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Educational Chat Bot Using Artificial Intelligence

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ABSTRACT:

A chat bot is a piece of software designed to simulate human-to-computer communication via the use of natural language. Chat bots converse with customers in a conversation based on humans giving the user the impression that they are speaking with a human. The chat bot program enables students to learn about the college admissions process from any location with an internet connection and to get prompt responses. By giving students and parents the necessary information, this chat bot system reduces the workload of the admission process department. It also reduces the effort of the department to continue to answer all the inquiries and keep on answering all the queries of the students Our strategy, however, is to concentrate on both local and web databases while also making the system scalable, user-friendly, and extremely interactive. On a note to a conclusion, the chat bot helps humans to do things via communication with the help of Artificial Intelligence. In this study as a first step, the input sentences are normalized and tokenized. To reduce the complexity of the text, a set of rules is used. The bot responds to the questions and connects to the database. Then every time when a request is given by the user, the bot responds effectively according to the user's request. As a result of this study, a detailed comparison between different techniques for developing a chat bot will be showcased.

Index Terms: Natural language processing (NLP) , Machine Learning , Data processing , Query , Response

1. Introduction:

A chat bot is a computer software that helps in developing a conversation with the user in a natural way. The continuous development of Information Technology and communication has made artificial intelligence more complex. Artificial Intelligence systems are using human activities such as taking a decision at a particular moment, performing day to day tasks, replying to the users quickly and solving the queries in the same way as the humans would do. The completion of these fundamental responsibilities presents significant difficulties for educational institutions including universities, technical colleges, and even adult education centres. In particular during the Corona Pandemic, when face-to-face communication is utterly impossible. These difficulties consist of Numerous calls or emails are received from people who are interested in study services. Long wait times might also alienate students or turn away potential customers. Given the length and complexity of study programmes, it might be challenging to convey them succinctly online. On the website of the school, students frequently spend a lot of time seeking for pertinent information. Digital lesson planning and student-lecturer interaction are frequently challenging tasks. There are numerous electronic organizations like E business, Entertainment, Virtual assistance and some more. Everything in this generation is getting related with the web. It's extremely efficient to utilize approach to manage benefit everything at your doorstep. Chat bots are developed using the Artificial Intelligence Markup Language for communicating or interacting with the user. They use machine learning to reach AI for helping them to understand the user queries/doubts and provide the user with an appropriate response. The chat bots are sufficient to tool the users in believing that they're talking to a human being, they've a very limited knowledge base at runtime.

- **Chat bots in education: Use cases**

All essential tasks of educational institutions may be effectively supported by chat bots. In addition to supporting study services and knowledge transfer, they can offer information and guidance. As a result, they enhance students' educational opportunities in addition to those of their employers.

These are some of the potential applications for chat bots in the classroom.

- Information about the selection of courses

Potential students can ask relevant questions regarding the courses available on the website, and a chat bot has been built to help with this.

Such queries can include:

- What educational options does the university provide?
- Is there an online option or does it need in-person attendance?
- What day must you enrol in the course by to begin enrollment?
- What steps must I take to register for this particular course?

Simple inquiries may usually be handled right away, but more details are frequently required. Following that, the chat bot can provide a direct link to the appropriate subpage and describe the content that is present there.

A chat bot is a more direct, engaging, and effective way to perform an on-site search as a result.

- Assistance with administration

Current students must regularly check the website of the educational institution for the most recent information. Students are asking these questions more frequently nowadays, especially in light of the Covid pandemic:

- Is the school open the following week?
- The library is open or closed, right?

These inquiries may be easily made by students using the website's chat feature or a messaging app. The best part is that they will receive a prompt response. The study experience will be enhanced, study service staff will be supported, and overall operations will be optimised for all parties.

A lot of questions can be automatically resolved by chatbots. Additionally, they can gather useful information about the biggest worries and most commonly requested queries. The fact that fewer corporate departments must be engaged makes implementation simpler.

LITERATURE SURVEY

A SIMS administrator is someone who manages accounts and maintains the system. Simple and vibrant coding was used to programme the portal. The use of very user-friendly tools, such as my SQL database, SQL developer for accessing the database, and an integrated development environment, aids in developing the portal quickly and in the way that is wanted.The portal may operate on an intranet since it is integrated with a local server using an XAMPP server.This will act as the users' personal file. The system will check this information first before allowing authorised users to access the system. The technology will entirely eliminate user duplication.Be removed as a result of an extremely strict vetting process.

The researcher of [2] The chatbot algorithm, a Python package that makes it simple to create automatic answers to user input, is used in the development of chatbots. The suggested system is an online application that responds to the administrators of the college's questions. Users can ask inquiries about the application process, course information, eligibility requirements, and admission using the chatbot that is used for talking. The chatbot corrects the user with the use of a respectable GUI that makes it appear as though a genuine person is doing it.

The researcher of [3] This study, which is based on a prototype that is currently being developed, examines the possibility of enriching undergraduate academic research experiences using conversational bots. These conversational agents, also referred to as communicative technologies or chatbots, have features like user-centric language, the capacity to retrieve information within a context, and the capacity to consistently present this information through a human-like personality, conversational tone, and human-like voice.The decision-making process for artificial intelligence already includes Information presentation methods and content are both used. The automatic recovery of information for a purpose or query is commanded by algorithms, similar to theme-based retrieval models for data.

This researcher of [4] This study, In order to meet the needs of millennial customers, this research thoroughly examines and discusses the integration of artificial intelligence chat bots into academic library reference services. The customer interface can send and receive texts using natural language processing.(NLP), which interprets, forms, and reads the entities and intents of the customer's query, Data from the text is processed. The computer uses a knowledge base to answer to the user or database can be used to complete complex queries.

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MODEL RECOMMENDED

To explain from the user's perspective the key functional needs for the Student Information Management System (SIMS).A SIMS administrator who manages accounts and maintains the system; A teacher gives information about a student's grade book and attendance. A head of department manages the department staff, including information about teachers, students, groups, classes, and subjects. A head of college manages the departments of the college. A student at the university can view a group report and a student report about his attendance and grades.

ENROLLMENT AND VERIFICATION

This module allows users to submit information such as their login, password, first and last name, address, birth date, and position. This will function as the users' personal record. Before authorised users may enter the system, the system will validate this information. Due to a highly strict verification procedure, duplication of users in the system will be fully removed.

SYSTEM'S PROPOSED FUNCTIONS

The system will be accessible to three distinct user groups.

1. Registrar who can read and change any student's information
2. Department heads who can add courses, departments, and exam information as well as update and delete information.
3. Students who may access and change their information. The proposed system would give the students the following functionalities registrar.

The registrar can access the system and do any of the accessible functions.

- Can student enable/disable:
- Can make changes to student information in the database;
- Can do a search for a specific student;
- Can see all of the student's information.

The following functionalities are available to students: Students can log into the system and execute any of the following tasks:

choices available

- Can see his/her personal information
- Can change his/her personal information
- Can post themes for his/her projects.
- Can add his/her own picture.

VIEW OF THE PRODUCT

The web page The Student Information System is designed to capture a large number of student records and requires online support in maintaining student information. For the purposes stated above, the website should be user-friendly, 'easy to learn,' and dependable. The Student Information System is designed to be a stand-alone solution that does not dependent on the availability of any other website. The system will also provide an administrator with full access to the website's control and management. There are two distinct people that will utilise this product in Product Functions: Administrators have the ability to examine and change any student's information. Students who can see and change their information. An Administrator can access the system and carry out any of the various operations.

- Can search for a certain student.
- Can view all of the student's information.

The following functionalities are available to the student:

- Can see his/her personal information
- Can change his/her personal information

REQUIREMENTS FOR FUNCTIONALITY

The Administrator will be granted greater privileges (enable/disable/update) than other users. It will be guaranteed that the information entered is in the right format. Names, for example, cannot include numbers. If wrong information is entered, the user will be prompted to enter the information again. The system can be accessed at any time.

NON- FUNCTIONAL REQUIREMENTS

1. PERFORMANCE REQUIREMENTS: The suggested system that we will create will be utilised as the Chief performance system, assisting the organisation in managing the whole database of students studying in the organisation. As a result, it is expected that the database will full fil all of the mentioned requirements functionally.
2. SAFETY REQUIREMENTS: Due to a virus or operating system failure, the database might crash at any given time. As a result, a database backup is necessary.
3. SECURITY BASIC REQUIREMENTS: We're going to create a safe database. Users may be divided into many groups, including Admin Students, who can see the entire database or just a portion of the data. The access permissions are determined by the user category. This implies

that if a user has administrative privileges, he or she may edit, add, or otherwise change the data. All other users are limited to being able to retrieve database information

CHAT BOT AS AN ARTIFICIAL INTELLIGENCE TOOL

Chat bots, also known as conversational assistants, are computer programmes that can engage with users using language-based interfaces. The primary goal of a Chat bot is to replicate an intelligent human discussion so that the interlocutor gets an experience that is as close to a conversation with another person as feasible. Furthermore, more complex Chat bots can learn from talks by implementing in a way that Chat bots are powered by conversational artificial intelligence. Natural language management and processing may be accomplished with the help of this technology. Chat bots have the ability to converse using conversational AI. capacity to study user input, learn from it, and provide the most relevant answer feasible in respect to the information entered.

- User experience (UX) is in charge of making the communication between the Chat bot and the user as natural and intelligent as feasible.
- The user interface (UI) is the component through which the user interacts with the Chat bot, i.e. the components that the user can physically see and hear in order to make decisions and follow the discussion.
- Conversational design is a design language that is inspired by human interactions. It is in charge of delivering human reasoning to an artificial intelligence through conversational design.

BEHAVIOR OF A CHAT BOT FOR THE RECOMMENDATION OF ACTIVITIES

If an activity is not completed or the student does not meet the minimal percentage in the assessment criteria for knowledge creation, the Chat bot initiates a process to determine the specific tasks in which the student does poorly and the causes. If the issue is found, the AI module examines the student's past using the data it maintains and initiates a fresh engagement with the student. With this new interaction, the Chat bot attempts to identify the issues that are causing the student's low academic performance. This approach is carried out by asking questions about the subject and providing the learner with different possibilities based on activity recommendations. With this new information, the Chat bot comes to a decision and evaluates all of the activities in its catalogue that correspond to the demands and patterns discovered in the students.This pattern analysis is a step established in the design of the smart campus using Hadoop. With this knowledge, the Chatbot suggests the activity to the student, and when it has been created and tested, the AI module moves on to the outcomes evaluation step. The Chat bot develops information about the case, alerts the student, and calls the process to a close if the evaluation yields good findings and the student's learning is confirmed. The procedure loops back to the identification of the activities and is repeated, dismissing the first activity and proposing the next, if the chatbot determines that the intended learning was not accomplished.

RESULT AND INFERENCE

The site was created with the very simple goal of dynamically preserving teacher and student data as well as student data such as mid-marks, semester grades, GPA, and CGPA. Simple and vivid coding were used to programme the portal. the utilisation of incredibly user-friendly applications, such as SQL developer and my SQL database, for The database and integrated development environment make it easy to construct the site in the way you want.The portal may operate over an intranet since a local server is incorporated with it through the XAMPP server. To improve the appearance and functioning of the portal, the following were used: Web pages were created using HTML, CSS, and JavaScript . . An administrator login is available for the portal, allowing regular updates to the student and faculty data. The gateway removes paperwork, which might result in data loss and duplication. the gateway . It gives users the ability to quickly and effectively access, manage, and update their data. It enables the creation of a central location that may be immediately shared by several users and simply amended. Users may login from anywhere with an internet connection and a simple web browser thanks to a web-based front end, which eliminates the need for them to comprehend and directly utilise a database. . It also offers the option of running queries to gather data for different surveys. It is a perfect application for such a system given the volume of people that view and alter student data inside the department. The use of a chatbot, as suggested in this paper, enables the development of an effective teaching model in which students discuss a variety of subjects and engage in peer reflection based on predetermined opening statements made by the chatbot. A cognitive and affective examination or exploration of students' impressions of a certain topic, interaction, event, or setting is also possible by recording the dialogue with users.

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