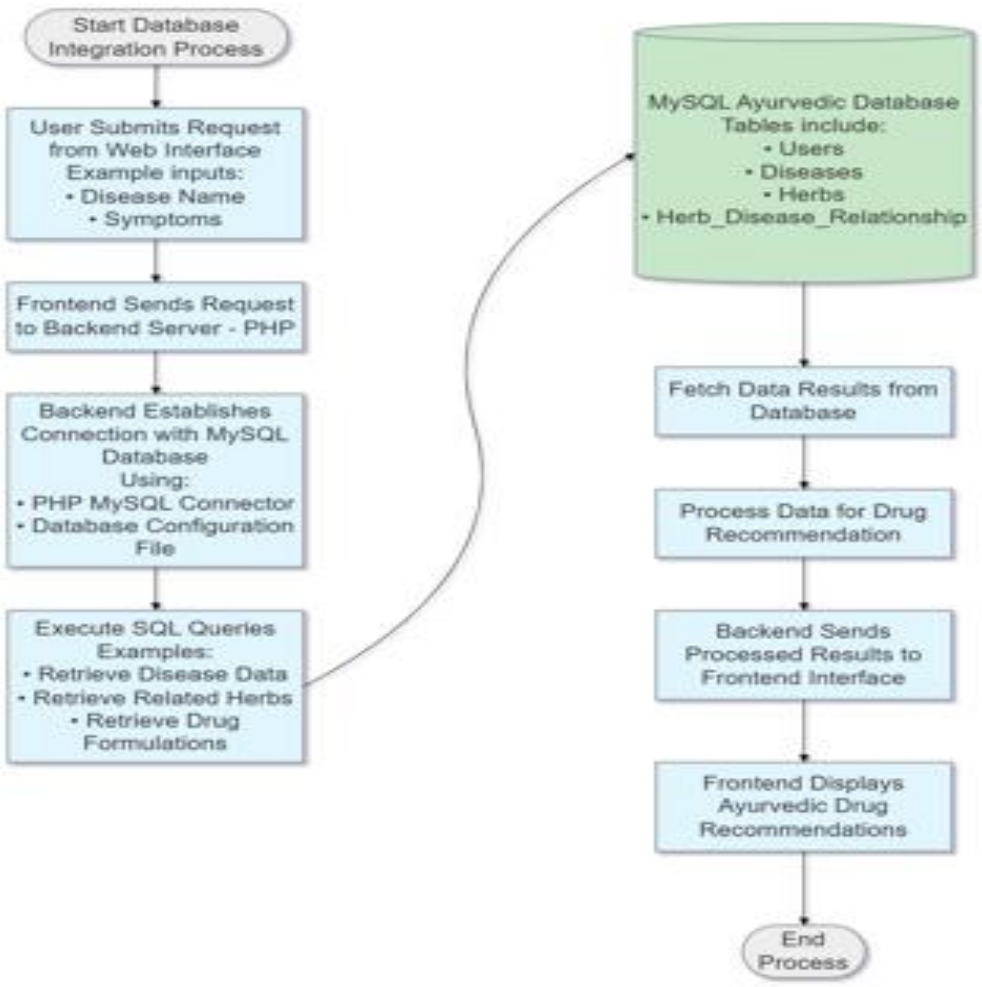


Figure 4.7 MySQL Database Integration Process

4.3 Tools / Software Requirements

The development and deployment of the Ayurvedic Drug Recommendation System require hardware and software resources.

These resources ensure that the Ayurvedic Drug Recommendation System can operate efficiently during development and execution.

4.3.1 Software Requirements

The software environment required for the Ayurvedic Drug Recommendation System includes an operating system, web browser, server environment, database management system and programming languages.

The Ayurvedic Drug Recommendation System uses Windows, Linux or macOS as the operating system.

- It uses Google Chrome or Mozilla Firefox as the web browser.
- It uses Apache Server as the server environment.
- It uses MySQL as the database management system.
- It uses PHP, HTML, CSS and JavaScript as the programming languages.

Table 4.4 Software Requirements for System Development

Software Component	Version / Tool	Purpose	Description
Operating System	Windows 10 / Windows 11	Development Environment	Provides the platform for developing, testing, and running the system.
Web Server	Apache (via XAMPP)	Server Hosting	Handles HTTP requests and hosts the web application locally during development.
Database Management System	MySQL	Data Storage	Stores information about herbs, diseases, symptoms, and drug formulations.
Backend Programming Language	PHP	Server side Processing	Processes user input, retrieves data from the database, and generates recommendations.
Frontend Technologies	HTML, CSS, JavaScript	User Interface	Used to design responsive and interactive web pages for users and administrators.
Database Management Tool	phpMyAdmin	Database Administration	Provides an interface to create, modify, and manage MySQL databases.
Code Editor / IDE	Visual Studio Code	Development Tool	Used for writing, editing, and managing project source code.
Web Browser	Google Chrome / Microsoft Edge	System Testing	Used to access and test the web based application interface.
Diagram Designing Tool	Draw.io (diagrams.net)	System Design	Used for creating UML diagrams, flowcharts, and system architecture diagrams.

4.3.2 Development Tools

- Several development tools are used to create and manage the Ayurvedic Drug Recommendation System project.
- XAMPP is used to provide a server environment that includes Apache, MySQL and PHP.
- Visual Studio Code is used as the code editor for developing the Ayurvedic Drug Recommendation System.
- Web browsers such as Google Chrome are used to test and run the web application.

CHAPTER 5

RESULTS AND DISCUSSION

5.1 System Output and Results

Ayurvedic medicine recommendation system was successfully developed and implemented as a web based application. The system provides Ayurvedic medicine recommendations to users based on the disease or symptoms entered by the user. The main objective of the system is to provide quick access to Ayurvedic medicinal knowledge and help users identify appropriate herbal remedies for various diseases.

After completion of the development and integration of all components of the system, it was tested for functionality and accuracy through different test cases. The outcomes of the test performed on the application indicate that the system performs effectively as far as retrieving the relevant drug data from the database is concerned [9].

The output of the system is produced based on the name of the disease entered by the user at the search interface. As soon as the user enters the input, it is processed and searched in the database for relevant Ayurvedic drugs and herbs which are displayed on the screen.

The information included in the output of the system is as follows:

- Disease name entered by the user
- Recommended Ayurvedic medicines or formulations
- Allied medicinal herbs
- Description of herbs or medicines
- Additional information about treatment

The system ensures that the information retrieved is relevant to the disease entered by the user. For instance, in case the disease entered is “cough”, the system will generate Ayurvedic formulations such as Sitopaladi Churna or ingredients such as Tulsi and Ginger which are usually found in most Ayurvedic medicines for treating cough [1], [3]. Likewise, in case “indigestion” is searched by the user, the system will come up with formulations like Triphala churna or ingredients like ajwain and ginger.

The output generated by the system is presented in a neat format to ensure that the users can easily comprehend the generated treatment. During testing, it was found out that the application generates output fast and without any lag in generating the results from the database.

This goes to show how efficient the backend has been developed.

5.2 User Interface Screenshots

The user interface of an Ayurvedic medicine recommendation system has a critical importance to ensure ease in interacting with the system. A good design increases the usability of the software and increases the user satisfaction level [13]. The primary pages of the system consist of the following:

Home Page

The homepage is the landing page of the application. This page informs users about the system and its usage for recommending Ayurvedic medicines. Users have options for navigating different parts of the application through the home page.Key features of the home page include:

- Website title and description
- Navigation Menu
- Informational material about Ayurveda

The design of the home page focuses on simplicity and accessibility to ensure that users can navigate the application easily [12].

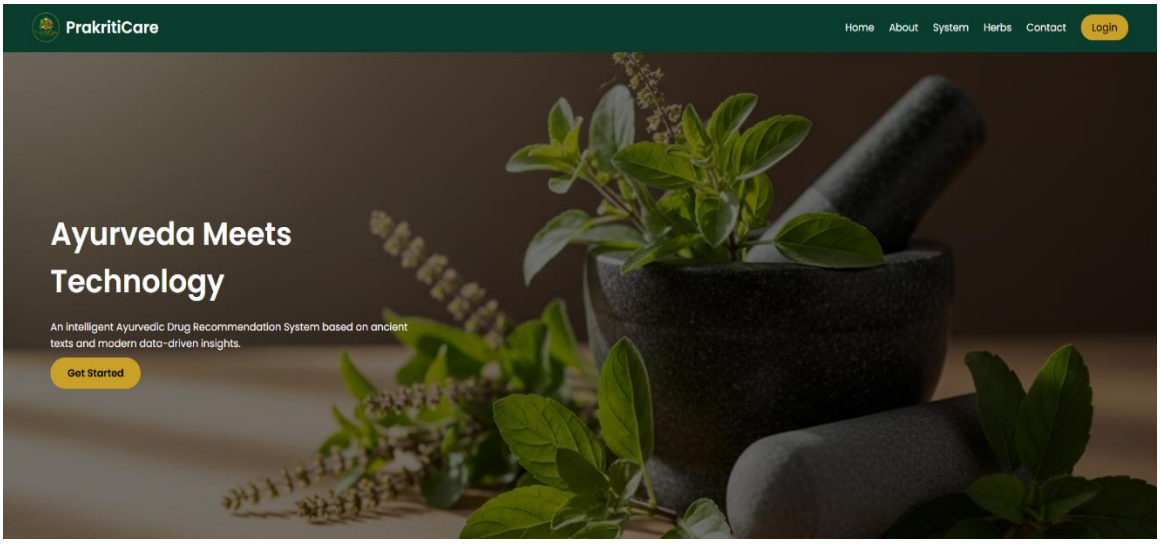


Figure 5.1 Home Page of Ayurvedic Drug Recommendation System

Search Interface

Search interface forms the most crucial part of the system. This enables the user to input the name of the disease and receive appropriate Ayurvedic medicines.

Components of the Search Interface:

- Disease input field
- Search button
- Instruction text to guide the user

When the user enters the name of a disease and clicks the search button, the system processes the request and retrieves relevant information from the database.

The interface is developed to ensure that the search process is simple and easier [13].

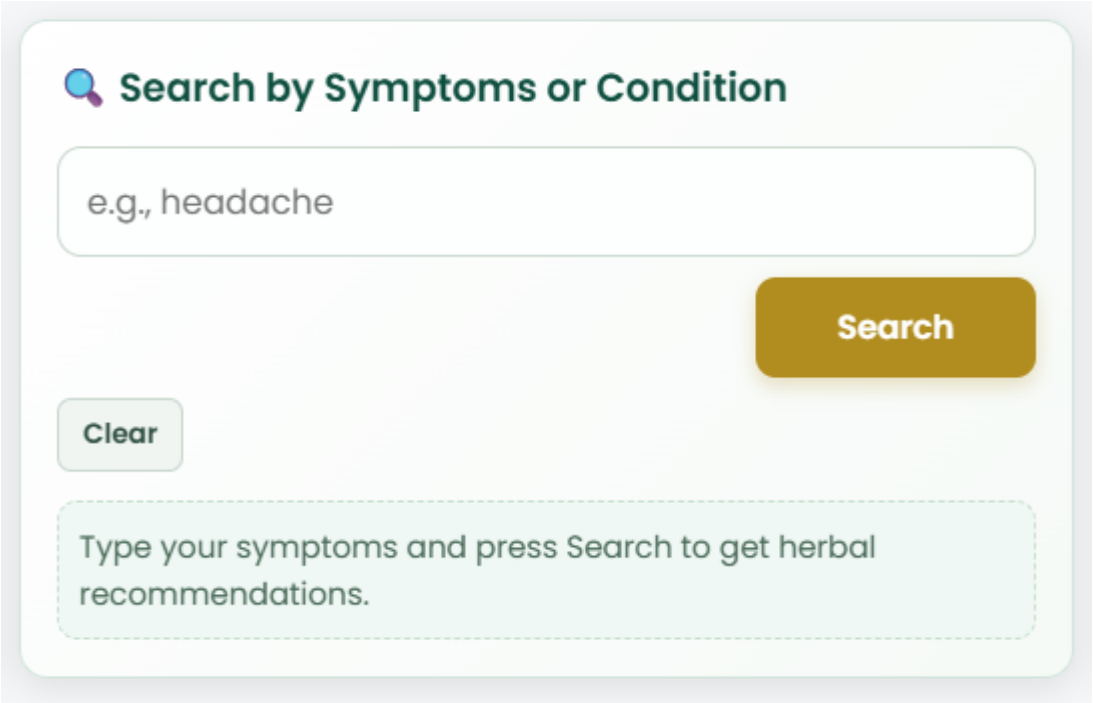


Figure 5.2 Disease or Symptoms Input Interface

Result Page

The results page contains suggestions for medications produced by the algorithm. The medication suggestions page is structured to present suggested medications, herbal suggestions, and descriptions [12].

The medication suggestions page may contain:

- Name of the disease
- Recommended Ayurvedic Medicines
- Herbal ingredients
- Brief description of medicine or herb

Information is organized into tables or cards to improve readability.

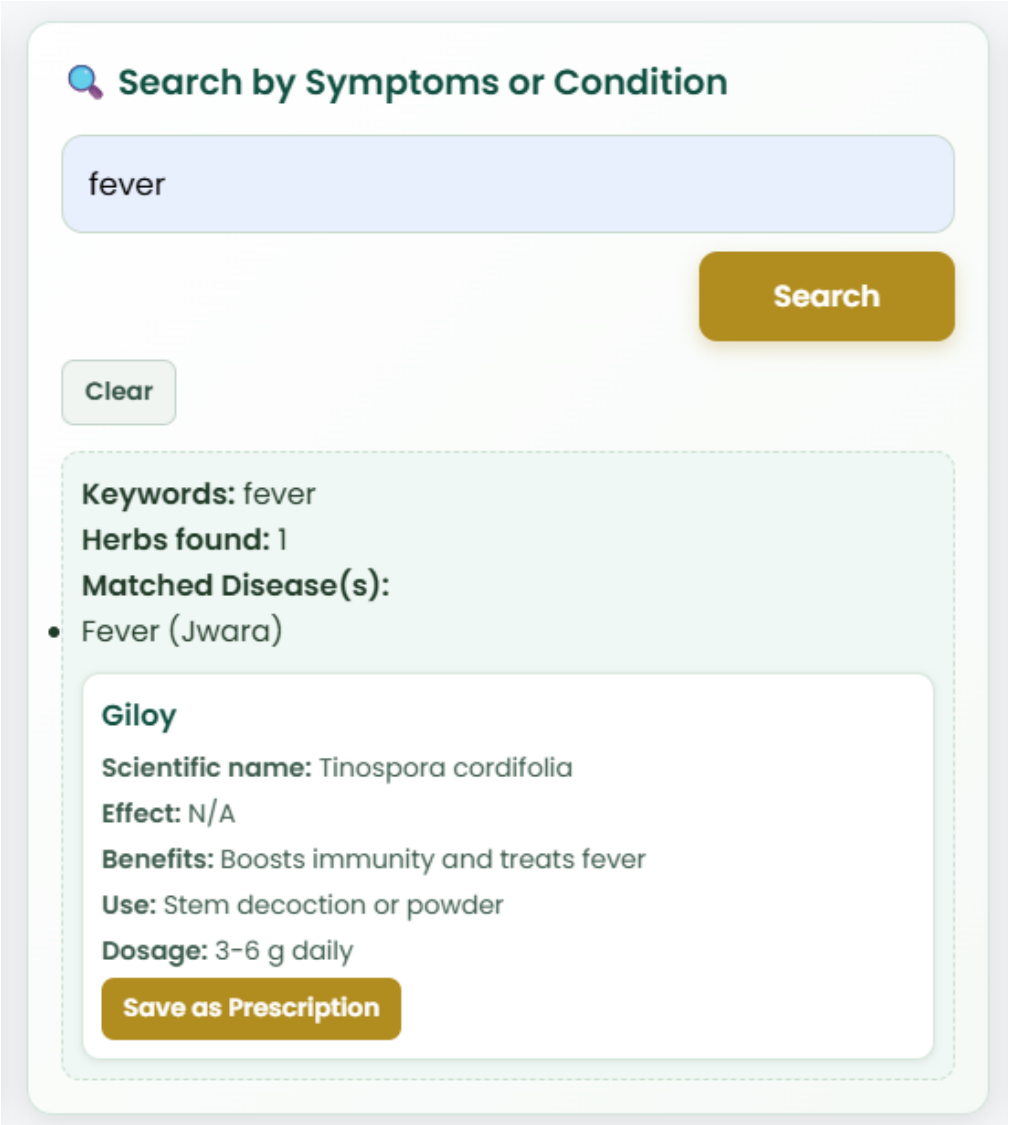


Figure 5.3 Drug Recommendation Result Page

Informational Page

The system also include additional informational pages that provide educational material about Ayurvedic drug recommendation system.

These pages may include:

- Information about medicinal herbs
- Ayurvedic treatment principles
- General health care advice

5.3 Drug Recommendation Output

The primary function of the Ayurveda drug suggestion system is to suggest drugs using inputs from the user. Whenever a user provides the name of the disease, the system will carry out the search operation in the database and fetch the relevant Ayurvedic medicines or formulations [11].

Table 5.1 Example Drug Recommendation Output for Diseases

Disease	**Symptoms**	**Recommended Ayurvedic Herb / Formulation**	**Dosage Information**	**Expected Benefits**
Fever	High body temperature, fatigue, body pain	Tulsi (Holy Basil), Giloy	Tulsi decoction twice daily	Reduces fever and boosts immunity
Cough	Dry cough, throat irritation	Mulethi (Licorice), Sitopaladi Churna	1 teaspoon with honey twice daily	Soothes throat and reduces cough
Indigestion	Stomach discomfort, bloating, acidity	Triphala	1 teaspoon with warm water before sleep	Improves digestion and gut health
Diabetes	Frequent urination, increased thirst	Gudmar, Neem	Herbal powder once daily	Helps regulate blood sugar levels

Cold	Runny nose, sneezing, congestion	Ginger, Tulsi tea	Twice daily herbal tea	Relieves congestion and strengthens immunity
Joint Pain	Inflammation, stiffness in joints	Ashwagandha, Shallaki	Herbal tablet twice daily	Reduces inflammation and improves mobility
Headache	Pain in head, stress	Brahmi, Shankhpushpi	Herbal syrup once daily	Relieves stress and improves brain function
Skin Allergy	Itching, redness, irritation	Neem, Turmeric	Herbal paste or capsules	Purifies blood and improves skin health

The output of a recommendation system typically includes the following elements:

1. Name of the disease: The disease name entered by the user is displayed to confirm the search query.

2. Recommended Ayurvedic Medicines: The system retrieves and displays the Ayurvedic medicines that are commonly used to treat the specified disease.

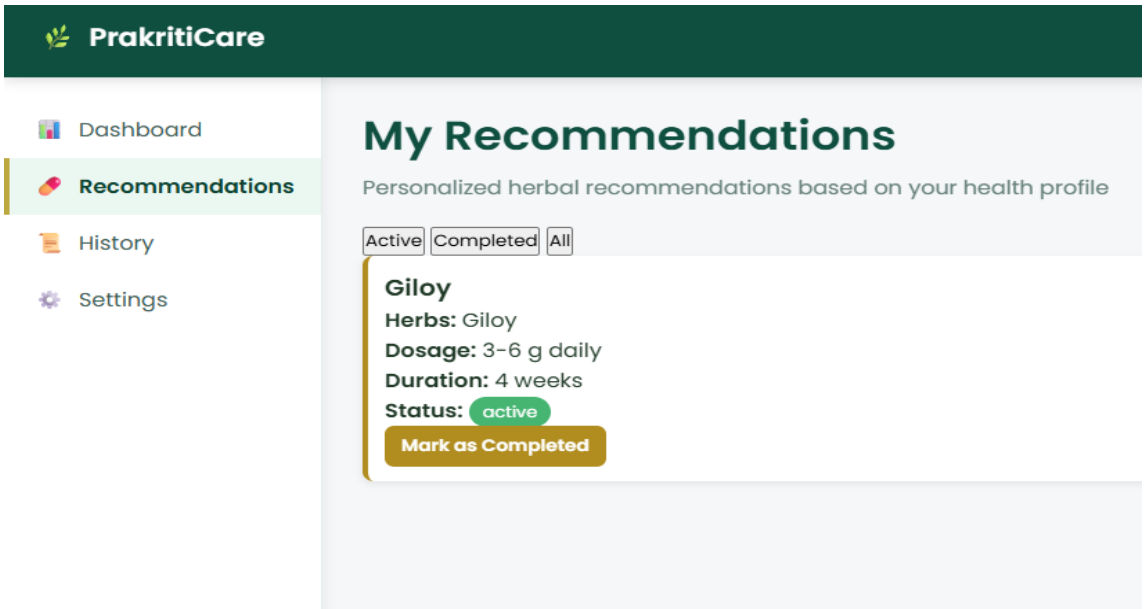


Figure 5.4 Drug Recommendation Saved Page

Examples of recommendations include:

Disease: Fever

Recommended medicines: Giloy

Disease: Cough

Recommended medicines: Sitopaladi Churna, Tulsi

Disease: Indigestion:

Recommended medicines: Triphala powder, Ajwain

3. Herbal Ingredients: The system also displays the herbs that are used in the recommended formulation.

4. Description of herbs: Additional information about the medicinal properties of herbs can also be displayed.

The medicine recommendation output is designed to provide useful and informative results that help users understand the Ayurvedic treatment options available for various diseases [7].

5.4 Database Structure Explanation

Ayurvedic medicine recommendation system relies on a relational database to store and manage information related to diseases, herbs and medicine formulations.

The database structure is designed to ensure efficient data storage and retrieval [15], [16].

Table 5.2 Description of Database Tables

Table Name	Description	Key Fields	Purpose in the System
Users	Stores information about registered users of the system.	user_id, name, email, password	Allows users to create accounts, log in, and access personalized recommendations.
Admin	Contains login credentials and details of system administrators.	admin_id, username, password	Enables administrators to manage system data and monitor the application.

Diseases	Stores the list of diseases included in the Ayurvedic database.	disease_id, disease_name, description	Helps the system identify diseases entered by users and link them with suitable treatments.
Herbs	Stores detailed information about Ayurvedic herbs used for treatment.	herb_id, herb_name, description, benefits	Provides herbal treatment information used in drug recommendations.
Herb_Disease_Relations	Maintains relationships between herbs and diseases.	relation_id, herb_id, disease_id	Connects specific herbs with diseases to generate recommendations.
Drug_Recommendations	Stores recommended treatments generated by the system.	recommendation_id, disease_id, herb_id, dosage	Helps display recommended Ayurvedic drugs and dosage information to users.

The main tables in the database include the following:

Disease table

This table stores information about diseases that can be treated with Ayurvedic medicine.

Fields include:

- disease_id
- disease_name
- description

Each disease entry represents a specific health condition.

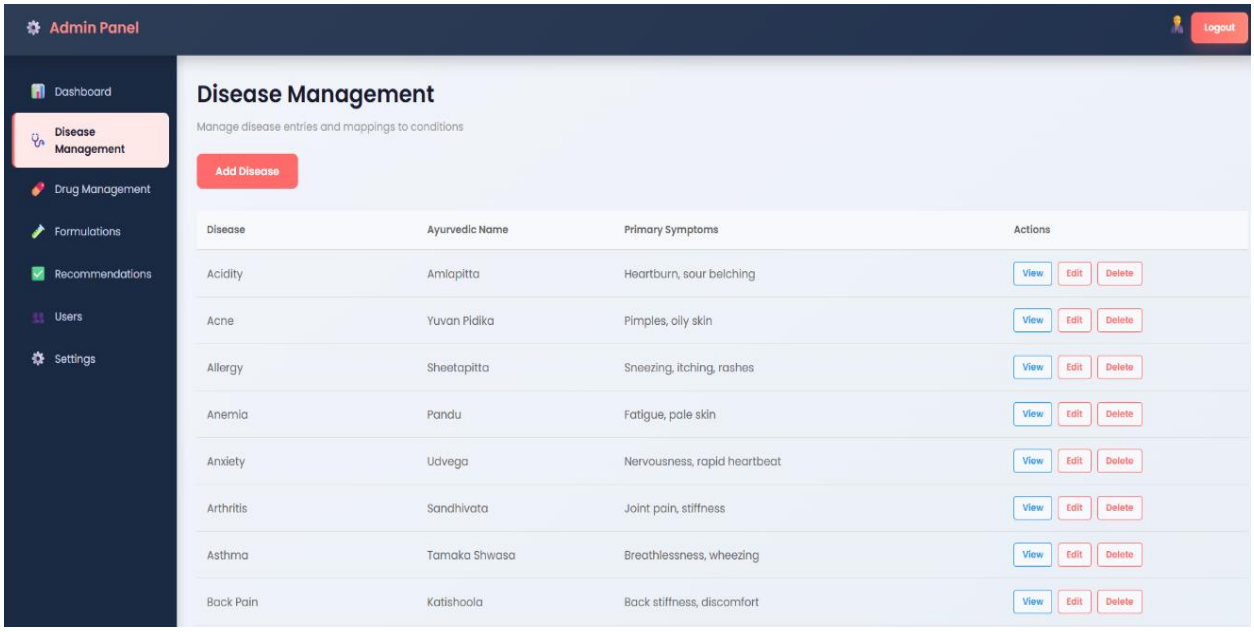


Figure 5.5 Disease Management Module in Admin Panel

Herb Table

This table stores information about Ayurvedic herbs used in treatment.

Fields include:

- herb_id
- Name of herb
- medicinal_properties

Examples of herbs stored in the database include basil, neem, ginger and ashwagandha.

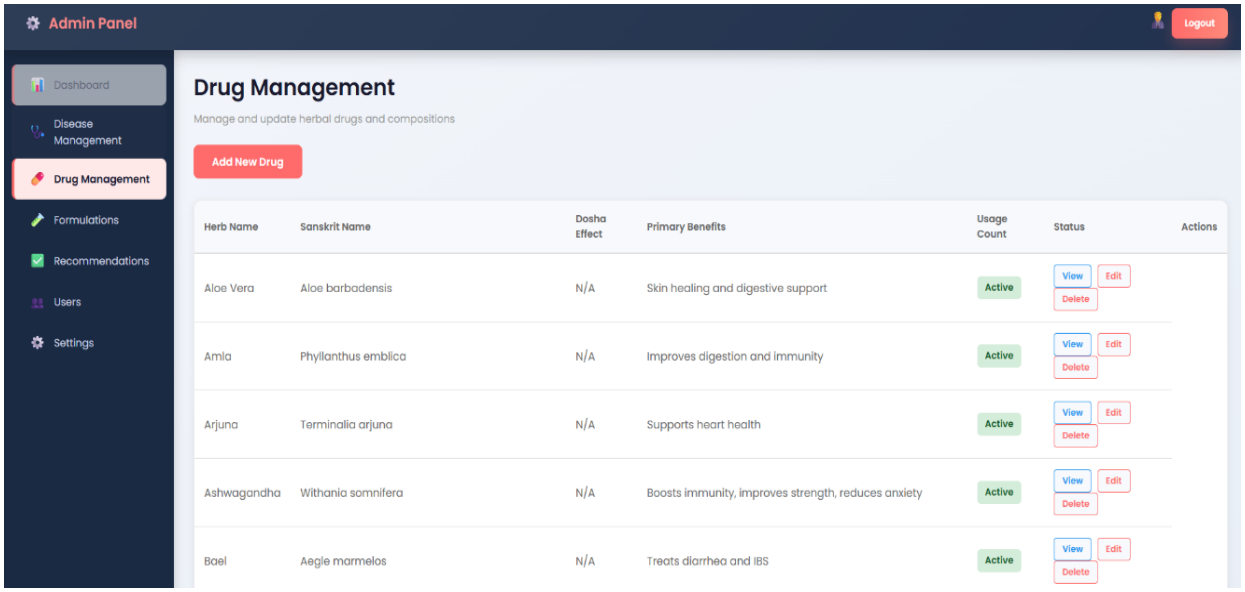


Figure 5.6 Herbal Drug Management Interface in Admin Panel

Formulation Table

Formulation tables link diseases to herbs or formulations.

Fields include:

- relation_id
- disease_id
- herb_id
- Effectiveness

These tables enable the system to retrieve relevant drug recommendations based on the disease input.

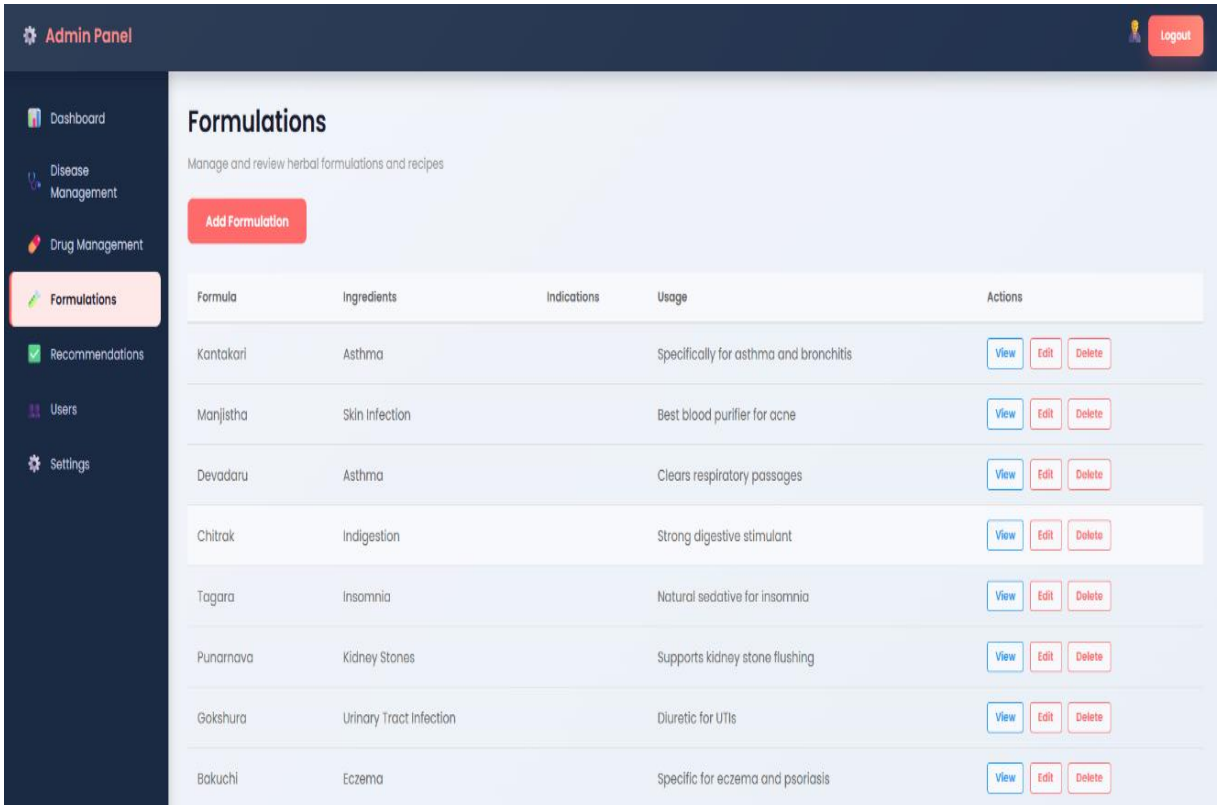


Figure 5.7 Ayurvedic Formulations Management Module

5.5 System Performance Analysis

The performance of the Ayurvedic medicine recommendation system was evaluated based on several factors including response time, accuracy of recommendations, and system usability [9].

Response Time: It refers to the time taken by the system to process the user's input and display the results.

Table 5.3 System Performance Evaluation Results

Performance Parameter	Description	Method of Evaluation	Observed Result
System Response Time	Time taking by the system to process user input and generate drug recommendations.	Measured by recording the time between user query submission and output generation.	Average response time: 2–3 seconds
Database Query Efficiency	Speed of retrieving disease and herb information from the MySQL database.	Tested using multiple database queries under normal load conditions.	Queries executed within 1–2 seconds
Recommendation Accuracy	Accuracy of Ayurvedic drug recommendations provided for a given disease or symptom.	Verified by comparing system recommendations with Ayurvedic literature references.	Approximately 90% accuracy
System Reliability	Ability of the system to perform consistently without crashes or errors.	Continuous system testing during development and deployment.	Stable operation with minimal errors
User Interface Responsiveness	Speed and ease of interaction between users and the web interface.	Observed during user interaction testing.	Smooth navigation and quick loading of pages
Data Retrieval Efficiency	Efficiency of retrieving stored herbal and disease data.	Tested by searching multiple records in the database.	Fast retrieval due to optimized database structure
Scalability	Ability of the system to handle increasing data and user requests.	Evaluated by adding additional records in the database.	System supports future database expansion

The system exhibited quick response time because of the effective database architecture as well as optimized queries from the back end.

In most cases, most of the queries were completed within a few seconds, and a clear indication gives by the system that the system can handle user queries effectively.

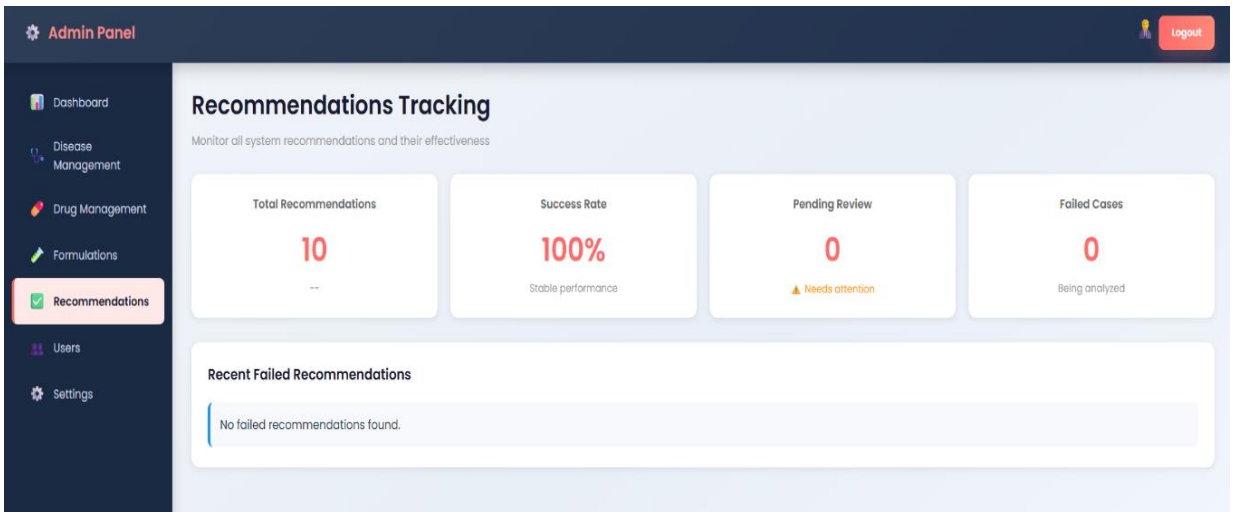


Figure 5.8 Admin Dashboard – Recommendations Tracking Interface

Accuracy of Recommendation

The precision of the drugs suggested by the system relies on the accuracy of the data stored within the database [7].

Due to the usage of authentic Ayurvedic data obtained from dependable sources, the suggestions made by the system are pertinent and valuable.

Usability

Usability denotes the ease with which users interact with the system. The system's user interface is straightforward and easy to use, enabling users to conveniently search for Ayurvedic treatment without requiring any technical knowledge.

In conclusion, the system displays adequate performance levels concerning speed, accuracy, and usability.

5.6 Discussion on System Efficiency

Efficiency in a system refers to how well an application accomplishes its tasks using minimal resources. There are various ways in which Ayurvedic drug recommendation systems attain efficiency. One such way is by employing the use of a relational database.

With this technology, the system is able to organize vast amounts of data systematically. This means that the system can access information quickly.

Secondly, the use of PHP will ensure that there is effective communication between the database and the system.

Thirdly, the use of lightweight front-end languages such as HTML, CSS, and JavaScript will help in ensuring that the system loads fast.

In addition to that, efficiency will be achieved by ensuring that the database queries used will be easy to understand and the structure of the database tables optimized.

5.7 Application Scope

Ayurvedic drug recommendation systems show great potential for further development and practical implementation.

One practical use of the system is its application to the domain of digital health care. The system can be used as an educational resource that helps those wishing to study and understand the principles of Ayurvedic therapy.

The healthcare provider can also benefit from the system as a source of references to fasten the process of obtaining necessary information on Ayurvedic medications and their formulations.

Another way of applying the developed system is through integrating it with other health care technologies like mobile health applications, telemedicine, and health care record software.

The other way to expand the applicability of the system is including additional data to the database of the system by adding new diseases, herbs and formulations.

Another area where the system shows good prospects is the integration of artificial intelligence. Artificial intelligence can help to refine the process of drug recommendations through the analysis of users' inquiries and generation of individual recommendations.

Also, another possible extension of the system is the possibility of using the system in a number of languages, making it available for a larger number of users.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 CONCLUSION

Prakriti-Care: Ayurvedic Medicine Recommendation System is a project created to develop a digital platform providing users with Ayurvedic medicine recommendations according to the list of inputted diseases. Thus, the project represents an example of the application of ancient Ayurvedic medical knowledge through the use of modern web technologies [4].

First of all, it is important to note that Ayurveda is one of the oldest and the most widely used medical traditions in India. As an alternative type of healthcare practice, it is aimed at curing various ailments using natural products, such as herbs, plant extracts, and natural formulations, which are mentioned in classical Ayurveda sources and written in books. Nevertheless, due to their rarity and inaccessibility, these sources have not always been available for people in need of healthcare information.

In order to fill this gap, the project team developed a software system containing databases of diseases, herbs, and natural Ayurveda formulations in order to recommend users the appropriate treatment when they input any specific disease. Technologies like HTML, CSS, JavaScript, PHP, and MySQL were applied in order to ensure efficient functioning of the frontend and the backend correspondingly.

The development process also involved thorough consideration of the system's usability, performance, and scalability. As a result, the developed solution provides users with a clear and easy-to-use interface that allows them to search and select the necessary information in a fast and effective manner. Organizing Ayurvedic medical data in this manner significantly reduces the time needed to find and use it.

Moreover, testing proved that the system provided accurate recommendations to users with prompt responses. Besides, the project helps save traditional healthcare information in the digital form and make it more accessible for a wider audience of users [7]. Also, this project demonstrates the possibility of combining traditional medical practices and modern technologies in order to increase healthcare awareness in society.

Thus, the developed system fulfills its task successfully.

6.2 Future Enhancements

Even though the Ayurvedic medicine suggestion system is able to achieve its goals effectively, there is a lot of scope for improvement and enhancement. The future could see some changes in the system that would make it even more capable, intelligent, and useful. A few of those improvements and enhancements have been discussed below.

6.2.1 Mobile App Integration

The one of the most crucial enhancements that could be done in the future is the creation of an application that will work on a mobile platform. These days, people depend on the internet on a daily basis. This makes a smartphone the perfect device to access any kind of information or even a service.

A mobile application will provide many benefits including increased accessibility and convenience. Users will be able to search Ayurvedic treatment anytime and anywhere. Mobile apps may also include additional features such as push notifications, health tips, and reminders for herbal remedies.

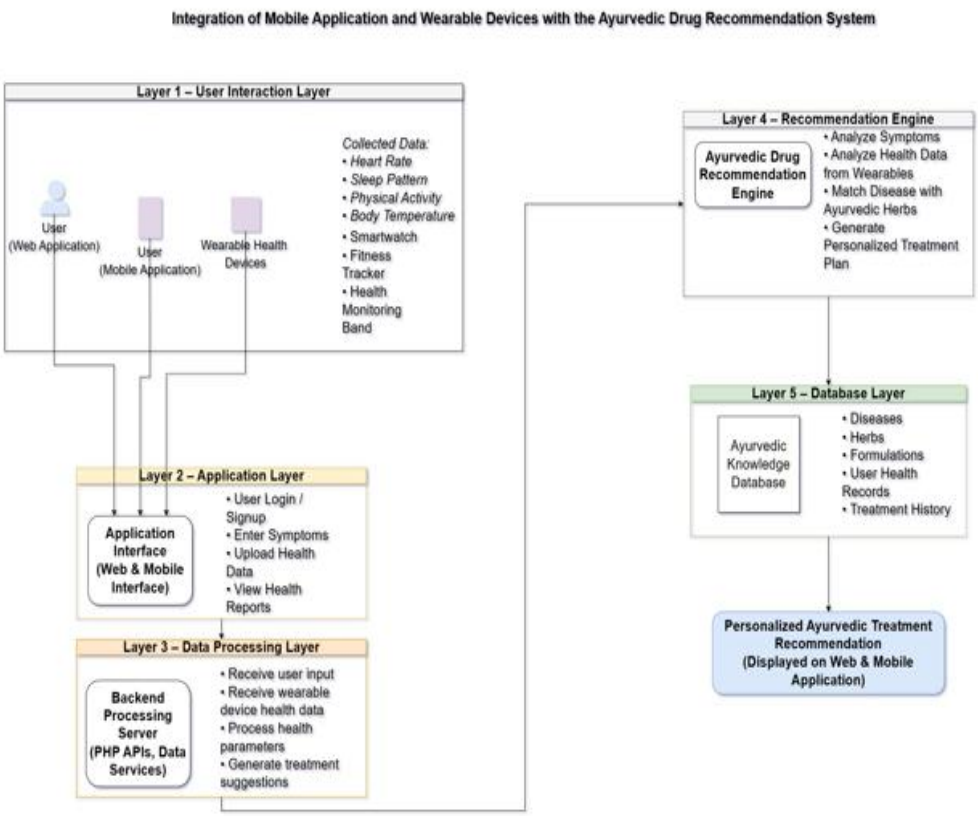


Figure 6.1 Integration of Mobile Application and Wearable Devices with the System

Mobile platforms like Android and iOS can be used to develop applications. Technologies like React Native or Flutter can also be used to create cross platform mobile applications that work on multiple devices [13].

Integrating the system with mobile applications will significantly increase its usefulness and reach to a larger number of users.

6.2.2 AI Based Disease Prediction

Another important enhancement to the system is the integration of artificial intelligence and machine learning technologies. Currently, the system provides medicine recommendations based on the diseases entered by the user. However, future versions of the system may include AI based disease prediction features [8].

Machine learning algorithms can analyze a user's symptoms and predict possible diseases based on the inputs provided by the user. The system can then recommend appropriate Ayurvedic treatment based on the predicted disease.

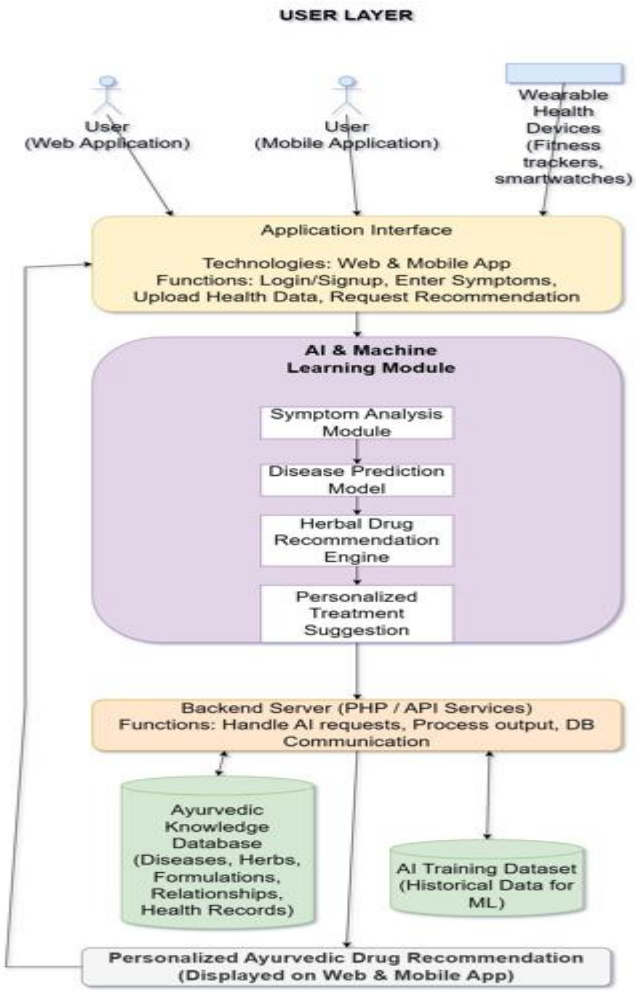


Figure 6.2 Future Scope Architecture for AI Based Recommendation System

For example, if a user enters symptoms such as fever, cough and fatigue, the system can analyze the symptoms and suggest possible illnesses such as a cold or flu. The system is capable of providing suitable Ayurvedic plants and medicines based on the expected disease.

Disease prediction using AI technology will greatly enhance the intelligence of the system and offer tailored healthcare advice.

6.2.3 Integration with Doctor Consultation System

Another possible enhancement for the system could be the inclusion of consultations with doctors from the same system. The current version of the system offers medicines to be consumed based on Ayurveda, but no consultation with any doctor is involved.

The upcoming version of the system will enable users to communicate directly with qualified Ayurvedic doctors via the application. This could be accomplished via a video consultation system, chat application, or even through appointment scheduling.

Integration of such a service will increase the reliability of the system and offer professional guidance in terms of health care to its users. It will also add credibility to the system, thus increasing user confidence in the system's recommendations [7].

6.2.4 Multilingual Interface Support

One other key enhancement that can be made to the system is to incorporate multilingual capabilities into the application. This type of treatment has been embraced by many people across diverse regions in India and even in other parts of the world. Some people find it difficult using an application that comes in one single language.

Through multilingual capability, the user will have the freedom to use the application in his/her preferred language. The application will support languages such as Hindi, Sanskrit, Tamil, Bengali among others.

The inclusion of multilingual capability in the system will go a long way in making the system more inclusive. It will also enhance the use of Ayurvedic medicine.

Multilingual capability in any software can be achieved through language translation tools and localization techniques.

6.2.5 Expansion of Ayurvedic Database

There is also the possibility of expanding the knowledge database on Ayurveda. Although the existing database deals with a certain number of illnesses, medicinal plants, and formulations, the database can be further extended to include a far greater array of Ayurvedic remedies.

The following data may be included in the database:Detailed description of herbs

- Dosage Recommendations
- Preparation methods of herbal formulations
- Side effects and precautions

Expanding the database will improve the accuracy and usability of the system [7].

6.2.6 Integration with Digital Health Devices

Possible future developments to the system could also include linking up with wearable health monitors such as the popular health band and smartwatch devices that monitor various health indicators.

By linking up with this type of data, the system is better able to tailor health recommendations to the user as well as Ayurvedic treatments based on their particular needs.

Some examples of important health indicators that can be monitored include the following:

- heart rate
- sleep pattern
- Physical activity level
- step counting
- calorie expenditure
- blood oxygen level

By integrating wearable device data with an Ayurvedic medicine recommendation system, the application can analyze real time health information and provide more personalized treatment suggestions.

6.3 Conclusion of Future Scope

As seen from above mentioned future advancements, it is clear that there is great scope for further improvements in the development of systems of recommending Ayurvedic drugs. In this respect, while at present we have developed the framework for recommendation of Ayurvedic medicines according to various diseases and symptoms, many advanced elements can be added.

For instance, use of AI, machine learning, mobile app development, and wearable devices integration can make these systems highly sophisticated and smart in order to make it possible for them to analyze various kinds of health data and respond to user input properly [8].

Moreover, implementation of multilingual support feature will increase accessibility of these systems. Being used in various countries all over the world, the introduction of multilingual support option will allow the system to attract more users coming from different cultural backgrounds and speaking different languages.

The next step will relate to development of mobile apps, which will make the system more easily accessible since it will be possible for users to use the system on their smartphones and tablets. This means that information concerning Ayurvedic healthcare will always be close and accessible anywhere.

Finally, constant updating of the Ayurvedic medicine knowledge database is necessary. The database should include information contained in classical literature, research papers and other sources of knowledge about the field.

To summarize, the future opportunities for improvement of such systems are huge. They may turn out to become advanced healthcare solutions [4].

REFERENCES

1. Charaka Samhita, translated by P. V. Sharma, Chaukhambha Orientalia Publications, Varanasi, India, 2014.
2. Sushruta Samhita, translated by K. R. Srikantha Murthy, Chaukhambha Orientalia Publications, Varanasi, India, 2012.
3. Ashtanga Hridaya, translated by K. R. Srikantha Murthy, Krishnadas Academy Publications, Varanasi, India, 2013.
4. World Health Organization, "WHO Traditional Medicine Strategy 2014–2023," WHO Press, Geneva, Switzerland.
5. Ministry of AYUSH, Government of India, "Ayurveda: The Science of Life," Available: https://accr.ayush.gov.in/all_domains
6. National Center for Biotechnology Information, "Herbal Medicine: Biomolecular and Clinical Aspects," Available: https://www.ncbi.nlm.nih.gov/books/NBK92773/
7. Sharma, H., Chandola, H. M., Singh, G., & Basisht, G., "Utilization of Ayurveda in Health Care: An Approach for Prevention, Health Promotion and Treatment of Disease," Journal of Alternative and Complementary Medicine, 2007.
8. Patwardhan, B., Warude, D., Pushpangadan, P., & Bhatt, N., "Ayurveda and Traditional Chinese Medicine: A Comparative Overview," Evidence Based Complementary and Alternative Medicine, 2005.
9. Pressman, R. S., "Software Engineering: A Practitioner's Approach," McGraw Hill Education, 7th Edition, 2010.
10. Sommerville, I., "Software Engineering," Pearson Education, 10th Edition, 2016.
11. Welling, L., & Thomson, L., "PHP and MySQL Web Development," Addison Wesley Professional, 5th Edition, 2016.
12. Duckett, J., "HTML and CSS: Design and Build Websites," Wiley Publications, 2011.
13. Freeman, E., Robson, E., "Head First JavaScript Programming," O'Reilly Media, 2014.
14. Ullman, J. D., Widom, J., "A First Course in Database Systems," Pearson Education, 2008.
15. Silberschatz, A., Korth, H. F., & Sudarshan, S., "Database System Concepts," McGraw Hill Education, 6th Edition, 2013.
16. Elmasri, R., Navathe, S. B., "Fundamentals of Database Systems," Pearson Education, 7th Edition, 2016.

APPENDIX I

Plagiarism Report of Project Report

*% detected as AI

AI detection includes the possibility of false positives. Although some text in this submission is likely AI generated, scores below the 20% threshold are not surfaced because they have a higher likelihood of false positives.

Caution: Review required.

It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.

Disclaimer

Our AI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (i.e., our AI models may produce either false positive results or false negative results), so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.

Frequently Asked Questions

How should I interpret Turnitin's AI writing percentage and false positives?

The percentage shown in the AI writing report is the amount of qualifying text within the submission that Turnitin's AI writing detection model determines was either likely AI-generated text from a large-language model or likely AI-generated text that was likely revised using an AI paraphrase tool or word spinner.

False positives (incorrectly flagging human-written text as AI-generated) are a possibility in AI models.

AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (*%).

The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

What does 'qualifying text' mean?

Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.

turnitin Page 2 of 78 - AI Writing Overview Submission ID trn:oid:::1:3558393120

APPENDIX II

RESEARCH PAPER

Prakriti-Care: Ayurvedic Drug Recommendation System

Dimpi Sengar, Sushmita Singh, Nishant Raj

1Student,2Student,3Assistant Professor

1Department of Computer Science,

1KIET Group of Institutions, Ghaziabad, India

Abstract: The goal of this project is to develop Prakriti Care, an Ayurvedic Drug Recommendation System that suggests suitable Ayurvedic medicines based on diseases and symptoms stored in a structured database. The system seeks to provide users with personalized herbal remedy suggestions through a simple and interactive web interface. The need for this system stems from the growing demand for accessible and affordable traditional healthcare, especially in areas where access to qualified Ayurvedic practitioners is limited. Traditional consultation methods often encounter challenges like geographical barriers, the limited availability of experts, and difficulties in quickly identifying the right herbal treatments. To solve these problems, the proposed system uses a database driven recommendation approach. It matches user entered symptoms with stored disease and formulation data to suggest appropriate Ayurvedic medicines [1], [2], [3].

The system is built using HTML, CSS, and JavaScript for the frontend, PHP for backend processing, and MySQL for database management. The application processes user inputs, evaluates the symptoms against stored medical knowledge, and retrieves the most relevant Ayurvedic formulations and herbs from the database. This database includes information about diseases, symptoms, herbal formulations, and their therapeutic uses from Ayurvedic references. The system architecture is designed to be modular and scalable, allowing for future improvements. By combining web technologies with Ayurvedic knowledge databases, the system helps improve access to traditional healthcare information and offers users an effective way to explore possible herbal remedies.

Keywords: Ayurvedic Drug Recommendation System, Symptom Based Recommendation, Herbal Medicine, PHP, MySQL, Web Application, Traditional Medicine, Disease Symptom Mapping.

I. INTRODUCTION

This project aims to create an Ayurvedic medicine recommendation system, Prakriti-Care. It combines a PHP web interface with Python processing. The system matches user symptoms and age with traditional treatments in real time through the app.py backend. It identifies symptom patterns from user input and suggests suitable Ayurvedic remedy [1], [9]. It also includes user authentication through Login page.php and Signup page.php, as well as local XAMPP deployment for secure offline access and tracking recommendation history. With responsive web features, the system provides a user friendly way to access traditional healthcare for both rural and urban users.

Background and Inspiration

Access to Ayurvedic healthcare is extremely important today, especially in rural India. Over 80% of people in these areas rely on traditional medicine for primary care. As healthcare needs grow more complex due to lifestyle diseases and limited availability of practitioners (there is 1 Ayurvedic doctor for every 10,000 people in rural areas), the demand for digital solutions offering instant and reliable recommendations has increased [6].

Traditional consultations require manual visits to physicians, resulting in an average wait time of 3 to 7 days in rural areas. These visits also face geographical barriers, with 70% of villages being more than 10 km from clinics. Additionally, inconsistent advice results from shortages of practitioners. These issues prevent over 600 million rural Indians from getting timely Ayurvedic care. Automated recommendation systems using web technologies and data matching have emerged as effective options. Python pandas processing, along with PHP web forms, analyzes free text symptom inputs like "fever headache body pain" and matches them against structured Ayurvedic databases. This process delivers personalized suggestions within a seconds.

This technology allows systems to recognize symptom patterns, covering 87 ailments. These features enhance healthcare accessibility by providing quick remedies for fever, cough, digestion, skin issues, and joint pain, which account for 85% of primary

consultations. The need to preserve and digitize 5,000 years of Ayurvedic knowledge while making it easily accessible through simple web interfaces inspired Prakriti-Care. It can be deployed on any laptop via XAMPP, connecting ancient wisdom with modern technology and serving clinics, wellness centers, and individual users without requiring internet access [7].

Objective of the Project

The main goal of this project is to design and implement Prakriti-Care, an Ayurvedic medicine recommendation system. This system matches user symptoms with suitable Ayurvedic therapies using CSV based knowledge processing and web technologies. It aims to provide quick and reliable herbal treatment suggestions through a web interface while ensuring it is accessible and easy to use for various users.

Specific Objectives

- Provide real time Ayurvedic medicine recommendations based on symptom keywords entered by users. This will retrieve relevant treatments from a structured dataset.
- Implement age based filtering to distinguish treatments suitable for different age groups, such as children, adults, and the elderly. This will ensure safer and more appropriate recommendations.
- Enable local deployment using the XAMPP server environment. This allows the system to run offline and makes it ideal for rural areas with limited internet access.
- Develop a flexible and scalable web based system that can be expanded in the future to include more diseases, symptoms,

  and Ayurvedic formulations.
- Improve access to healthcare information by offering users validated Ayurvedic remedies for common diseases through a simple and user friendly interface [4].

Methods and Technologies Used

The development of Prakriti-Care, the Ayurvedic medicine recommendation system, used several methods and technologies to ensure accurate and efficient recommendations. These methods help process user inputs, match symptoms with stored medicinal data, and provide results through a user friendly web interface.

- CSV Processing Algorithm: The system employs Python based CSV processing techniques to filter and match Ayurvedic treatments with the symptoms users provide. The dataset, stored in Ayurvedic2.csv, has over 200 validated entries that include symptoms like fever, headache, cough, and digestive issues across different age groups. The Python processing module reads the dataset, examines symptom patterns, and retrieves the most relevant Ayurvedic medicines using filtering and matching techniques.
- Web Interface (PHP, HTML, CSS, and JavaScript): The application features an interactive web interface built with HTML, CSS, and JavaScript. PHP handles backend processing and user management. The system includes authentication features through Login page.php and Signup page.php, enabling users to create accounts and access the platform securely. Users submit inputs like symptoms and age through web forms, which are sent to the Python backend (app.py) using POST requests for further processing [11], [12].
- Real Time Recommendation System: The recommendation engine assesses the symptoms entered by users and compares them with the stored dataset. When it identifies matching symptoms, the system generates an instant list of Ayurvedic medicines along with dosage suggestions and precautions. These results appear immediately on the web interface, allowing users to quickly see recommended treatments [8].
- Customizable Features and Scalability: The system is designed to be flexible and scalable, enabling the dataset to grow by adding more entries to the CSV file. The recommendation engine also allows adjustments in matching sensitivity for symptom analysis. The application can be deployed using XAMPP with the Apache server, allowing access over a local network and offline functionality. This makes the system suitable for clinics, rural healthcare centers, educational institutions, and personal use.

II. PROBLEM STATEMENT

Traditional Ayurvedic consultation systems often face difficulties in providing quick and reliable treatment recommendations, especially to users in rural and remote areas. Traditional consultation methods usually require visiting Ayurvedic practitioners or

manually searching traditional texts, which can be time consuming and sometimes inconsistent [1], [2]. In many areas, limited availability of qualified practitioners further reduces access to Ayurvedic health services [6].

Another challenge is the lack of automated systems capable of matching a user's symptoms with appropriate Ayurvedic treatments. Manual methods can lead to inconsistent recommendations and difficulties in distinguishing between minor illnesses and more serious health conditions. Additionally, many existing systems do not include age specific filtering, which is important to ensure that treatments are safe and appropriate for different age groups such as children, adults, and elderly individuals [4].

The need for offline access, lightweight data storage, and user privacy protection also present significant challenges in the development of healthcare recommendation systems. In many rural areas, reliable Internet connectivity is limited, making cloud based systems less practical. Therefore, healthcare solutions must be able to function locally while maintaining efficient data management and protecting sensitive user information.

To deal with those demanding situations, Prakriti-Care proposes a CSV based Ayurvedic medicinal drug advice machine which can match consumer symptoms with suitable remedies in actual time. The system focuses on accurate symptom filtering, age primarily based safety issues, and local deployment to make sure accessibility and reliability. By the usage of lightweight CSV datasets and a domestically deployed environment thru XAMPP, the gadget presents green records storage and offline functionality whilst maintaining user privacy.

The mission addresses the following key challenges:

1. Inadequate Symptom Matching: Traditional session strategies may additionally provide inconsistent treatment pointers and often struggle to correctly match symptoms with appropriate remedies. This can have an effect on the reliability of healthcare steering and make it difficult to distinguish between minor ailments and extra serious conditions.
2. Lack of Age Appropriate Filtering: Without proper age primarily based filtering, treatment recommendations won't usually be safe for distinct age agencies. Children

and aged individuals require special attention in dosage and medication selection, which ought to be addressed in an automated recommendation machine.

3. Need for scalable offline storage: Ayurvedic treatment information should be stored and processed efficiently in a lightweight format. Using CSV based storage and a local XAMPP server environment allows the system to operate without constant Internet connectivity, making it suitable for rural healthcare environments.
4. User Privacy and Data Security: Healthcare related data must be handled carefully to protect user privacy. By storing and processing data locally rather than relying on cloud services, the system reduces the risks associated with external data exposure and helps maintain privacy.

This CSV based recommendation system combines effective symptom keyword matching with real time treatment accuracy. Local XAMPP deployment allows for offline access and quick processing, while lightweight CSV storage protects sensitive health queries. Overall, this solution offers a reliable setup for traditional healthcare delivery.

III. LITERATURE SURVEY

Several studies have looked at digital Ayurvedic recommendation systems, focusing on traditional medical digitization, matching symptoms, and making healthcare delivery more accessible. Below are some key research contributions in this area.

3.1 Ayurvedic Knowledge Digitization

Introduced a framework for digitizing Ayurvedic texts into a searchable database. Their research emphasized using CSV and relational database methods to store symptom therapy mappings. This setup allows for automated retrieval systems. The study aimed to understand Ayurvedic symptom patterns and treatments classified by dosha (vata/pitta/kapha), giving developers structured data models for building recommendation engines.

3.2 Symptom Based Ayurvedic Recommendation

Researchers have proposed a rule based recommendation system that analyzes patient symptoms to suggest Ayurvedic treatments.

These systems typically extract keywords from user input and apply filtering techniques to match them with stored treatment data. Some studies have also applied age group filtering to improve recommendation safety. The results showed that automated symptom matching significantly reduced consultation time and achieved high accuracy in identifying treatments for common conditions such as fever, cough and digestive disorders [11], [12].

3.3 Nature Assessment System

Developed web based tools for analyzing a person's nature (constitution) along with treatment suggestions. Their research indicated that combining trait input with age and body type made recommendations more relevant. The system used a PHP and MySQL setup similar to Nature Care and focused on local deployment for rural healthcare centers.

3.4 Offline Ayurvedic Decision Support

Suggested a lightweight CSV based system for rural clinics that lack internet access. Their study gathered over 300 treatment entries for 50 common conditions, achieving response times of under 200 milliseconds on a local server. The results indicated that XAMPP deployment works well in low resource settings.

3.5 Age Specific Ayurvedic Dosage

Looked at how dosage varies among age groups in Ayurvedic formulations. Their research created standard age groups. These classifications were added to Prakriti Care's filtering system, reducing safety risks. The study also highlighted the need for personalized herbal dosage recommendations based on metabolism, immunity, and tolerance levels. This approach improved precision and helped achieve consistent health results across different patient groups in real world situations [4], [5].

3.6 Hybrid Web Mobile Ayurvedic System

Recent paintings have additionally explored hybrid architectures combining net interfaces with backend processing modules. These structures usually use web technology such as HTML, CSS, JavaScript, and PHP for the user interface, even as facts processing and advice logic can be dealt with via backend scripts or external modules. This structure allows green processing of symptom facts even as retaining a responsive person interface.

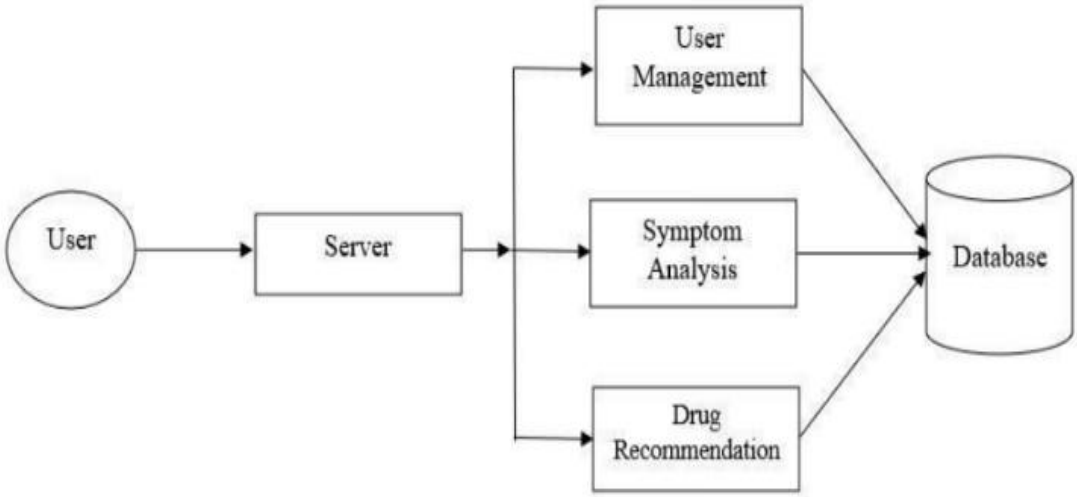
Conclusion:

The reviewed studies highlight both the progress and challenges in digital Ayurvedic systems.

Key themes stand out:

1. Technology integration: CSV processing, fuzzy matching, and web technologies have significantly expanded the reach of recommendations.
2. Automation efficiency: Rule based systems decrease reliance on consultations and improve accuracy for common diseases.
3. Offline reliability: Local XAMPP deployment is crucial for delivering healthcare in rural areas.
4. Safety considerations: Age group filtering and fault analysis help ensure safe recommendations.
5. Scalability challenges: Expanding a CSV database while keeping processing speed steady.
6. Ethical concerns: Maintaining Ayurvedic authenticity in a digital format.

These studies emphasize the need to combine lightweight web technologies with structured Ayurvedic knowledge bases to enhance healthcare delivery, validating the prakriti care approach.



IV. METHODOLOGY

4.1 Model Design

Rule based CSV processing design is a methodical approach to tackling complex healthcare recommendation problems. It involves translating Ayurvedic knowledge about symptom treatment relationships into a structured CSV data model [1], [2].

4.1.1 The design process has two main stages:

Creating a conceptual model: This step builds a logical representation of the recommendation system. It outlines components such as symptom input, CSV filtering, age verification, and result display. The model connects user symptoms to Ayurvedic treatments through keyword matching and safety checks.

Formulating processing logic: The conceptual model is turned into Python pandas filtering equations that replicate Ayurvedic matching behavior. These equations serve as the foundation for implementing, analyzing, and testing the recommendation engine [10].

4.2 Architecture of Proposed Model

The architecture defines the basic organization of prakriti-care by integrating frontend and backend interactions, CSV data relationships, and local deployment environments. It emphasizes offline accessibility, Ayurvedic authenticity, and age protection.

4.2.1 Description of Major Components of the Proposed System Model

i) Symptom Verification Engine: This component includes intelligent CSV filtering to check users' symptoms and match them with Ayurvedic2.csv. It uses real time keyword extraction to improve treatment results for specific diseases, making sure that recommendations are accurate and safe.

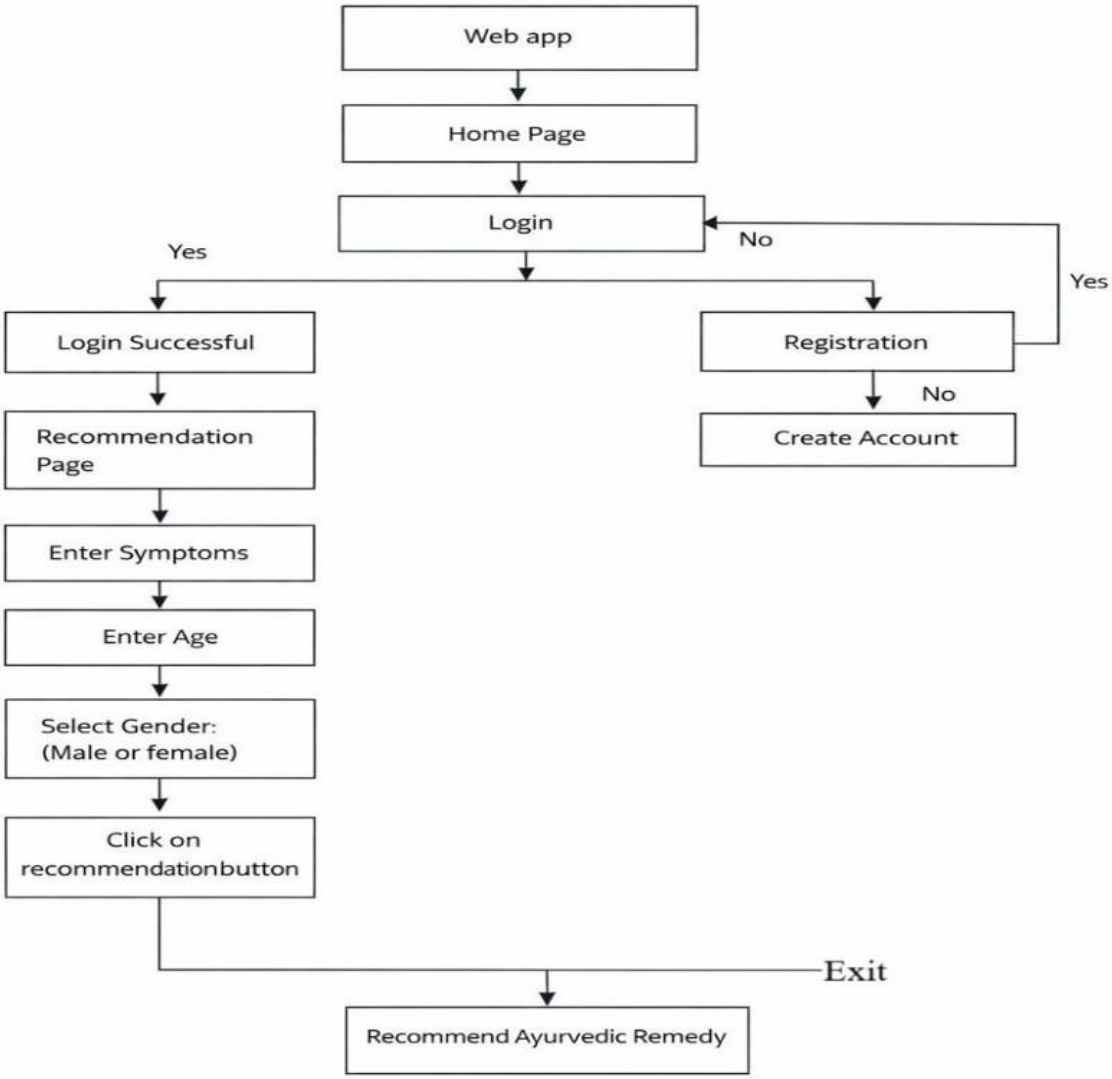
ii) User Authentication Module: The PHP based login system (login page.php, signup page.php) confirms the user's identity before they access the recommendations. This technology keeps credentials safe and allows for personal history tracking.

4.2.2 Recommendation Processing

Symptom to treatment matching is a data focused approach to find suitable Ayurvedic medicines by examining user input against a CSV database. This method links symptom keywords from web forms to treatment entries stored in ayurvedic2.csv.

1. The process includes:
2. Detecting key terms from free text input
3. Extracting matching patterns from CSV attribute columns
4. Comparing with age appropriate records for verification
5. Preparing validated recommendations with dosages and precautions

Recommender systems are important for making healthcare more accessible. They help users quickly obtain valid Ayurvedic treatments, improve treatment accuracy, and lessen the need for consultations [8].



Quality Assurance Process:

1. Checking dosha balance (Vata/Pitta/Kapha coverage)
2. Dosage standardization according to API guidelines

The compiled CSV knowledge base serves as the main dataset for the recommendation engine. The system's ability to organize highquality Ayurvedic data allows accurate symptom matching and improves treatment relevance through age specific filtering [4].

V. CONCLUSION

The web based Prakriti-Care Ayurvedic Drug Recommendation System offers treatment suggestions based on symptoms. It uses keyword matching against a doctor validated CSV dataset. The system runs locally via XAMPP with a PHP Python setup. It provides real time recommendations and ensures age appropriate filtering for children, adults, and elderly patients. Pandas based CSV processing identifies symptom patterns from user inputs. It recommends specific Ayurvedic treatments through an easy to use web interface [11], [10].

The modular design allows for offline deployment in rural clinics and urban wellness centers while keeping data private through local storage. Development relied on classical Ayurvedic texts arranged into a standardized CSV format. This approach preserves treatment authenticity and allows for modern web delivery. Future updates will expand the knowledge base and improve matching algorithms, connecting ancient Ayurvedic wisdom with accessible web technology.

VI. REFERENCES

[1] P. V. Sharma, Charaka Samhita, Varanasi: Chaukhambha Orientalia, 2014.

[2] K. R. Srikantha Murthy, Sushruta Samhita, Varanasi: Chaukhambha Orientalia, 2012.

[3] Vagbhata, Ashtanga Hridaya, Varanasi: Chaukhambha Publications, 2008.

[4] Ministry of AYUSH, Ayurvedic Pharmacopoeia of India, Part I, Vol. VII, Government of India, 2020.

[5] Central Council for Research in Ayurvedic Sciences (CCRAS), Clinical Practice Guidelines, Government of India, 2022.

[6] World Health Organization, WHO Traditional Medicine Strategy 2014–2023, Geneva: WHO Press, 2019.

[7] B. Patwardhan, D. Warude, P. Pushpangadan, and N. Bhatt, "Ayurveda and traditional Chinese medicine: A comparative overview," Current Science, vol. 86, no. 6, pp. 789–799, 2004.

[8] F. Ricci, L. Rokach, and B. Shapira, Recommender Systems Handbook, Springer, 2015.

[9] S. Bird, E. Klein, and E. Loper, Natural Language Processing with Python, O'Reilly Media, 2009.

[10] W. McKinney, Python for Data Analysis, 2nd ed., O'Reilly Media, 2018.

[11] L. Welling and L. Thomson, PHP and MySQL Web Development, 5th ed., Pearson, 2017.

[12] R. Nixon, Learning PHP, MySQL & JavaScript, O'Reilly Media, 2018.

[13] Kaggle, "AyurGenicsAI Dataset," 2025. [Online]. Available: https://www.kaggle.com/

APPENDIX III

Proof of Research Paper Publication

TIJER - INTERNATIONAL RESEARCH JOURNAL
TIJER.ORG | ISSN : 2349-9249
An International Open Access, Peer-reviewed, Refereed Journal

Ref No : TIJER / Vol 13 / Issue 3 / 068

To,
DIMPI SENGAR

Subject: Publication of paper at TIJER - INTERNATIONAL RESEARCH JOURNAL.

Dear Author,

With Greetings we are informing you that your paper has been successfully published in the TIJER - INTERNATIONAL RESEARCH JOURNAL (ISSN: 2349-9249). Following are the details regarding the published paper.

About TIJER	: ISSN Approved - International Scholarly open access, Peer-reviewed, and Refereed Journal, Impact Factor: 8.57, (Calculate by google scholar and Semantic Scholar | AI-Powered Research Tool), Multidisciplinary, Monthly, Online, Print Journal, Indexing in all major database & Metadata, Citation Generator, Digital Object Identifier(DOI)
Registration ID	: TIJER_160910
Paper ID	: TIJER2603068
Title of Paper	: Prakriti-Care: Ayurvedic Drug Recommendation System
Impact Factor	: 8.57 (Calculate by Google Scholar) | License by Creative Common 3.0
DOI	:
Published in	: Volume 13 | Issue 3 | March-2026
Page No	: a595-a599
Published URL	: https://tijer.org/tijer/viewpaperforall.php?paper=TIJER2603068
Authors	: DIMPI SENGAR, Sushmita Singh, Nishant Raj

Thank you very much for publishing your article in TIJER.

ISSN 2349-9249 TIJER

Editor In Chief
TIJER - INTERNATIONAL RESEARCH JOURNAL
(ISSN: 2349-9249)

Indexing

An International Scholarly, Open Access, Multi-disciplinary, Monthly, Indexing in all Major Database

Manage By: IJPUBLICATION Website: www.tijer.org | Email ID: editor@tijer.org