**Secure Chat API: Encrypted Chat Application Program Interface with Block-chain Authentication**

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***Abstract:***

***The first objective entails the design and implementation of advanced encryption protocols to ensure end-to-end encryption of messages exchanged within the Chat Application. By employing state-of-the-art cryptographic techniques, the API endeavors to safeguard user data from unauthorized access and interception.***

***The second objective centers on enabling interoperability among different platforms, allowing users to communicate securely regardless of the device or operating system they use. Through meticulous protocol design and adherence to industry standards, the API aims to provide a seamless and consistent user experience across various devices and environments.***

# INTRODUCTION

. Chatbots are computer programs designed to simulate conversation with human users. They are used in a variety of applications, including customer service, information retrieval, and entertainment. However, many current chatbots rely on predefined rules or keyword matching to generate responses, leading to limited conversational capabilities and user engagement. In this paper, we propose a conversation-driven approach to chatbot design that aims to create more engaging and contextually relevant interactions.The improvements in the fields of inter-networking and information technology have been intricate in executing an Artificial Intelligent (AI) systems. These systems are drawing nearer of human activities, for example, choice emotionally supportive networks, robotics, natural language processing, and so forth. Indeed, even in the artificial intelligent fields, there are some hybrid strategies and adaptive techniques that make increasingly complex techniques. That, yet these days there are additionally several Natural Language Processing (NLP)

[1] and intelligent systems that could comprehend human language. Artificial intelligent systems learn themselves and retrieve insight by perusing required electronic articles that have been existed on the web. Chatbots are computer programs designed to simulate conversation with human users. They are used in a variety of applications, including customer service, information retrieval, and entertainment. However, many current chatbots rely on predefined rules or keyword matching to generate responses,.

A chatbot (otherwise called a chatterbox, Bot, or Artificial Conversational Entity) is an AI program [2] that copies human discussions including content and communication in natural language utilizing artificial intelligence methods, for example, Natural Language Processing (NLP), picture and video processing, and voice analysis. Chatbot for college management system has been created utilizing artificial intelligence algorithms that examine the user queries. This chatbot system is an internet application that gives an answer to the broken down queries of an user. Users simply need to choose the classification for inquiries and afterward ask the question to the bot that utilizes for noting it. Artificial intelligence has been incorporated to respond to the user's inquiries. Then the user can procure the fitting solutions to their inquiries.

The appropriate responses are given utilizing artificial intelligence algorithms. Users won't need to go actually to the college or college website for requests. Users need to enlist to the system and needs to login to the system. After login users can get to the different helping pages. There will be different helping pages through which users can chat by asking questions related with college activities. The system answers to users' queries with the assistance of effective Graphical User Interface (GUI). The user can question about the college related activities with the assistance of this web application. College related activities, for example, admissions, academics, Intake, and other social activities. It will support the undergraduates/other user to be refreshed about the college activities. A chatbot is an Artificial Intelligence program that can converse with people in natural language, the manner in which we collaborate with one another. It can trade a human for some undertakings of replying inquiries. A chatbot is a specialist that assists users in utilizing natural language. It was worked as an endeavor to trick people. A few uses of chatbots, for example, User care, customer support and so on utilizes Artificial Intelligence Markup Language (AIML). The remaining of paper as follows: section-II provides literature survey and section-III presents proposed system with methodology. Section-IV propounds results and discussion and finally, section-V concludes the paper. These chatbots can demonstrate adequate to trick the user to believe that they are "talking" to an individual, however, they are limited in improving their insight base at runtime, and have typically next to zero methods for keeping track of all the discussion information

with users. One of the foremost objectives of chatbots is to take after a smart human and entangle the recipient of the discussion to comprehend the genuine working along with different designs and abilities for their use has generally widened. These chatbots can demonstrate adequate to trick the user to believe that they are "talking" to an individual, however, they are limited in improving their insight base at runtime, and have typically next to zero methods for keeping track of all the discussion information. Chatbots utilize AI to arrive at counterfeit intelligence helping them to comprehend the user question, what's more, give a suitable reaction. The chatbots are created utilizing the Artificial Intelligence Markup Language (AIML) for imparting or cooperating with the user. This comprises software that will be made up of utilizing Artificial Intelligence and will assist the user in chatting with a machine. The user can ask the systems like typically did to other humans.

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# LITERATURE SURVEY

By utilizing the field of Artificial Intelligence, one can develop numerous applications one of that is mentioned in this paper is a college chatbot system. In spite of the fact that chatbot can be deployed in various fields like marketing, education, banking, clinical and finance. Research is being done in making the regular rule based chatbots to be informative, responsive and complete the correspondence in a conversational human language. This requires the incorporation of Natural Language Processing (NLP) and Machine Learning (ML) technologies into the college chatbot system. There are various approaches to do as such. Selecting a fitting technique depends on the area of the chatbot, the functionalities it expects to give, the language of correspondence, the end client, and so forth. Some of the approaches are versed in this literature survey.

Michael Maudlin created "Chatter Bot Algorithm" in 1994 and published in the book Julia and was used to answer the queries. Taking this initial idea, further projects were developed to create a chatbot system. The user need to login to Chat-Bot application. At exactly that point the user is permitted to submit complaints and queries. When user query is submitted to the bot, context of the query is recognized and NLP is applied. WordNet calculation [4] and grammatical forms labeling are utilized to distinguish the feeling of the words. User questions are checked in the knowledge database. If the appropriate response is discovered, at that point that answer is sent to that user. If a particular query isn't found in the database such inquiries are replied by administrator. When the administrator answers the query, at exactly that point the appropriate response is sent to the user. Question alongside answer is put in database so that at whatever point such inquiries will be posed with the intention that they get addressed legitimately from the database. Because of this administrator doesn't have to address same query physically any longer. Different algorithms such as Porter Stemmer Algorithm [5] is used for expelling suffixes from words in English. Word request vector process is used for estimating word request closeness between two sentences. Sentences with precisely same words yet in different order may bring about

altogether different meaning. The user is permitted to ask any number of questions with respect to institution. Chatbots after receiving query from user checks confidence [6] score and gives legitimate response to the user question. The keyword match calculation is done where the user inquiry went through

3 keyword matching algorithm [7]. If this matching of keywords fails then at that point query is sent through 2 and 1 keyword matching with the database. Even then if the query doesn't get the right keyword match, at that point the chatbot application sends No Answer Found as a reply.

The utilization of logic adapters to choose a response is another algorithm used for chatbot applications. The aim of an input adapter is to get input from bot source, and then convert it into a format that makes chatbot understand. The chatbot system uses a special logic adapter that allows to pick the fitting response from all the responses. The Multi Logic Adapter is used to choose a single response from the responses returned by all of the logic adapters that the chat bot has been configured to use. Preprocessing of information is done by word embedding. Here each word is mapped to a vector and the vector structure is spoken to in one-hot encoded structure

[8] which implies 1 represents the presence of word and 0 for everything else. Natural Language ToolKit (NLTK) is a python library which offers assistance for Natural Language Processing (NLP). NLTK [9] has inbuilt tokenizers. The NLTK incorporates a wide scope of tokenizers which are as per the following norm, letters, path, words, keywords, class, N-gram, pattern and so on. The most usually utilized tokenizer is the word-punkt tokenizer [10] which parts the sentences at the blank spaces. The precision, speed and effectiveness of the NLTK tokenizers is exemplary. Administrator signs in to the portal and can perform activities like erase invalid answer or to include explicit answer of a specific inquiry. With the assistance of computerized reasoning, the chatbot application answers the question asked by the users.

# PROPOSED SYSTEM

we propose a conversation-driven approach to chatbot design that focuses on creating more engaging and contextually relevant interactions. Our framework and evaluation methodologies provide a foundation for building chatbots that can engage users in natural and meaningful conversations. Future work includes exploring additional strategies for enhancing the conversational capabilities of chatbots, such as incorporating multimodal interaction and improving context awareness. Once the user asks query, the keywords in the query is detected using WorldNet Algorithm. As the query description can change from one person to another person. The same query may be asked in a different ways by the users. One user asks a query so simply and clearly while another user may request same query in a completely different manner. So it is required to find what is the exact information user seeks to know and to find a correct response for the corresponding user query. The chatbot system firstly removes the stop words from the user input, if they are present in the queries asked by the user. After removing the stop words from the user queries, tokenization and lemmatization [11] process are done.

# CONCLUSION

In this project we made a college specific chatbot system that can be custom fitted to education domain chatbot, the addition of this chatbot system in the college website will make the webpage more user interactive as it responds to the user queries very accurately as it is a domain specific chatbot system, and furthermore we had investigated our college chatbot system design stages and a few different techniques by which the precision of the chatbot system can be made much better. To make the responses given by the chatbot system more meaningful and accurate the administrator has to train the chatbot system with more information regarding to college and increase the scope of knowledge base. Nevertheless, gathering feedback from the potential user can be helpful in developing the college Chatbot system, ultimately servicing the user queries.

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