DIU CHATBOT

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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DECLARATIONS

We hereby declare that, this project has been done by us under the supervision of Sharun Akter Khusbu, Lecturer, Department of CSE

Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

This project focuses on developing a chatbot for Daffodil International University (DIU) using GoogleColab(Python) platform and the OpenAI API. The chatbot uses a dataset of Bangla and English text, enabling it to answer questions about DIU, provide academic and administrative support, and engage in informal conversations. Our project is the first of its kind, as there is no existing chatbot for DIU. The data used to train the chatbot was collected from reliable sources and onsite, ensuring its accuracy and relevance. This chatbot aims to enhance the student experience by providing a convenient and accessible resource for answering questions, providing support, and fostering engagement.

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CHAPTER 1

INTRODUCTION

1.1Introduction

A chatbot is a computer program that simulates conversation with human users. They are becoming increasingly popular in many applications, including customer service, education, and healthcare. Chatbots can provide various services, such as answering questions, providing information, and completing tasks. In a question answering Chatbot people may ask their question about something and they would get an answer based on the question.

1.2 Motivation

Daffodil International University (DIU) is committed to providing its students and stakeholders with the best possible experience. Developing a chatbot is an innovative approach to achieving this goal. A chatbot can provide students with easy access to information about the university, including course schedules, academic policies, and student life. It can also offer administrative support details, such as registration and financial aid. Moreover, a chatbot can be used to engage in informal conversations with students, creating a friendly and supportive environment.

1.3 Objectives

The primary objectives of this project are to:

1. Able to engage in conversation in native language or Bangla.
2. Develop a chatbot that can effectively answer questions about DIU.
3. Provide academic and administrative and all information to students.
4. Engage in informal conversations with students, fostering a positive and engaging experience.

1.4 Expected Outcome

The anticipated outcomes of this project are as follows:

1. A user-friendly, informative, and engaging chatbot.
2. A chatbot capable of answering a wide range of questions about DIU.
3. A chatbot that provides timely and accurate information.
4. A chatbot that can engage in natural and engaging conversations with students.

1.5 Report Layout

This report is structured as follows:

Chapter 1: Introduction

This chapter introduces the project, provides an overview of chatbots, and outlines the motivation, objectives, and expected outcomes of the project.

CHAPTER 2: BACKGROUND

We discussed about related works of Chatbots, such as any university Chatbots and ChatGPT or Google Bards. Also, we talk about comparative studies about our Chatbots. The many challenges we faced are also discussed here.

Chapter 3: Methodology

This chapter describes the methodology used to develop the DIU chatbot, including data collection, chatbot training, evaluation methods, and more with methodological diagram.

Chapter 4: Impact on society and sustainability

We discussed about how our chatbot affects the people, mostly students and individuals who is going to use this Chatbots. It would help mostly the new students who are willing to get admitted into this university and unable to get information accurately or efficiently about DIU.

Chapter 5: Conclusion

This chapter summarizes the key findings of the project and discusses the implications for future chatbot development

CHAPTER 2

BACKGROUND

2.1 Introduction

Now a days everyone use phone. They can use it any ware anytime. But I see that people won`t find the right information. That`s why we create DIUChatBot to assist them finding right information in no time. It is a AI assistant that will assist them to find any kind of information related to Daffodil International University.

2.2 Related Works

Around the some related services are available. The main one that inspire everyone is ChatGPT.

It is a AI assistant that provide any kind of information they asked for. It is easy to use and give information in no time.

ChatGPT: It is assist you with a wide range of tasks, answer your questions, engage in conversation, and help you explore diverse topics. Trained on a vast corpus of text from the internet, I aim to provide you with information and assistance in a conversational and natural manner.

College Enquiry Chat Bot: by Nevon Projects

This project report describes the development of a chatbot for a college using artificial intelligence (AI) algorithms. The chatbot is able to answer questions about the college, such as course registration, financial aid, and student life.

Implementing a college enquiry chatbot: by Microsoft Azure

This article provides a step-by-step guide on how to implement a chatbot for a college using Microsoft Azure Bot Service and Microsoft Cognitive Services.

University Chatbot for Question Answering and Conversational Interaction: by University of California, Davis

This paper describes the development of a chatbot for the University of California, Davis, using NLP and ML techniques. The chatbot is able to answer questions about the university, such as course offerings, academic policies, and student life. It can also engage in informal conversations with students.

2.4 Challenges

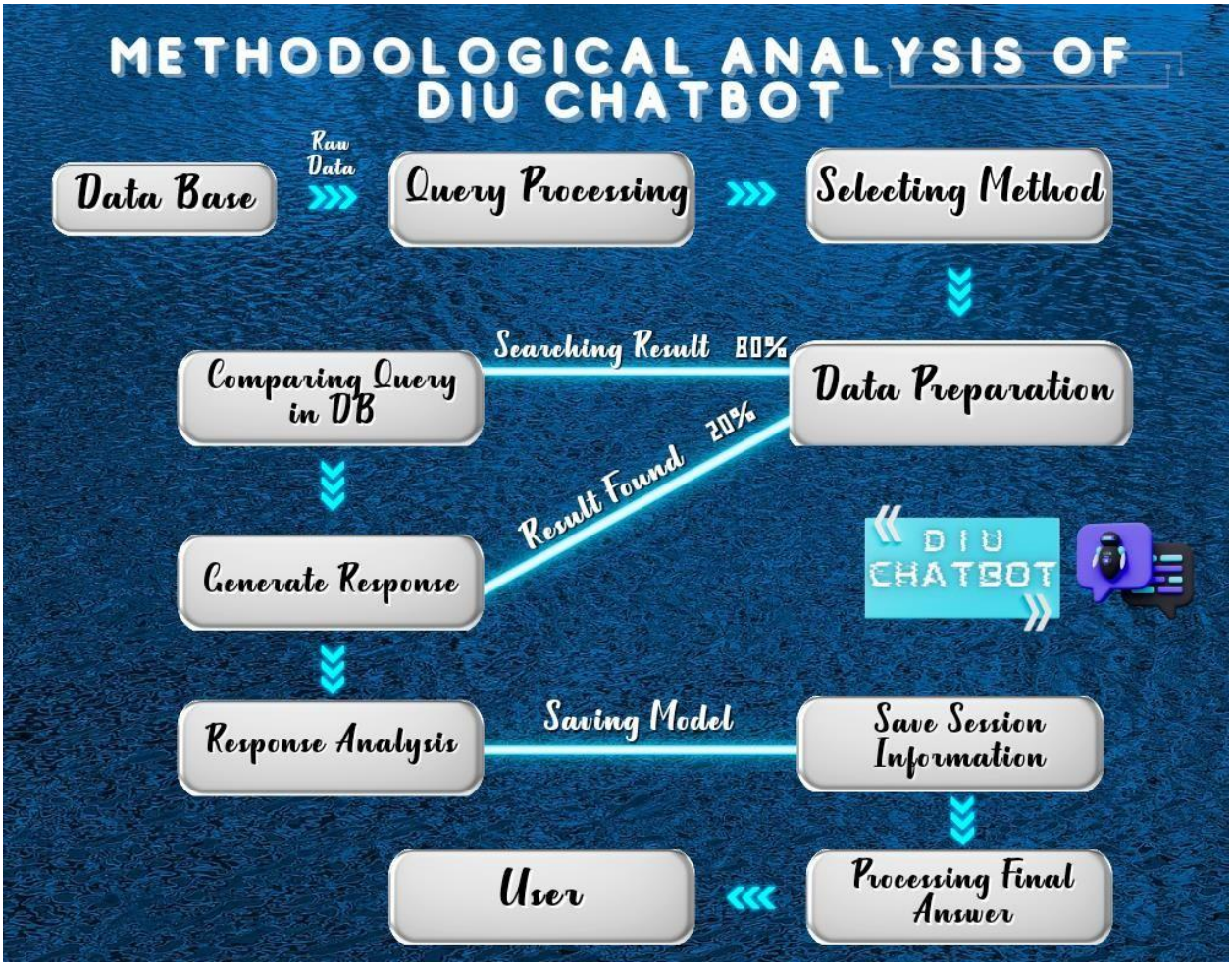
A big challenge to implement the project is getting the data . Again, this data should be frequently updated also people should need to aware about the ChatBot. Except that, the admins also need some training to use it. Moreover, the people who don't know how to use android or how to use online platforms can't take the advantage of our system.

We wish, the project's main goal to reduce human hassle will fulfill by everyone's cooperation and we can implement it on action.

CHAPTER 3

METHODOLOGY

3.1 Methodological Diagram



3.2 Methodological Process

1. Data Preparation

The first step is to prepare the data for chatbot training. This includes collecting a dataset of text and code related to DIU, such as course descriptions, academic policies, student life information, and FAQs. The data should be cleaned and preprocessed to ensure that it is in a format that can be easily processed by the chatbot.

2. Selecting Method
The next step is to select a method for chatbot training. There are many different chatbot training methods available, each with its own strengths and weaknesses. For the DIU chatbot, we can use a supervised learning approach. This involves training the chatbot on a dataset of labeled examples, where the input is a user query and the output is the desired response.

3. Comparing Query in DB
Once the chatbot is trained, we can start comparing user queries to the database. This involves using a natural language processing (NLP) library to extract the key concepts from the user query and then matching them to the relevant information in the database.

4. Searching Result 80%
If the chatbot is able to find a match in the database with at least 80% confidence, it will return the corresponding response to the user. Otherwise, the chatbot will use the OpenAI API to generate a response.

5. Generating Response
The OpenAI API is a powerful language model that can be used to generate text, translate languages, write different kinds of creative content, and answer your questions in an informative way. To generate a response using the OpenAI API, we need to provide it with a prompt, which is a brief description of the topic or question that we want it to respond to.

6. Response Analysis
Once the chatbot has generated a response, it needs to be analyzed to ensure that it is accurate, relevant, and informative. This can be done using a variety of NLP techniques, such as sentiment analysis and text summarization.

7. Saving Model
Once the response is analyzed, the chatbot should save the model to a file. This will allow it to load the model the next time it is used, which will improve its performance.

8. Saving Session Information
The chatbot should also save session information, such as the user's current conversation state. This will allow the chatbot to resume the conversation from where it left off the next time the user interacts with it.

9. Processing Final Answer
Once the response has been analyzed and saved, the chatbot should process the final answer and return it to the user. This may involve generating a summary of the response or translating it into a different language.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

A website has two parts: The frontend part and the backend part. The frontend part is created using html, CSS. The frontend is mainly the visible part of the developed website that the user interacts with it. The system is divided into 2 different parts. Those are.

- Frontend Part
- Backend Part

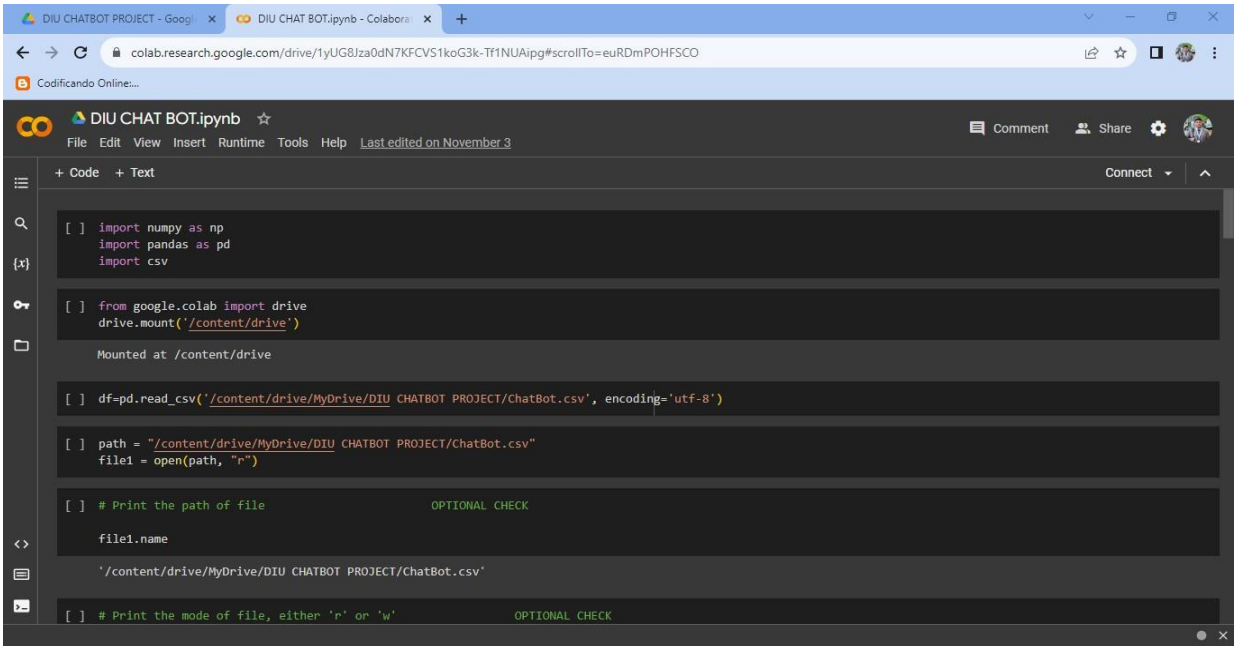
Welcome Page:

Login Page :

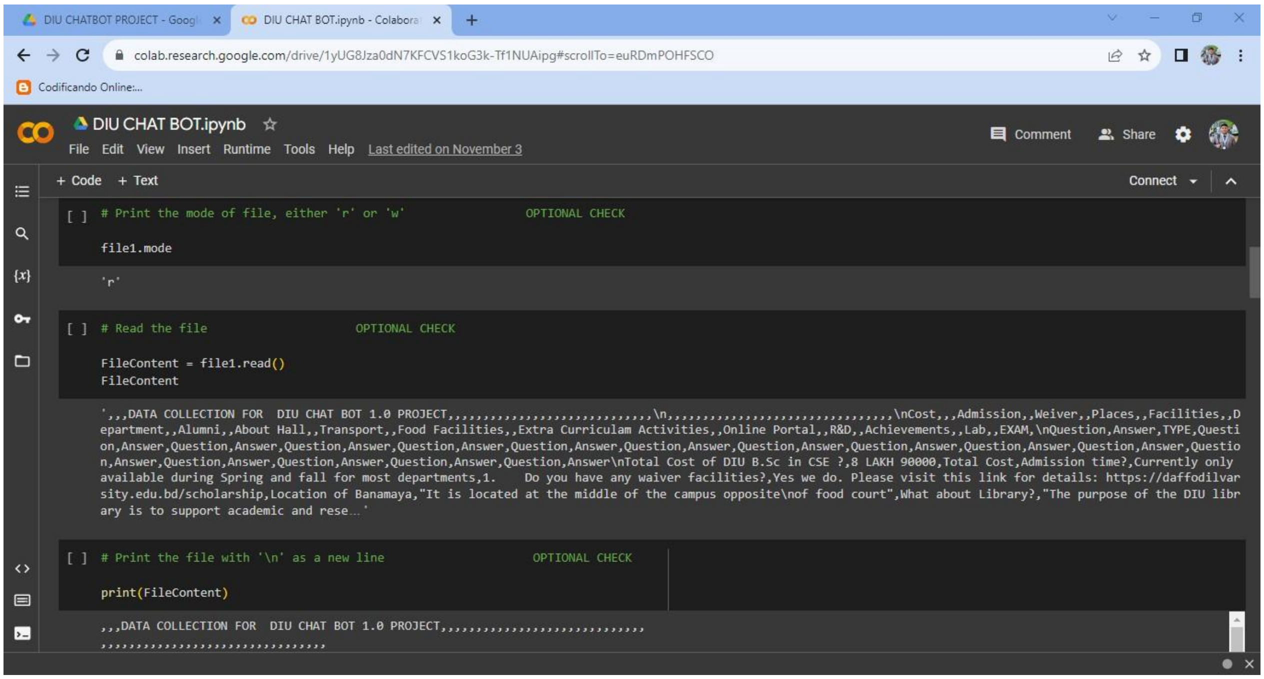
4.2 Implementation with code

Basic

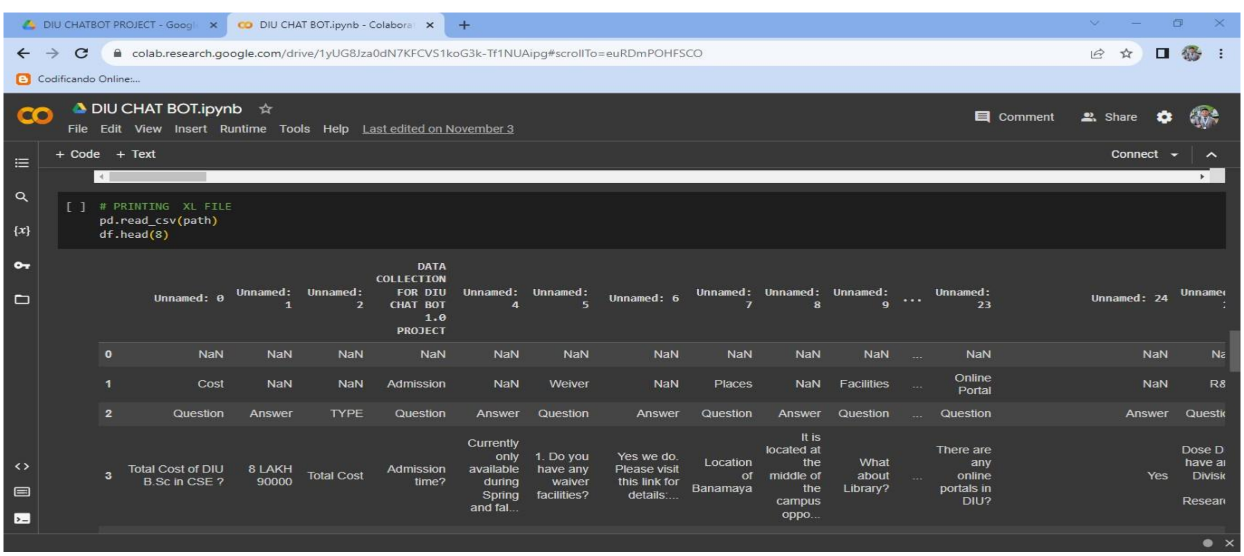
Back-End Implementation: Imports and drive connection



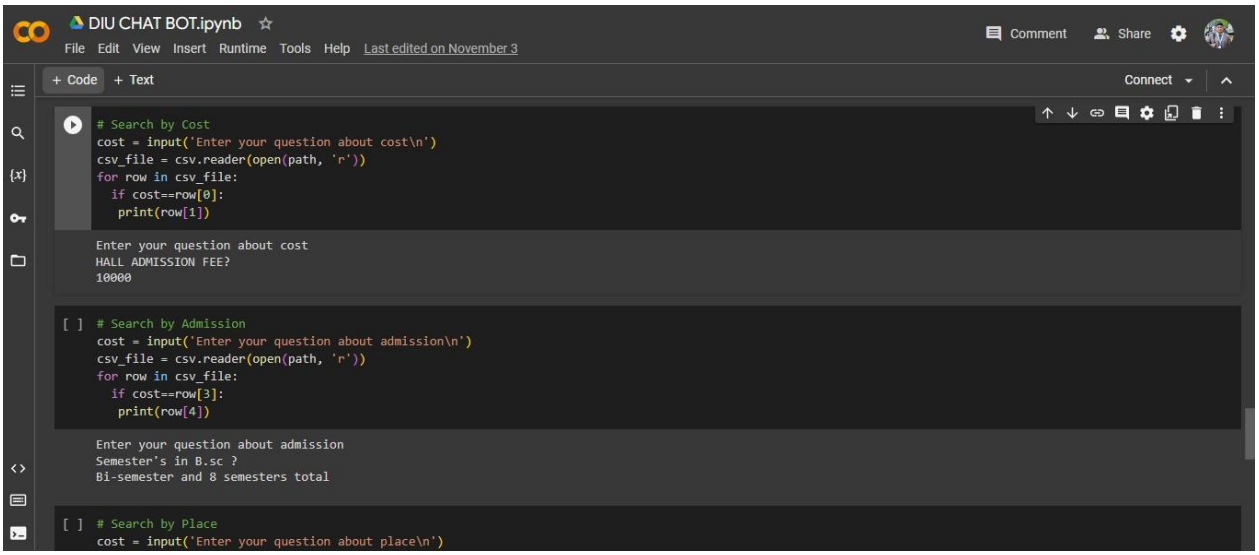
Back-End Implementation: Reading CSV and showing file



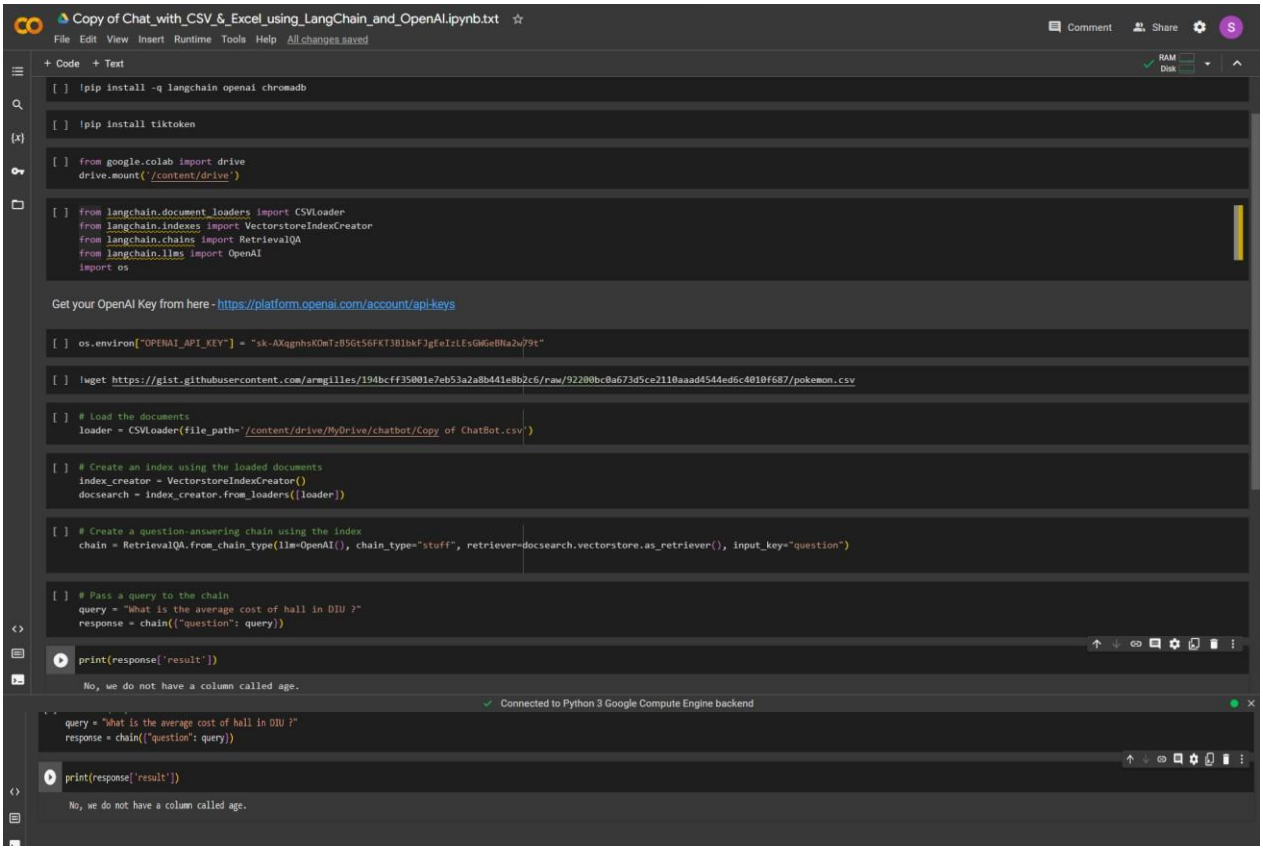
Back-End Implementation: Printing CSV file



Back-End Implementation: Search by any specific column information



Back-End Implementation: Advance



CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Discussion and Conclusion

The project is finished with the help of html, CSS and python. People can use it from anywhere by using a Smartphone with the help of an internet connection. The system is designed with the aim of helping people to find information about DIU. Several user-friendly interfaces have also been adopted.

They just need to type what information they need. Our ChatBot will give them the answer.

5.2 Scope for Further Developments

The DIU chatbot has the potential to be a valuable resource for students, faculty, and staff. However, there are several areas where the chatbot can be further developed to enhance its capabilities and improve its user experience.

1. Expand Knowledge Base

The chatbot's knowledge base can be expanded to include more information about DIU, such as detailed course descriptions, specific academic policies, and comprehensive student life resources. This will allow the chatbot to answer a wider range of questions and provide more comprehensive responses.

2. Implement Personalized Recommendations

The chatbot can be equipped with the ability to make personalized recommendations to users based on their interests, preferences, and past interactions. This could include recommending relevant courses, suggesting study resources, and providing personalized career guidance.

3. Integrate with University Systems

The chatbot can be integrated with university systems, such as the student information system and the learning management system. This would allow the chatbot to access real-time data and provide more accurate and up-to-date information to users.

4. Support Additional Languages

The chatbot can be extended to support additional languages, making it accessible to a wider audience of students, faculty, and staff. This would further enhance the chatbot's ability to serve the diverse DIU community.

5. Implement Multimodal Interaction

The chatbot can incorporate multimodal interaction capabilities, such as voice recognition and text-to-speech synthesis. This would allow users to interact with the chatbot through different mediums, providing greater flexibility and accessibility.

6. Enhance Emotional Intelligence

The chatbot can be trained to better understand and respond to user emotions. This would allow the chatbot to provide more empathetic and supportive interactions with users, fostering a more positive user experience.

7. Continuously Improve Accuracy and Relevance

The chatbot's performance can be continuously monitored and improved through ongoing evaluation and feedback. This will ensure that the chatbot remains accurate, relevant, and effective in meeting the needs of DIU users.

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3. **Stack Overflow**
   Stack Overflow is a popular Q&A website for programmers. It has a large community of users who are willing to answer questions about a variety of topics, including programming, software development, and computer science.https://stackoverflow.com/

4. **GitHub**
   GitHub is a code hosting platform that also has a large community of users. Many users share their code on GitHub, and they are often willing to answer questions about their code.https://github.com/github

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