**CHAT BOTS: CONVERSATION BOTS**

**A PROJECT REPORT**

**Submitted by**

**SHAIK YUNUS AMZAD[192110736]**

**A.VENKATA NIKHIL[192225108]**

**Under the guidance of**

**Dr K . VIJAYA BHASKAR**

**In partial fulfilment for the**

**completion of course**

**CSA1342- Theory of computations**

**SIMATS ENGINEERING**

**THANDALAM**

**APRIL 2024**

**ABSTRACT**

"Chat Mimic" introduces a paradigm shift in human-computer interaction by offering users the opportunity to engage in meaningful conversations with a virtual companion. This abstract explores the profound implications and applications of such technology, highlighting its potential to address societal challenges and enhance the human experience. At the heart of "Chat Mimic" lies the development of advanced conversational AI systems capable of emulating human-like interactions. Through sophisticated natural language processing and machine learning algorithms, these virtual companions aim to provide users with companionship, support, and entertainment, ultimately fostering a sense of connection and well-being. The applications of "Chat Mimic" span across various domains, including mental health support, elderly care, education, and entertainment. In mental health support, virtual companions offer a safe and nonjudgmental space for individuals to express their thoughts and emotions, providing empathy and guidance to those in need. For the elderly, these companions serve as friendly conversational partners, mitigating feelings of loneliness and isolation by fostering social interaction and companionship. In education, "Chat Mimic" transforms traditional learning experiences by providing personalized tutoring and adaptive learning environments. By simulating interactive conversations, virtual companions enhance engagement and retention, catering to the individual needs and learning styles of students. Additionally, in the realm of entertainment, these companions offer immersive storytelling experiences, interactive games, and engaging conversations, enriching users' leisure time and providing moments of joy and relaxation. However, the development and deployment of "Chat Mimic" raise ethical considerations surrounding user privacy, data security, and the responsible use of AI technology. As such, it is imperative to establish robust ethical guidelines and safeguards to ensure the ethical operation and user trust in virtual companions.

What is natural language processing (NLP)?

Natural language processing, which evolved from computational linguistics, uses methods from various disciplines, such as computer science, artificial intelligence, linguistics, and data science, to enable computers to understand human language in both written and verbal forms.

What is natural language understanding (NLU)?

Natural language understanding is a subset of natural language processing, which uses syntactic and semantic analysis of text and speech to determine the meaning of a sentence

1.**Intoduction:**

Chatbot is a computer program that humans will interact with in natural spoken language and including artificial intelligence techniques such as NLP (Natural language processing) that makes the chatbot more interactive and more reliable. Based on the recent epidemiological situation, the increasing demand and reliance on electronic education has become very difficult to access to the university due to the curfew imposed, and this has led to limited access to information for academics at the university. This project aims to build a chatbot for Admission and Registration to answer every person who asks about the university, colleges, majors and admission policy.

1.**1 Problem Statement**:

At the start of each academic semester, registration opens for those wishing to join the university in various disciplines, and telephone calls for admission and registration abound. This leads to an increase in the loads and work for the employees of the Deanship of Admission and Registration as a result of the constant pressure of those wishing to register and their families by flocking to the Deanship, so the employees are not able to answer the phone calls and social media. This often leads to many students who wish to register to be ignored.

1.2 **Objectives :**

● save effort and time for both the Admission and registration staff and students who wish to enrol.

● Provide detailed information about colleges and majors.

● Easy access to information.

Scope

● People who wish to enrol Palestine Polytechnic University.

● Admission and registration staff

2**. Methodology:**

The methodology for implementing a chatbot for the school admission process and FAQ clarification begins with defining project objectives and gathering requirements from stakeholders, including school administrators, admission officers, prospective students, and parents. Relevant data such as admission criteria, deadlines, required documents, and frequently asked questions is collected and organized. A suitable chatbot platform is selected, and conversational flows and dialogue scripts are developed to ensure accurate and timely responses. Integration with school systems and databases is implemented to enable seamless access to information. Comprehensive testing is conducted to evaluate functionality and user experience, with any identified issues addressed promptly. Upon successful testing, the chatbot is deployed on the school's website or other relevant platforms, accompanied by staff and user training. Postdeployment, performance monitoring and feedback gathering are carried out to facilitate continuous improvement. Documentation of the development process and adherence to relevant regulations are ensured throughout the project. This methodology aims to streamline the school admission process, provide assistance to prospective students and parents, and enhance overall efficiency and user experience.

2.**1 Core Logic Module:**

Natural language processing (NLP) techniques to interpret and analyze user input, as well as algorithms for determining the context and intent behind each query. Additionally, the core logic encompasses the logic for retrieving and presenting relevant information from the school's admission database or knowledge base. This involves querying and retrieving data based on user inquiries regarding admission criteria, deadlines, required documents, and other pertinent information. Furthermore, the core logic part involves the design and implementation of conversational flows and dialogue management systems to ensure smooth and coherent interactions with users. This includes handling multiturn conversations, context switching, and error handling to provide a seamless user experience.

2.2 **User Interface Module :**

This module encompasses the design and implementation of the interface through which users engage with the chatbot. The primary component is the chat interface, which serves as the platform for communication between users and the chatbot. This interface can be embedded on the school's website, within a mobile application, or on messaging platforms like Face book Messenger or WhatsApp. It should be intuitive and userfriendly, enabling users to input queries via text or voice commands effortlessly. Additionally, the module is responsible for processing user inputs, validating them to ensure accurate interpretation by the chatbot. Once processed, responses generated by the chatbot are presented to users in a clear and organized manner

**3 IMPLEMENTATION** :

3.1 **Experimental Setup**

Chatbot Platform Selection: Choose a suitable platform for developing the chatbot, such as Dialogflow, IBM Watson Assistant, or Microsoft Bot Framework. Database Creation: Establish a database containing information on school admission processes, including admission criteria, deadlines, application procedures, and FAQs. Integration Configuration: Integrate the chatbot with communication channels like the school's website, social media platforms, or messaging apps. Hardware and Software Requirements: Ensure the availability of necessary hardware infrastructure and software tools for chatbot development, testing, and deployment. User Interface Design: Design an intuitive user interface for the chatbot, considering user experience, accessibility, and branding requirements.

3.2 **PROGRAM LOGIC FOR PARAMETERS:**

Intent Identification: Define user intents such as admission inquiries, application status checks, or FAQ clarification. Entity Recognition: Implement logic to identify and extract relevant entities from user inputs, such as dates, names, or keywords related to admissions or FAQs. Response Generation: Develop algorithms to generate appropriate responses based

on identified intents and extracted entities, utilizing the database and predefined

scripts.

Error Handling: Implement mechanisms to handle unrecognized inputs or

ambiguous queries gracefully, providing helpful guidance to users.

Personalization: Incorporate logic for personalizing responses based on user

context, preferences, or past interactions to enhance user engagement and

satisfaction.

3.3 **Experimental Procedure:**

Data Collection: Gather sample data including admission-related information,

FAQs, and typical user queries to train and test the chatbot.

Training and Testing: Train the chatbot using machine learning algorithms or

rule-based approaches, and conduct extensive testing to evaluate its

performance in various scenarios.

User Feedback Collection: Collect feedback from users interacting with the

chatbot to identify areas for improvement, assess user satisfaction, and

validate effectiveness in addressing user needs.

Iterative Refinement: Iterate on the chatbot's design, logic, and responses

based on collected feedback and testing results to enhance accuracy,

reliability, and usability.

Deployment: Deploy the refined chatbot in production environments such as

the school website or admission portal, ensuring seamless integration and

continuous monitoring for further improvements

4. Result and Discussion

4.1 **Results:**

Performance Metrics: Present quantitative measures such as accuracy,

response time, and user satisfaction scores obtained during testing phases.

User Interaction Data: Provide insights into user interactions with the chatbot,

including the frequency of queries, most common intents, and user feedback.

Comparison with Baseline: Compare the performance of the chatbot with

baseline benchmarks or existing systems to evaluate its effectiveness.

4.2 **Discussion:**

Interpretation of Results: Analyze the performance metrics and user

interaction data to understand the chatbot's strengths, weaknesses, and areas

for improvement.

User Experience: Discuss user feedback and perceptions of the chatbot's

usability, helpfulness, and overall experience.

Impact on Admission Process: Assess the impact of the chatbot on

streamlining the admission process, reducing manual workload, and

improving accessibility for prospective students and parents.

Scalability and Future Directions: Consider the scalability of the chatbot

solution and potential enhancements or extensions to address evolving

requirements or incorporate advanced features.

5. **Conclusion:**

Summarize the key findings and insights gained from implementing

the chatbot for school admission processes and FAQ clarification.

Highlight the significance of the results in improving efficiency,

user experience, and accessibility in the admissions domain.

Provide recommendations for future research or development efforts

to further enhance the chatbot's capabilities and address emerging

challenges.

5.1 **FUTURE SCOPE:**

The project scope may be expanded to include all corners of the

university, including faculties and deanships of registration and

follow-up of all matters that the student is interested in during their

academic life. The ability to communicate using voice messages.

6**.Program:**

import nltk

from nltk.chat.util import Chat, reflections

pairs = [

[

r"my name is (.\*)",

["Hello %1, how can I help you today?",]

],

[

r"what is your name?",

["My name is ChatBot and I'm here to assist you.",]

],

[

r"how are you ?",

["I'm doing well, thank you!", "I'm great, thanks for asking.",]

],

[

r"(.) help (.)",

["I can help you with various tasks. Just let me know what you need assistance with.",]

],

[

r”quit”,

["Bye! Take care.", "Goodbye, have a great day!"]

],

]

def chatbot():

print("Hi! I'm ChatBot. How can I assist you today?")

chat = Chat(pairs, reflections)

chat.converse()

if \_name\_ == "\_main\_":

chatbot()

**OUTPUT:**

Hi! I'm ChatBot. How can I assist you today?

> my name is John

Hello John, how can I help you today?

> what is your name?

My name is ChatBot and I'm here to assist you.

> how are you ?

I'm doing well, thank you!

> Can you help me with something?

I can help you with various tasks. Just let me know what you need assistance with.

> quit

Goodbye, have a great day!

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