



Development and Implementation of a College Admin App with a Chatbot Assistant

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ABSTRACT—

For utilizing computer program applications, client interfacing that can be utilized incorporates command line, graphical client interface (GUI), menu driven, form-based, normal dialect, etc. Sometimes, alternative client interfaces may be required in addition to the standard GUI and web-based options. A chatbot based conversational client interface fits into this space. The chatbot could be a class of bots that have existed within the chat stages. The client can be associated with them by means of graphical interfacing or widgets, and the drift is in this course. Typically, these interfaces provide a stateful service, meaning that the application saves data from each session. On a college's site, one regularly doesn't know where to hunt for a few kind of data. It gets to be troublesome to extricate data for a individual who isn't a understudy or representative there. One solution to this could be implementing a college application chatbot, which would provide a fast, convenient, and informative tool to enhance the college website's user experience and deliver effective information to users. Chat bots are a shrewdly framework being created utilizing manufactured insights (AI) and normal dialect preparing (NLP) calculations. It has a viable client interface and answers the inquiries related to examination cell, affirmation, scholastics, users' participation and review point normal, arrangement cell and other different activities.

Keywords:- Manufactured insights, chat bot, information base, lemmatization, normal dialect handling, semantic sentence likeness, wordnet.

I. INTRODUCTION

Chat bots have become increasingly prevalent in various industries, serving as a valuable resource for answering clients' questions and providing assistance. The most popular example is Amazon's Alexa, but chat bots can be found on many websites and apps. They can offer support in accessing data that may be difficult to find on a particular site, and they are becoming like virtual assistants in our daily lives. Many websites now feature chat bots to guide users through their platforms. In fact, a study showed that integrating a chatbot into a college admin app can improve user experience and simplify administrative tasks. This app was developed using advanced technology and tested to ensure its effectiveness and performance. The results indicate that implementing these types of systems can bring considerable advantages to educational institutions, and additional research is necessary to investigate their potential for enhancing academic performance. The architecture of the college admin app consists of two main components: a server-side component and a mobile application component. The results indicate that implementing these types of systems can bring considerable advantages to educational institutions, and additional research is necessary to investigate their potential for enhancing academic performance. The architecture of the college admin app consists of two main components: a server-side component and a mobile application component.

a) Essentials of chatbot

According to the study's results, the implementation of these types of systems has the potential to bring about substantial advantages for colleges and universities. However, further research is necessary to fully explore the extent of their effectiveness in enhancing academic performance. As for the college admin app, its architecture is made up of two main components: a server-side component responsible for managing data and processing user requests, and a mobile application component designed to provide users with a user-friendly interface for accessing the system's functionalities.

b) Chatbot for College Activities

A college application system is needed for various reasons, including the slow speed of college websites, difficulty in locating specific information for external users, and challenges in accessing college-related information for non-members. The system addresses these issues by providing users

with a streamlined process for submitting queries and receiving comprehensive and specific responses. It covers a wide range of college-related domains such as admissions, examination cells, notice boards, attendance, placement cells, and other relevant areas.

A chatbot is an intelligent system designed to interact with users and provide them with relevant information based on their queries. In the context of a college, a chatbot can serve various purposes, including answering admission-related queries, providing information about ongoing and upcoming events, and giving students details about their class schedules. Moreover, students can also use the chatbot to obtain information about upcoming exams, exam dates, and related information.

The system can streamline administrative processes and reduce the workload of college staff by answering frequently asked questions, freeing up their time to focus on more complex tasks. Overall, a chatbot can significantly enhance the user experience by providing a quick and efficient way to access information, thus increasing student satisfaction and engagement.

College request framework will act as a quick, standard and instructive gadget to upgrade college website's client involvement and offer clients with honest data. The bot will analyze user's questions and get it users' message and after that answer appropriately. It employs AI & NLP. This way users' time and endeavors will be spared and s/he will be prepared with viable answers.

The purpose of this application are:

- To examine the students queries and understand their message.
- To give a reply to the inquiry of the student exceptionally productively.
- To save student's time as they don't have to physically go to the college for inquiries.
- This system will help students stay updated about the college activities.
- The system will respond using an effective GUI, which creates the illusion of a real person talking to the user.

II. INTENDED SYSTEM

A. Context:

Pre-processing is connected to the input content to standardize the input as per the system's prerequisite. Suitable context is identified based on the keywords used in the input text.

B. Personal Query Response System (Module-1):

Upon accepting individual questions like CGPA, participation, etc., the genuineness of the client is checked through user-id and secret word. In case the client detail is invalid, a fitting reaction is sent.

If the client confirms effectively, the input content is handled to extricate watchwords. Based on the catchphrases, data required by the client is caught on and the data is given from the database.

C. AIML Action System (Module-2):

When a student initiates a normal conversation with the chatbot, the input is matched to a relevant pattern in Artificial Intelligence Modeling Language (AIML) files. If a response is available, it is sent to the student. Other data such as the student's username, gender, etc. are also stored. If the pattern is not available in AIML files, a random response is sent stating "Invalid Input".

D. Query Analysis and Action System (Module-3):

When a client needs a few data relating to college, the reaction will be given through this module.

If the input matches a design within the AIML records, the fitting reaction will be sent to the client. In case the AIML records have no passage for that specific inquiry design, watchwords are brought from the input.

A calculation to check sentence similitude (NLP) is connected to the altered input to check its likeness with the questions of a predefined question-set, whose answers are available.

If a sentence is recovered with certainty > 0.5, we return the reply of that address as the response.

If no questions outline to the client input, the input is spared in a log record for change of the framework by the admin. The chairman can join the reply to that inquiry within the information base on the off chance that s/he finds it helpful. Too, an arbitrary reaction is sent to the client proposing "Answer not available".

E. Context Reset:

Once the client is fulfilled with the reaction of bot and does not wish to chat assist, he/she has the choice to log out of the framework or essentially exit. Once the client exits the framework, all input parameters are naturally reset.

III. DEPICTION

Use Case Diagrams:

(User /Admin roles)

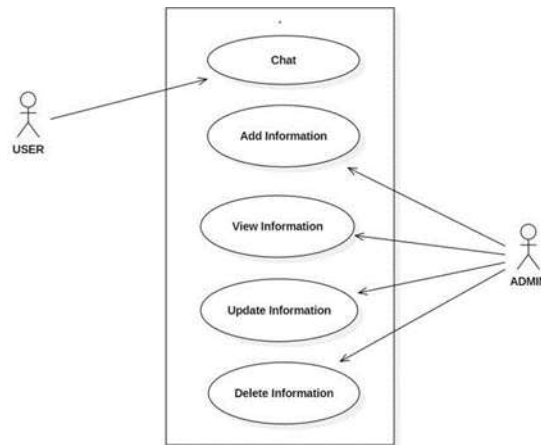


Fig 1: Use Case Diagram of user and admin roles

Data Flow Diagrams:

Level 0:

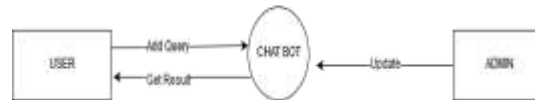


Fig 2: Zero level DFD of Chatbot assistant

Level 1:

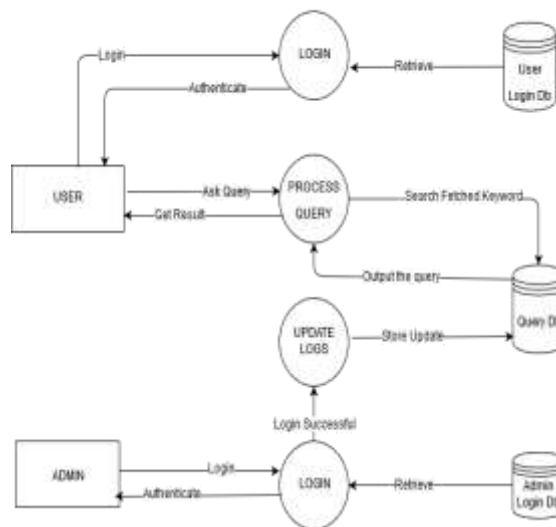


Fig 3: First level DFD of Chatbot assistant

Use Case Diagram:

(Context identification)

Fig 4: Use Case of context identity

Activity Diagram:

Personal Query Action Activity (Module-1):

College Related Query Action Activity (Module-3):

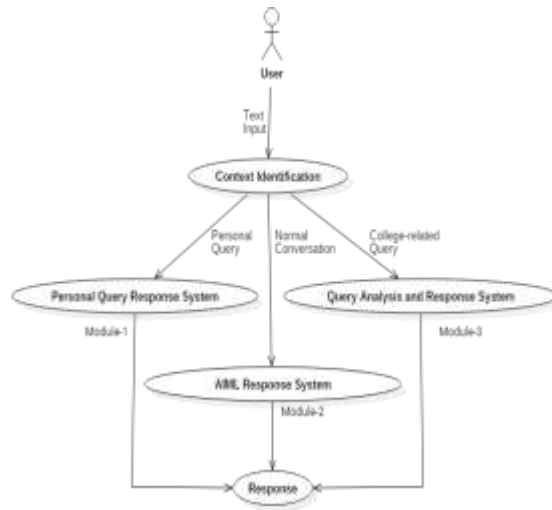


Fig 7: Activity Diagram of College Related Query Action

IV. EXECUTION

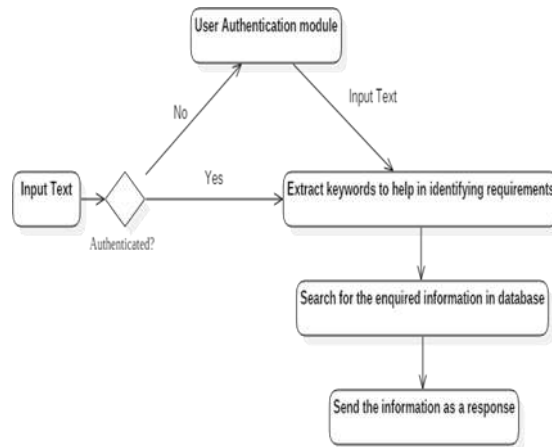


Fig 5: Activity Diagram of Personal Query Action Activity

Normal Conversation Action Activity (Module-2):

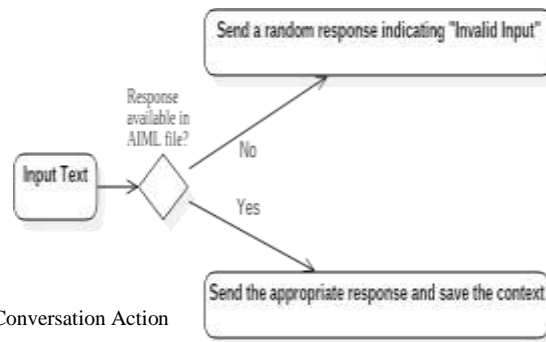


Fig 6: Activity Diagram of Normal Conversation Action

A. AIML:

To make our information base for typical discussion, we have utilized AIML records to store the address and answers combine. When client banter with our chatbot, the input is coordinated to designs recorded in AIML records and comparing reply is returned as reaction.

The sample AIML file structure is as:

B. Data Extraction Using WordNet:

Data extraction from the input content was done by extricating watchwords. For illustration, "What is the current arrangement scenario?" contain "current", "placement" and "scenario" as the watchwords. Fitting Lemmas of the catchphrases were found utilizing Lemmatization and POS labeling, to gather together the diverse bent shape of the words. For illustration, requiring, require and required ought to outline to require. WordNet from Python's "nltk" bundle was utilized for this reason.

C. Finding Similarity between Sentences:

There are different combinations in which client can input the same inquiry. For example,

QI: What is the take note with respect to PG courses re-registration?

QII: Let me know approximately re-registration in PG courses in our college.

QI and QII both cruel the same thing (same sense). Too, there will be numerous more combinations for this same inquiry and finding all such combinations will not be doable. The adaptability and execution of the framework will too get influenced. To overcome this issue, closeness is found out between the client input and the inquiries show within the accessible address set (whose answers are accessible with the framework). The inquiry which matches with the input with most extreme score gets chosen (in case more prominent than limit) and the suitable reaction is returned.

Similarity score for two sentences is calculated by averaging the similitude of the person catchphrases of those sentences. Each keyword of the first sentence is coordinated with every keyword of the second sentence to discover the word with most similitude to it. At that point the similitude score of the person words are found the middle value of to speak to the sentence similarity.

To discover the word similitude- Way Similitude and Wu-Palmer (WUP) Likeness is used.

Path likeness computes most limited number of edges from one word sense to another word sense, accepting a progressive structure like WordNet. In common, word faculties which have a longer path distance are less comparative than those with a very short path distance, e.g. man, dog versus man, tree (expectation is that man is more similar to dog than it is to tree). The Wu-Palmer metric weights the edges based on interspace in the hierarchy.

D. Log File:

We have kept up a log record which stores the inputs which the chatbot was not able to reply. Admin can see the log and include the reaction of important sentences to the information base. This would offer assistance in inflation of the chatbot information framework i.e. the databases.

V. APPLICATIONS

- It empowers the understudies to be informed with college activities.
- Spares time for the understudies as well as educating and non-educating staffs.

- It is giving us a readily available information source without taking any physical efforts.
- It is simply available and sparing time and cost also.

VI. OUTCOMES

It is regularly inconceivable to induce all the information on a single interface without the complications of going through different shapes and windows. The college chatbot points to expel this trouble by giving a common and user-friendly interface to unravel questions of college understudies and teachers.

The reason of a chatbot framework is to mimic a human discussion. Its engineering coordinating a dialect demonstrate and computational calculation to imitate data online communication between a human and a computer utilizing characteristic dialect.

The database capacity incorporates data around questions, answers, catchphrases, and logs. We have too created an interface. The interface created will have two parts, one for clients and the other for the director.

VII. FUTURE IMPROVEMENTS

Rather than AIML based bot, other algorithms can be executed. Able to incorporate voice-based questions. The clients will got to allow voice input and the framework will grant the content output. Also, after effective execution of chatbot in college space, we are able execute it in other spaces like therapeutic, legal, sports, etc. It'll be useful in all the areas as without investing much time, we are getting to the important data which as well without any sorting.

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