

Chatbot Examination Query

by

NAME OF THE CANDIDATE(S)

SNEHA DARANGULA

Section: K18SB

Roll No: B-46

SHIVA

Section: K18SB

Roll No: 45

HANUMAN

Section: K18SB

Roll No: 63



L OVELY
P ROFESSIONAL
U NIVERSITY

School of Computer Science and Engineering

Lovely Professional University, Jalandhar

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DECLARATION

We hereby declare that the project work entitled (“Collage examination Enquiry Chatbot”) is an authentic record of our own work carried out as requirements of Project for the award of B.Tech degree in computer science and engineering from Lovely Professional University, Phagwara, during January to April 2020 . All the information furnished in this project report is based on our own intensive work and is genuine.

(Signature of Student 1)
SNEHA
DARANGULA
Roll No:46

(Signature of Student 2)
shiva
Roll No: 45

(Signature of Student 3)
Hanuman
Roll No: 63

Date:

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Abstract

A Chatbot aims to make a conversation between both human and machine. The machine has been embedded knowledge to identify the sentences and making a decision itself as response to answer a question. The response principle is matching the input sentence from user. The present technical project consist of developing an expert System for college enquiry desk using an android based Chabot, through Artificial Intelligence technology and virtual assistance (Human-machine conversation), transmitting natural language to a server.

1. Introduction

1.1. Project Idea

This Application is for College student, staff and parents. Easy way to infraction and time consuming.

1.2. Literature Survey

This project is mainly targeted at colleges and the synchronization of all the sparse and diverse information regarding regular college schedule. Generally students face problems in getting correct notifications at the correct time, sometimes important notices such as campus interview, training and placement events, holidays and special announcements. Smart Campus tries to bridge this gap between students, teachers and college administrators. Therefore in the real world scenario, such as college campus, the information in the form of notices, oral communication, can be directly communicated through the android devices and can be made available for the students, teachers directly for their android devices and the maintenance of application will be easier in later future because of the use of architectural MVC which separates the major works in the development of an application such as data management, mobile user interface display and web service which will be the controller to make sure for fast and efficient maintenance of application.

2. Description

This project is focusing on creating a chatbot to be used by students to get their queries responded easily from the college website. A chatbot is a program which can do real conversations with textual and/or auditory methods. Using Artificial Intelligence (AI), chatbots can simulate human conversations. There are two categories of chatbots. One category is command based chatbots where chatbots rely on a databank of replies and heuristics. The user must be very specific while asking the questions so that the bot can answer. Hence, these bots can answer limited set of questions and cannot perform function outside of the code. The other category is chatbots based on AI or machine learning algorithms, these bots can answer ambiguous questions which means the user do not have to be specific while asking questions. Thus, these bots create replies for the user's queries using Natural Language Processing.

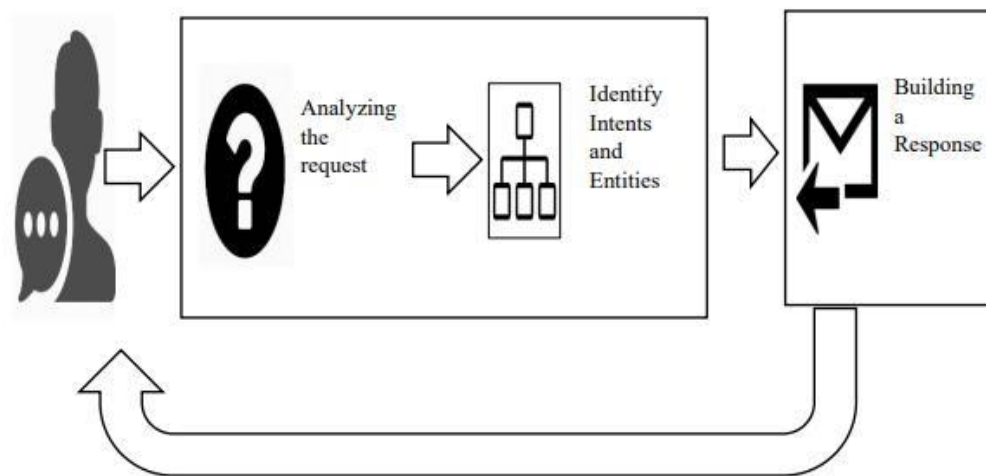


Figure 1: How a Chatbot Works [2]

Figure 1: How a Chatbot Works [2] Analysing the request Identify Intents and Entities Building a Response 2 Figure 1 shows how a chatbot works. Whenever a user asks any query, the bot will first analyse the request, then identifies intents and entities, builds a response and sends it back to the user. Now, intents mean intention of the query and entity means details of that query. For example, if a student wants to know the office hours of a faculty then the intent will be office hours and entity will be name of the faculty in this case. AI-powered chatbots are motivated by the need of traditional websites to provide a chat facility where a

bot is required to be able to chat with user and solve queries. When live agent can handle only two to three operations at a time, chatbots can operate without an upper limit which really scales up the operations. Also, if any school or business is receiving lots of queries, having a chatbot on a website takes off the load from support team. Having a chatbot clearly improves the response rate compared to human support team. In addition, since millennials prefer live chats over a phone call, they find a chatbot, which provide a highly interactive marketing platform, very attractive. Furthermore, a chatbot can automate the repetitive tasks. There can be some scenarios where a business or school receives same queries in a day for many times and support team must respond to each query repetitively. Lastly, the most important advantage of having a chatbot is that it is available 24/7. No matter what time it is, a user can get a query solved. All these advantages of a chatbot constitute the motivation to implement a College Enquiry Chatbot. Before implementing College Examination Enquiry Chatbot, various existing chatbots were reviewed such as Amazon Shopping App, Alexa, Bank of America and CNN news bot. This study proposes that “there is a need to understand and consider the stability, scalability, and flexibility issues along with high level of intention of a human language”. Hence, for implementing a chatbot that handles complicated queries, the sentiment analysis is incorporated into College for Enquiry Chatbot. Sentiment analysis aims to obtain writer’s feelings expressed in positive, negative or neutral comments. Based on sentiment analysis, the bot is trained to have empathy while answering to the user. For example, if a user says “I am sad today.” then bot should reply to it with some empathy like “I’m sorry to hear that, how can I help you today?” and not just reply the standard message like “Sorry did not understand your question.” Another downside which was found during a research on chatbot is that bots are created in such way that they follow a specific route and mostly all of them fails to satisfy anything outside of the previously defined scripts. This means that if they are not part of a predefined scripts, a significant number of the bots will fail in understanding even the most fundamental kind of queries, which results in a repeating and horrendous experience. To resolve this issue, active learning can be introduced to the system to make probabilistic assessments and provide autonomous responses to the users. Active learning is an algorithm which interactively queries user to obtain the desired output. Whenever a user asks anything which is outside of the script the chatbot will ask questions to the user by giving two to three options and based on the user’s input, the bot returns the answer to that query. This whole learning process is called as active learning.

3. Problem Definition and Scope

3.1. Problem Statement:

To design and develop online chatting system using knowledgeable database and interpreter which will be employed as a function of pattern matching.

3.2. Goals and objectives Goal and Objectives:

1. To minimize the time required to solve the queries.
2. To give response to the user based on queries.
3. To simplify communication between user and machine.

3.3. Statement of scope:

In today's world as there is everything digital. In education system work is very lengthy and time consuming and also requires extra manpower. We develop this application for students, teachers, parents and guests. In this project we implement an android application due to this application the student does not have to go personally to college office for the enquiry. The application enables the students to be updated with college cultural activities. If application saves time for the student as well as teaching and non-teaching staffs. It is useful for parents also to show his/her child marks and important notices.

3.4. Outcome:

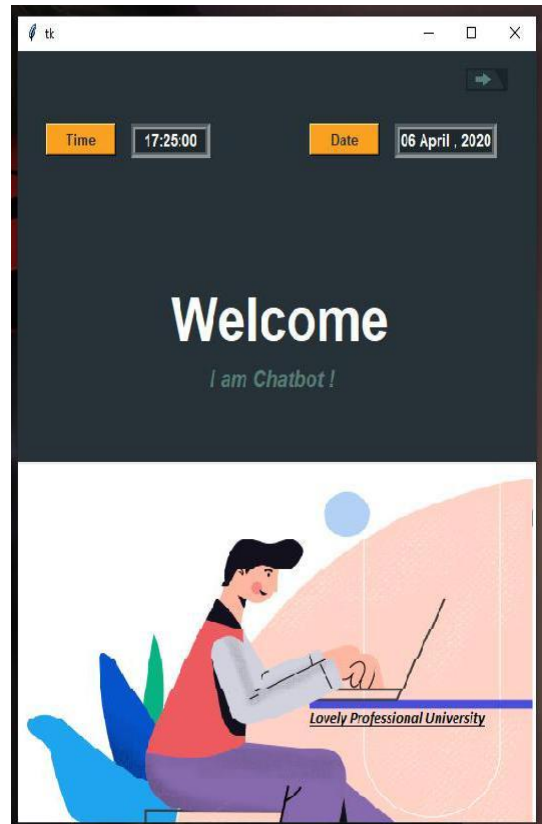
Save timing of students and teachers and also save extra manpower. Student can see all document related college like, notice, study material, question papers etc. on time to time and from any place whether student is present in college or not. And also reduce the work of staff. It is proper communication between staff and students.

4. App Features

4.1. Home page:

There are three main interface

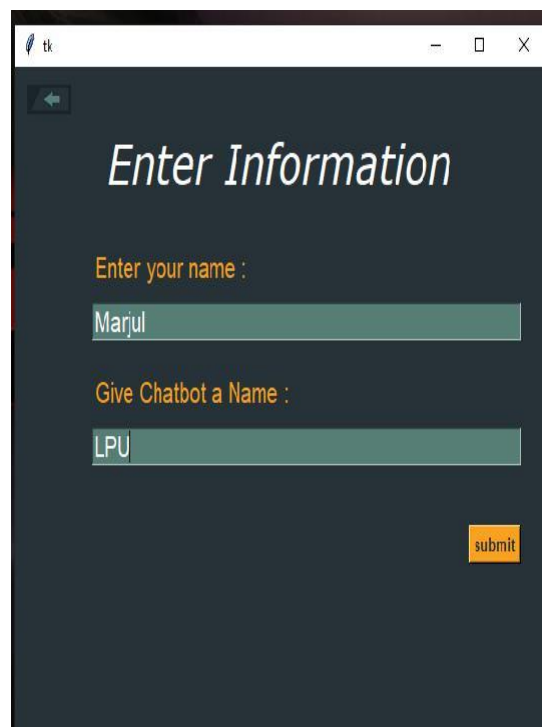
1. Displayed Time and Date.
2. Arrow-Ahead (Actually there are main function of this app)
3. Welcome Interface.



4.2. Starting page:

The user complete this page and complete the rest of the task.

First option there are user input his/her own name and second option the user input his/her chatbot name(own choices).



4.3. Message Categories:

The user will choose the topic to their advantages.



4.3.1 Administration:-The user knows their admission related news e.g: semester fees, scholarships, date of admission etc.



4.3.2 Academic:- There are have all academic related news like syllabus, semester start date and close date

The screenshot shows a chat interface titled "Academic". At the top right is a "refresh" button. The chat history includes the following messages:

- User: hi
- Bot: hello
- User: how are you
- Bot: fine and you?
- User: fine
- Bot: say what's your problem?
- User: when dose the next semester begin?
- Bot: July 27 and attendance is mandatory(75%) for attempted the end term exam.
- User: thank you
- Bot: welcome

At the bottom, there is a text input field and a "SUBMIT" button.

4.3.3 Examination:- The user knows their exam related query like exam routine, result etc.

The screenshot shows a chat interface titled "Examination". At the top right is a "refresh" button. The chat history includes the following messages:

- User: hello
- Bot: Hi
- User: when dose midterm exam conducted?
- Bot: Term-I(September 2nd week)and Term-II(February last week)
- User: When our result will be published?
- Bot: Term-I(Mid_Term march 2nd week and End_Teram June 1st week). Term-II(Mid_Term October 1st week and End_Teram December last Week).
- User: when dose endterm exam conducted?
- Bot: Term-I(December 1st week) and Term-II(April last week)
- User: thank you
- Bot: welcome

At the bottom, there is a text input field and a "SUBMIT" button.

4.3.4 Faculty Details:- There have all faculty member details, like their name, cabin number, contact number so on.

The screenshot shows a web application titled "Faculty Details". In the top right corner, there is a "logout" button. The main area is a chat interface with a dark background and orange borders. The chat history shows the following messages:

- User: hi
- System: Hello
- User: how are you?
- System: fine and you?
- User: well
- System: say what's your problem or how can I help you?
- User: What is the AI teacher name?
- System: Aishwarya Sharma
- User: what is the computer networking teacher name?
- System: Purnik
- User: where are the manik sir cabin?
- System: 24 Block
- User: Send me the sir contact number?
- System: I'm sorry, I can't provide that information.

At the bottom of the chat area, there is a large text input field and a "SUBMIT" button.

5. Advantages of Project

1. User does not have to go personally to college office for the enquiry.
2. This application enables the students to be updated with college examination activities.
3. This application saves time for the student as well as teaching and non-teaching staffs.
4. Reduced Costs.
5. 24/7 Availability.

6. Disadvantages

1. It requires active internet connection else error may occur.
2. Only given questions answer are reply otherwise reply I don't understood.
3. Zero decision making.
4. Complex Interface.
5. Time Consuming.

7. Conclusion

To conclude, College Examination Enquiry Chatbot is helpful in guiding students with correct and most up to date sources of information. It is advantageous for international applicants for queries such as schedules for exams and academic matters. Students can get the information at their fingertips rather than visiting college office. It improves efficiency by taking over tasks for which humans are not essential. Sentiment analysis implemented in College Examination Enquiry Chatbot correctly recognizes the user's query such as positive, negative, and neutral by storing all the conversations in the database. However, the system was partially successful in adding empathy since scope of these queries is vast and the system requires more rigorous data to handle all the questions which are out of script. Nevertheless, active learning helps to improve the bot performance for handling off-script queries. To improve the current functionalities of College Examination Enquiry Chatbot, in the future, the scope of the chatbot can be increased by inserting data for all the departments, training the bot with varied data, testing it on live website, and based on that feedback inserting more training data to the bot. Some of

the new features which can be added to the bot are 1) speech recognition feature through which students can ask their queries verbally and get the answers from the bot, 2) integration with multiple channels such as phone call, SMS, and various social media platforms like Skype, Facebook and Twitter, 3) handling context aware and interactive queries in which bot will be aware of the context of an ongoing conversation with a student, 4) integration with services such as password reset and course enrolment, and 5) adding a capability for the bot to perform analytics based on user's sentiment based on which the bot can be re-trained on human emotions so that more empathy can be added to the bot.