Web Application for Self-Diagnosis and Drug Recommendation

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Abstract: *Throughout the evolution of the Internet and social networks, forums and online platforms have a vital role in sharing information, along with the creation and engagement of virtual communities. Such websites represent great resources, and they are the first step in the adoption of e-health services. When the persons are ill, many of them use search engines for self-diagnosis and gather possible treatment ideas before asking for a doctor's opinion. This takes a lot of time because the information is scattered across various forums and websites. In this paper is presented an application that aims to provide an online self - diagnosis and drug recommendation tool based on natural language processing of the symptoms described by the user. Over 2,200 medicines are stored in the database, each having a set of keywords according to their usage. Thus, the platform automates the search process, and provides the user with the most relevant information, eliminating the need for manual data interpretation. The results are ranked according to the confidence score obtained after the execution of the fuzzy search algorithm. The platform does not provide medical advice. Thus it is intended for informational purposes only. The developed platform is not a substitute for professional medical advice, diagnosis or treatment. Another feature of the platform is that it enables users to find hospitals and clinics around them, so that they can receive professional healthcare service. The field of medicine is a sensitive topic due to the fact that one mistake could lead to the loss of countless human lives. It was a long and difficult journey to reach the current state of medicine, but technology was and will remain essential to the evolution of the healthcare system. The proposed solution of this paper is customized for Romania but it can be adapted for other countries by replacing the drug database.*

Keywords: Php, MySQL, Html, booking, appointment, web application, drug medicine, self diagnosis

I. INTRODUCTION

The objective of a project for a web application for self-diagnosis and drug recommendation in PHP is to create a user-centric, secure, and informative platform that serves the following purpose

Health Information Access: Provide users with easy access to information about common health conditions, symptoms, and over-the-counter medications, enabling them to make informed decisions about their health.

Preliminary Self-Diagnosis: Allow users to input their symptoms and receive a assessment of potential medical conditions, which can guide them in seeking appropriate medical care

Education: Offer educational resources about health-related topics to enhance users' understanding of various conditions and their symptoms.

User Empowerment: Empower individuals to take an active role in their health by providing them with a tool to self-assess and gather information before consulting healthcare professionals.

II. OBJECTIVE & SCOPE OF PROPOSED SYSTEM

1. Health Information Access: Provide users with easy access to information about common health conditions, symptoms, and over-the-counter medications, enabling them to make informed decisions about their health.

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2. Preliminary Self-Diagnosis: Allow users to input their symptoms and receive a assessment of potential medical conditions, which can guide them in seeking appropriate medical care.

3. Education: Offer educational resources about health-related topics to enhance users' understanding of various conditions and their symptoms.

4. User Empowerment: Empower individuals to take an active role in their health by providing them with a tool to self-assess and gather information before consulting healthcare professionals

5. The application was designed to look and feel like a healthcare-related search engine, so that users describe their issues in a natural way. The only drawback of this approach is that, like any other search engine, the results will vary depending on the description. In the following paragraphs, the features, architecture and algorithm behind Patolo will be presented and explained.

6. Self-diagnosis and medication recommendation based on user symptoms–this gives the user the freedom to describe his/her symptoms in natural language and receive a list of possible medical conditions and treatment suggestions. • Search for a medicine–it is essential to be well-informed and this gives the users the option to find and read about a particular medicine.

7. Read about a disease–this offers the user the ability to find out information about the diseases that are displayed at the end of the diagnosis procedure. • Find medical assistance–this feature allows the users to see a map containing hospitals and clinics around them, so that they can get professional healthcare assistance.

III. FEATURES OF PROJECT

- User behavior patterns
- Content filtering
- Thread management
- User management
- Interaction features
- Search functionality
- Privacy and security
- User-friendly interface

IV. LITERATURE REVIEW

During recent years, the healthcare domain went through a great number of transformations thanks to advances in technology. Today, people are more interested in their health condition, so they spend more time online, searching for health-related subjects and information. This kind of active interest from patients led to the enhancement of the doctor-patient relationship and improved service engagement. The influence of technology is obvious in this case, and it helps in co-creating value in the medical domain at the micro level

Medical records contain large sets of data such as patient information, medical history, drug prescriptions, treatment protocols and outcomes

The amount of unstructured electronic health data is hard to manage and analyze using traditional ways. Today, big data is an emerging trend in technology that is used to describe a large volume of structured and unstructured data sets in order to extract valuable information. The information mined can be then used in various machine learning applications or analytics projects. The healthcare industry is behind other fields when it comes to the use of big data. This is not a surprise given the nature of the domain and the challenges faced by the healthcare providers. There is no simple way to share data among the different providers without causing security and privacy concerns. Big data is still in its early days and there is potential to develop applications that can bring value to the medical industry

V. REPRESENTATION OF THE METHODOLOGY

The proposed system methodology for the web application involves an iterative and user-centric approach. The development process follows these key steps:

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Conduct a thorough analysis of user requirements. Gather information about the symptom database, medical information, and educational content. Define the system's functional and non-functional requirements. Design the system's architecture, including the database structure, frontend and backend components, and security measures. Create wireframes or mockups of the user interface. Plan the integration of educational content and user feedback mechanisms. Technology Selection: Choose the appropriate technologies for the project, such as PHP for server-side scripting, a database management system (e.g., MySQL), and front-end technologies (HTML, CSS, JavaScript). Evaluate the need for a PHP for efficient development. reate and set up the database to store symptom data, medical conditions, user profiles, and educational content. Ensure the database schema is well-organized and optimized for performance
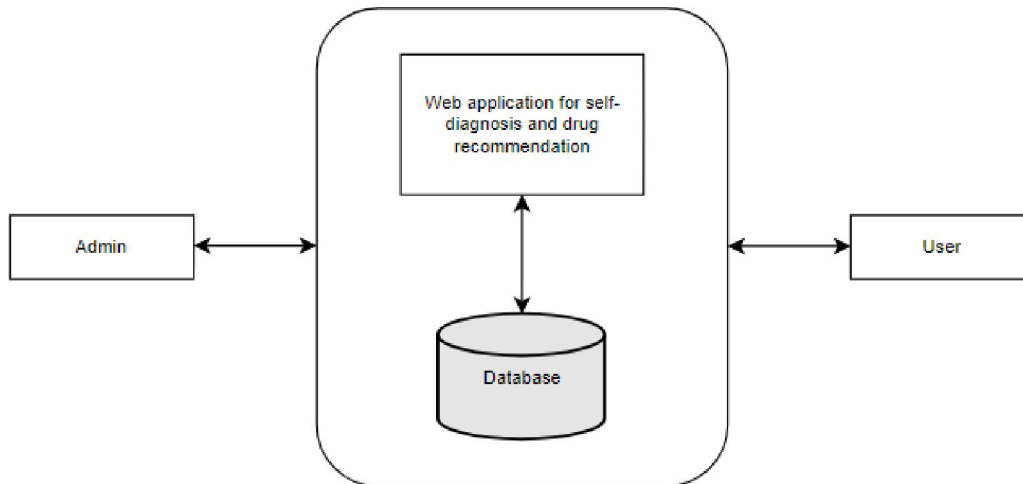
VI. PROPOSED SYSTEM ARCITECTURE

Figure: Propose
System Architecture

ADVANTAGES
- Time Reducing
- Easy to understand and handle the website
- Customer can check the Symptons and find medicine and content
- Benefit for customer

HARDWARE REQUIREMENTS
- CPU Processor : Intel core i3
- Ram: 4 GB (min)
- Hard disk : 160GB

SOFTWARE REQUIREMENTS
- Operating System : Microsoft Windows-7.
- Software Package : MYSQL, PHP , HTML, CSS, JS , BootStrap
- Frontend : HTML, CSS, JS , BootStrap
- Backend : PHP

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VII. TEST DATA REQUIREMENTS

Unit Testing:

In computer programming, unit testing is a procedure used to validate that individual units of source code are working properly. A unit is the smallest testable part of an application. Unit testing is typically done by developers and not by software testers or End-users.

Integration Testing:

Integration testing is the phase of software testing in which individual software modules are combined and tested as a group. It follows unit testing and precedes system testing. Integration testing takes as its input modules that have been Unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing.

VIII. SYSTEM TESTING FOR THE CURRENT SYSTEM

System testing for the college forum project involves evaluating the entire system after integrating all its main modules. The goal is to ensure that the system functions correctly and meets the desired specifications. Here's an overview of the testing approaches used:

1. Functional Testing: This testing phase focuses on verifying if the system functions according to its requirements. It involves testing features like thread creation, commenting, liking, and user profile management to ensure they work as intended.
2. Performance Testing: Performance testing assesses how well the system performs under different load conditions. It checks if the forum can handle concurrent user interactions, such as posting threads and comments, without significant slowdowns or errors.
3. Security Testing: Security testing evaluates the system's ability to protect user data and prevent unauthorized access. It involves testing authentication mechanisms, data encryption, and access controls to ensure user privacy and security.
4. Compatibility Testing: This testing ensures that the forum functions correctly across different devices and web browsers. It verifies that users can access and use the forum seamlessly regardless of their operating system or browser choice.
5. Usability Testing: Usability testing assesses the user interface and overall user experience of the forum. It checks if navigation is intuitive, features are easy to use, and if the forum meets the needs of its intended users students, teachers, and alumni.
6. Regression Testing: Regression testing ensures that recent code changes or updates have not introduced new bugs or issues into the system. It verifies that existing functionality still works as expected after modifications.
7. Acceptance Testing: Acceptance testing involves validating the system's compliance with user requirements and expectations. It ensures that the forum meets the needs of its stakeholders and performs its intended functions effectively.
8. Recovery Testing: This testing evaluates the system's ability to recover from failures or disasters gracefully. It checks if the forum can maintain data integrity and resume normal operations after unexpected events.
9. Stress Testing: Stress testing examines how the system behaves under extreme load conditions . It assesses its resilience and performance limits by subjecting it to high user traffic or resource demands.
10. Exploratory Testing: Exploratory testing involves exploring the system to uncover any undocumented features or unexpected behavior. It helps identify potential issues that may not have been addressed in other testing phases

IX. CONCLUSION

The field of medicine is a sensitive topic due to the fact that one mistake could lead to the loss of countless human lives. It was a long and difficult journey to reach the current state of medicine, but one thing is quite clear,

technology was and will remain essential to the evolution of the healthcare system. Patolo is a medical tool that does not require any prior medical knowledge and that is useful for self-diagnosis and treatment recommendation Using the application is extremely easy and fast, because no healthcare surveys or personal information are necessary in order to complete the diagnosis procedure, so it can save a lot of time for the user. In addition to the main use case, by building the database for medicines, the application now provides developers with a public API that can be used to develop other health care related products. Due to the fact that Patolo is based on keywords, the volume of data is essential to increase the accuracy.

At the moment, the accuracy is at a decent level but there are a few things that can be done in order to increase it. Firstly , custom translation could solve the issue of problematic words. A problematic word is a word which loses its meaning when is translated from one language to another. Secondly, the number of diseases in the database should also be increased. To sum up, the solution proposed in this paper can still be improved and that is why feedback is vital. In the near future, Patolo might get in touch with healthcare professionals for ideas to bring new useful features and services to the users.

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