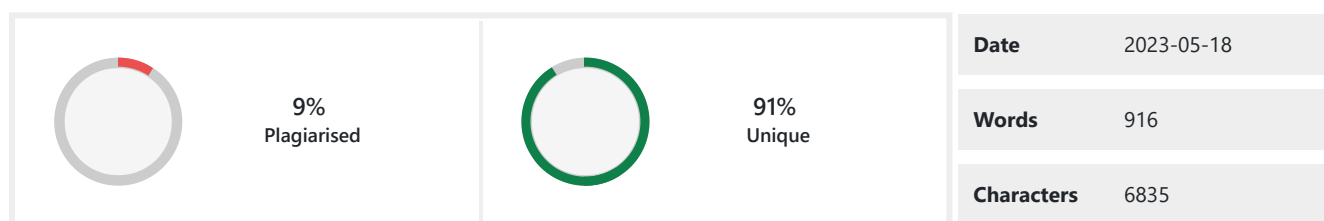


## PLAGIARISM SCAN REPORT



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In today's age, it is nothing surprising that anyone and everyone can have huge amounts of information at the tip of their hands with just a search away, but finding that one reliable website/source which an aspiring learner can follow to master a particular subject/topic is hard.

This is where literature review and analysis of pre-existing solutions comes in handy as it helps us get an idea of what features we can put forth for a seamless experience. This means we can provide not only the existing features but also add features lacking in the pre-existing solutions in order to create a user-friendly service.

Healthcare chatbots have been proposed as a solution to provide accessible, timely, and cost-effective healthcare services. Several features have been identified in the literature that are important for a healthcare chatbot to have. Here are some of the features:

1. **Natural Language Processing (NLP):** NLP is a critical feature for healthcare chatbots to understand and interpret user inputs. NLP helps to recognize user intent, and allows chatbots to respond in a more natural and conversational way.
2. **Personalization:** Personalization is important in healthcare chatbots to ensure that the chatbot can adapt to the user's needs and provide tailored responses. Personalization includes features such as recognizing the user's language, cultural background, and medical history.
3. **Integration with Electronic Health Records (EHR):** Integration with EHRs allows chatbots to access patient data, including medical history, allergies, and medication information. This feature helps the chatbot provide more accurate and personalized advice.
4. **Security:** Security is essential in healthcare chatbots to protect sensitive patient data. Chatbots should comply with relevant data protection regulations and have security features such as authentication and encryption.
5. **Multi-language support:** Multi-language support is important to reach a wider range of users and ensure that the chatbot can communicate effectively with users who speak different languages.
6. **24/7 availability:** Healthcare chatbots should be available 24/7 to provide users with immediate support, especially in urgent situations.
7. **Clinical accuracy:** Healthcare chatbots should be clinically accurate to provide reliable medical advice. The chatbot should be based on evidence-based medicine and provide recommendations that align with clinical guidelines.
8. **Empathy and Emotional Support:** Empathy and emotional support can improve the user experience and make the chatbot feel more human-like. Chatbots should be trained to provide emotional support, understand user's concerns, and offer appropriate reassurance.

9. Ability to refer to a human healthcare provider: Healthcare chatbots should be able to refer users to a human healthcare provider if needed. This feature ensures that users can receive appropriate medical attention if their symptoms require further evaluation.

### 3.2 Design Constraints

While creating a design for a website, we usually think of creating something 'out-of-the-box' or 'unique.' The end goal of every web developer is to put forth a user and beginner friendly website while also developing something futuristic; and it is a no-brainer that in this very process, we will come across several constraints related to the actual project, user interface, deadlines, etc.

The design of a healthcare chatbot needs to consider various regulations, economic, environmental, health, manufacturability, safety, professional, ethical, social & political issues, and cost.

**Here is a brief overview of each of these factors:**

1. Regulatory Constraints: Healthcare chatbots must comply with various regulations, such as medical device regulations, data protection regulations, and healthcare laws.
2. Technical Constraints: The design of healthcare chatbots is subject to various technical constraints, such as limitations in natural language processing (NLP) capabilities, processing speed, and memory limitations.
3. Data Constraints: The chatbot's accuracy and reliability depend on the quality and availability of data. The design of healthcare chatbots may be limited by the amount and quality of data available for analysis.
4. Security Constraints: Healthcare chatbots must comply with strict security requirements to ensure the confidentiality and integrity of user data. The design must incorporate adequate security features such as encryption, authentication, and secure data storage.
5. User Interface Constraints: Healthcare chatbots must have a user interface that is intuitive, user-friendly, and easy to navigate. The design of the chatbot must consider the user's language, cultural background, and literacy level.
6. Ethical Constraints: Healthcare chatbots must comply with ethical standards, such as ensuring user privacy, avoiding bias and discrimination, and maintaining transparency.
7. Professional Constraints: Healthcare chatbots must be designed to comply with professional standards, such as adhering to clinical guidelines and medical best practices.
8. Cost Constraints: The design of healthcare chatbots must consider the cost of development, deployment, and maintenance. The chatbot must provide value for money while also being affordable for users.
9. Time Constraints: Healthcare chatbots must be developed and deployed within a specific timeframe to meet user needs and remain competitive in the market.

In conclusion, the design of healthcare chatbots must consider various constraints, including regulatory, technical, data, security, user interface, ethical, professional, cost, and time constraints, to ensure the chatbot is safe, effective, and beneficial for users.

### 3.3 Analysis of Features and finalization subject to constraints

Now that we have listed the possible constraints that we will come across in the process of making a project/website, let's see what features we have to add/modify in light of the constraints.

A state diagram is a type of diagram used in computer science and related fields to describe the behavior of systems. State diagrams require that the system described is composed of a finite number of states; sometimes, this is indeed the case, while at other times this is a reasonable abstraction.

3.5 Design Selection

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