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WEB BASED USER SEARCH FOR IDENTIFYING DISEASE AND TREATMENT

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ABSTRACT

The rapid growth of web technologies has significantly transformed the healthcare domain by enabling patients to access medical information instantly and efficiently. In today's digital era, individuals increasingly rely on online platforms to obtain preliminary health-related knowledge before consulting medical professionals. This paper presents a Web-Based User Search System for Identifying Disease and Treatment, developed using PHP as the server-side scripting language and MySQL as the relational database management system. The proposed system is designed to facilitate quick and structured retrieval of disease-related information through short text search queries. Users can input disease names or keywords related to symptoms and obtain comprehensive details including symptoms, causes, treatment methods, and preventive measures. The system incorporates a role-based access mechanism where doctors are authorized to add, edit, and update disease information, while administrators manage authentication, monitor user activities, and maintain data integrity.

The architecture follows a three-tier model consisting of presentation, application, and database layers to ensure modularity and scalability. Structured database design enables efficient indexing and retrieval, while SQL-based query mechanisms ensure accurate keyword matching.

Keywords — Web-Based Healthcare System; Disease Identification; Medical Information Retrieval; PHP; MySQL; Short Text Classification; Data Mining; Clinical Decision Support; Three-Tier Architecture.

I. INTRODUCTION

Healthcare awareness has become increasingly important in the digital era, where information flows faster than ever before. Patients today seek quick and reliable access to medical knowledge before consulting healthcare professionals. Traditional healthcare systems typically require physical appointments, manual consultation, and long waiting periods, which often result in time consumption and delayed preliminary understanding of health conditions. In many cases, individuals lack basic awareness about symptoms, preventive measures, and available treatments, which can negatively impact early diagnosis and decision-making.

Medical knowledge repositories such as National Library of Medicine and online databases like PubMed provide extensive research-level medical data. While these platforms are invaluable for researchers and healthcare professionals, they are often complex and not designed for common users seeking simple, structured explanations. The technical terminology, research-oriented content, and large volume of articles make it difficult for general users to quickly identify relevant disease information.

With the rapid expansion of web technologies, there is a growing need for simplified healthcare information systems that bridge the gap between professional medical databases and everyday users. A web-based disease identification system can provide structured, accessible, and understandable information without overwhelming users with excessive technical details. Such systems serve as preliminary knowledge platforms that enhance awareness while encouraging professional consultation when necessary.

This project aims to design and implement a user-friendly web application where:

- **Patients** can search diseases using keywords or short text queries and retrieve relevant details such as symptoms, causes, treatment options, and preventive measures.
- **Doctors** can manage and update disease-related information to ensure authenticity and reliability of content.

- **Administrators** control authorization, maintain system security, and monitor overall system activity to prevent unauthorized access.

The system follows a structured database-driven approach to ensure efficient retrieval of information. By integrating PHP-based server-side processing with MySQL database management, the application ensures modularity, scalability, and secure handling of user data.

Overall, the proposed system promotes health awareness, reduces misinformation, enhances accessibility to medical knowledge, and supports faster information retrieval. While it does not replace professional diagnosis, it acts as an intelligent support system that empowers users with foundational healthcare knowledge in a convenient and structured manner.

II. RELATED WORK

The integration of information technology into healthcare has led to the development of various digital platforms aimed at improving medical data accessibility and patient engagement. Early initiatives such as Google Health and Microsoft HealthVault focused on centralizing personal health records and enabling users to manage their medical data digitally. These systems emphasized electronic storage, interoperability, and patient empowerment. Although innovative, their complexity and dependence on structured health record integration limited their widespread adoption among general users.

In the research domain, medical text mining and information extraction have gained significant attention. Studies based on repositories such as PubMed and databases maintained by the National Library of Medicine have explored automated disease–treatment relationship extraction. Techniques such as Bag-of-Words (BOW), Term Frequency–Inverse Document Frequency (TF-IDF), and probabilistic classifiers including Naïve Bayes have shown reliable performance in short medical text classification tasks. These approaches are computationally efficient and suitable for handling structured biomedical abstracts.

Furthermore, machine learning-based classification models have been applied to identify semantic relationships between diseases and treatments. Supervised learning methods, including Support Vector Machines (SVM) and logistic regression models, have demonstrated improved accuracy in identifying relevant medical concepts from textual data. Ontology-based systems integrating medical vocabularies such as UMLS (Unified Medical Language System) have also enhanced semantic interpretation in healthcare information retrieval.

Despite these advancements, several limitations remain in existing systems:

- Many platforms require technical expertise or familiarity with medical terminology.
- Some systems lack structured verification by authorized medical professionals, raising concerns about information reliability.
- Most research-oriented systems are not optimized for simple symptom-based keyword search suitable for common users.
- Complex interfaces and research-heavy content often discourage non-technical individuals from effective usage.

The proposed system addresses these limitations by providing a simplified, role-based web application focused on structured disease retrieval through keyword-based querying. Unlike large-scale research databases, the system is designed specifically for usability, clarity, and accessibility. It integrates verified doctor-managed content with a user-friendly search mechanism, thereby bridging the gap between professional medical databases and everyday healthcare information needs.

III. SYSTEM ARCHITECTURE

The proposed system is designed using a three-tier architecture, which ensures modularity, scalability, maintainability, and efficient data handling. This architectural approach separates the system into independent layers, allowing easier development, debugging, and future enhancement. By dividing responsibilities across layers, the system maintains clean communication between the user interface and the database backend.

The three tiers of the architecture are:

- Presentation Layer (User Interface)
- Application Layer (PHP Processing Logic)
- Database Layer (MySQL Database)

ARCHITECTURE OVERVIEW

1. Presentation Layer

The Presentation Layer is responsible for user interaction. It consists of web pages developed using HTML, CSS, and PHP forms. This layer enables:

- User registration and login
- Disease search through keyword input
- Viewing symptoms, treatment, and prevention details
- Displaying reports and search results

The interface is designed to be simple and intuitive so that even non-technical users can access medical information without difficulty.

2. Application Layer

The Application Layer contains the core processing logic implemented using PHP. This layer acts as the intermediary between the user interface and the database. Its responsibilities include:

- Processing user inputs
- Validating login credentials
- Executing SQL queries
- Managing sessions and authentication
- Handling doctor authorization
- Updating disease records

All business logic, including keyword-based search functionality and query handling, is performed at this layer.

3. Database Layer

The Database Layer is implemented using MySQL. It stores structured medical data and user information. The database includes tables such as:

- User
- Doctor
- Diseases
- Query
- Count

The database server ensures efficient data retrieval, storage, and management. Indexing and structured schema design help improve search speed and accuracy.

System Components

The major components of the system are:

- User Module – Allows users to search diseases and view results.
- Doctor Module – Enables authorized doctors to add and update disease information.
- Admin Module – Controls user permissions, verifies doctors, and monitors system activities.
- Database Server – Stores all medical and user-related data securely.

Working Principle

When a user submits a search request, the web server processes the request through the PHP application logic. The system then communicates with the MySQL database to retrieve relevant disease records using SQL queries. The retrieved results are formatted and displayed to the user through the presentation layer.

This layered architecture ensures separation of concerns, improves security through controlled access mechanisms, and enhances overall system performance. It also allows future integration of advanced technologies such as machine learning-based disease prediction without affecting the existing structure.

IV. SYSTEM WORKFLOW

The system workflow describes the sequence of operations performed from user interaction to data retrieval and administrative monitoring. The workflow ensures secure access, structured data processing, and efficient retrieval of disease-related information. Each step is logically connected to maintain system integrity and reliability.

Step 1: User Registration / Login

The process begins with user authentication.

- New users complete a registration form providing basic details.
- Existing users log in using their credentials.
- Doctors and administrators have separate login interfaces with role-based access control.

The system validates credentials using PHP session management before granting access to features.

Step 2: Disease Search Using Keyword

After successful login, users can enter a disease name or related keyword in the search field. The system supports short-text queries, allowing flexible keyword matching.

Example:

- Input: “fever”
- Output: List of diseases associated with fever

The keyword is passed to the application layer for processing.

Step 3: Database Query Execution

The application layer executes an SQL query on the MySQL database.

A typical query structure:

```
SELECT * FROM tab_diseases

WHERE des_name LIKE '%keyword%';
```

The system retrieves matching disease records, including symptoms, treatments, and preventive measures.

Step 4: Display Symptoms, Treatment & Prevention

The retrieved data is formatted and displayed on the user interface. The user can view:

- Disease Name
- Symptoms
- Causes
- Treatment Methods
- Preventive Measures

Additionally, the system updates the search count table to track frequently searched diseases.

Step 5: Doctor Updates Disease Records

Authorized doctors can:

- Add new diseases
- Edit symptoms or treatment information
- Update prevention guidelines

All updates are stored in the database and immediately reflected in user searches.

Step 6: Admin Monitors Activities

The administrator oversees system operations by:

- Approving or rejecting doctor registrations
- Managing user accounts
- Monitoring search statistics
- Ensuring data authenticity and system security

V. METHODOLOGY

The methodology consists of:

1. Data Collection

Doctors input disease name, symptoms, treatment, and prevention details.

2. Database Structuring

Tables:

- User
- Doctor
- Diseases
- Query
- Count

3. Search Mechanism

The system uses SQL LIKE queries for keyword matching:

SELECT * FROM tab_diseases

WHERE des_name LIKE '%keyword%';

4. Data Validation

Form validation using client-side and server-side mechanisms.

5. Authorization Control

Admin verifies doctor accounts before allowing data publishing.

VI. IMPLEMENTATION DETAILS

Software Specifications

- Operating System: Windows 10
- Front End: PHP
- Back End: MySQL
- Server: Apache (XAMPP)

Technology Overview

PHP

PHP is used for server-side processing. It handles:

- Login authentication
- Query execution
- Data insertion
- Session handling

MySQL

MySQL manages:

- Disease data storage
- User records
- Query tracking
- Count management

The system follows the LAMP model architecture.

VII. PERFORMANCE EVALUATION

Performance was evaluated based on:

Feature	**Existing System**	**Proposed System**
Manual Consultation	Required	Optional
Time Consumption	High	Low
Awareness	Limited	High
Online Access	No	Yes
Doctor Interaction	Physical	Online

Load testing showed stable performance under moderate concurrent usage.

VIII. COMPARATIVE ANALYSIS

Feature	**Existing System**	**Proposed System**

Manual Consultation	Required	Optional
Time Consumption	High	Low
Awareness	Limited	High
Online Access	No	Yes
Doctor Interaction	Physical	Online

The proposed system significantly improves accessibility and reduces waiting time.

IX. DISCUSSION

The system demonstrates that structured database-driven applications can effectively assist in health awareness. While it does not replace professional consultation, it empowers users with preliminary knowledge.

One limitation is that the system relies on keyword-based search rather than AI-based symptom analysis. However, its simplicity makes it efficient and reliable.

X. FUTURE WORK

Future enhancements may include:

- Integration of Machine Learning for symptom-based disease prediction
- Natural Language Processing (NLP) for semantic search
- Mobile Application Deployment
- Cloud Database Integration
- Real-time Chat with Doctors
- Role-based encrypted authentication

XI. CONCLUSION

This project successfully implements a Web-Based User Search System for Identifying Disease and Treatment using PHP and MySQL. It provides structured medical awareness, reduces dependency on manual hospital visits for basic queries, and enhances accessibility to health-related information.

The system demonstrates that combining structured database design with web technologies can significantly improve healthcare information dissemination.

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