

SHONDESH: A CHATBOT FOR DIU RELATED FAQ'S

BY

MD. NAZIM SALEH

ID: 153-15-604

AND

MD. ABIR HOSSAIN

ID: 153-15-606

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

Supervised By

Ms. Tania Khatun

Senior Lecturer

Department of Computer Science & Engineering
Daffodil International University

Co-Supervised By

Ms. Farzana Akter

Senior Lecturer

Department of Computer Science & Engineering
Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY
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APPROVAL

This Project titled “**Shondesh A chatbot**”, submitted by Md Nazim Saleh, ID: 153-15-604, and Md Abir Hossain, ID: 153-15-606 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfilments of the requirements for the degree of Bachelor of Science in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 26th November, 2019.

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Professor and Head

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Daffodil International University

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Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Dr. Mohammad Shorif Uddin
Professor

Department of Computer Science and Engineering
Jahangirnagar University

External Examiner

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Ms. Tania Khatun, 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.

Supervised by:

Ms. Tania Khatun

Senior Lecturer

Department of Computer Science and Engineering

Daffodil International University

Co-Supervised by:

Ms. Farzana Akter

Senior Lecturer

Department of Computer Science and Engineering

Daffodil International University

Submitted by:

Md. Nazim Saleh

ID: 153-15-604

Department of Computer Science and Engineering

Daffodil International University

Md. Abir Hossain

ID: 153-15-606

Department of Computer Science and Engineering

Daffodil International University

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ABSTRACT

A chat bot is a conversational agent which has ability to communicate with humans using natural language. It also can mimic human conversation by using Artificial Intelligence (AI). It is designed to act like a virtual assistant, helping a person by giving information about the institution ranging from answering questions. Now-a-days chat bot has become a very popular stage of communication as it lessens the cost of a service holder. Though creating a better chat bot is very challenging issue on the field of AI. In this project we struggled to create a design of a chat bot which provides feasible answers from the queries based on the dataset using deep neural network and natural language processing. This chat bot is basically for those who wants know about the university. So, we have lacked our concentration in the condition of conversation.

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CHAPTER 1

INTRODUCTION

1.1 Overview

The key idea of our project is to provide specific information by curtailing time. Users can get specific help by asking frequent questions. They can get help on a specific topic like place or people. The bot trains itself with the inputs given by a user so that it can give a better response in the future.

1.2 Motivation

At this time, there is no particular place from where anyone can get specific information about the institute. For this argument, we came to our idea. This idea is motivated to create a stage with a conversational environment. Our application helps to give a better service to the trendy young generation.

Lastly, our main motive is to help our students and faculties by answering their FAQ.

1.3 Objectives

The main objectives of our project is to provide institution related information. This helps a user to get better information with response. The total process is the characterization of what chat bots are and how much efficient are they.

Helps to find out how we can solve our puny problems by asking a bot.

1.4 Expected Outcome

The overall objective of the Chat bot is to develop a virtual assistant that allows users to tell about the institution and give specific information with chatting flavour. This Chat bot is designed for university students in help purpose. This project helps to create a progressive helping process for own purpose and benefits.

CHAPTER 2

BACKGROUND

2.1 Introduction

Now-a-days, we are in an era where several kinds of services based on web like Business, Learning, Entertainment related, Virtual Assistant and many more are providing services to us. Everything is getting connected with web and we are getting used to this service. On the other hand, of those services are being provided by human. But when it is a matter of time consumption, human can't be faster than machines [1]. For this reason, machines are using as conversational agents for live chatting and client handling. This process is increasing client satisfaction and optimising time.

The term SHONDESH is a Bengali word which means information. There are many kinds of information that a person needs in the university, related with admission, location, faculties, payments and many frequently answered questions. They can get information from the university website. But it will cost enough time and internet for someone. We have developed an application where user can get information with a chatting environment. This process is manufactured with the deep neural network where a user will have a live chat chatting with a machine and will get the required information automatically.

There are two kinds of users for our Chabot:

- Admin.
- User who is actually using the application for own purposes.

Anyone using the application can chat with the bot. The chatting process is normal like we do in other social sites in web.

2.2 Related Works

The term Chat Bot hasn't come in a night. This sort of intelligent machines has made a revolutionary change in our modern life. There are many applications which are being developed by using Deep learning and neural network. Day-by-day Chabots are getting popular. Eliza is considered to be the first Chabot in history was developed by Joseph Weizenbaum [1]. Then days were passing and we get ALICE, JABBERWACKY, and MITSUKU [6]. Now-a-days, there are too many chatbots are developing with different technologies and for different purposes.

2.3 Comparative Studies

Purpose: In worldwide, there have many Chatbot applications. But in Bangladesh, a small number of chatting based application are using at present. In this case, we have developed this project so that specific users can get service by from it. Anyone can use this application from his computer. The project is more useful for the students, faculties and those who are new in the university. In this project we are using a generative model for chat bot. Where the requirement is a large amount of conversational data to train. The more we train the bot, the more it will be efficient with its user.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modelling

3.1.1 Overview

A legitimate business process model can participate in safe improvement steps, appoint the course of item advancement, and we need to make systems to accomplish objectives. The Business Process Model Plan layout gives us a stage through the way toward making a solid, well-organized arrangement for our application.

3.1.2 Strategic Implementation

The procedure is for giving information of the university through an application that is sorted out. Which makes a solid security and improves correspondence relations.

The following figure is exhibiting the business model for the system

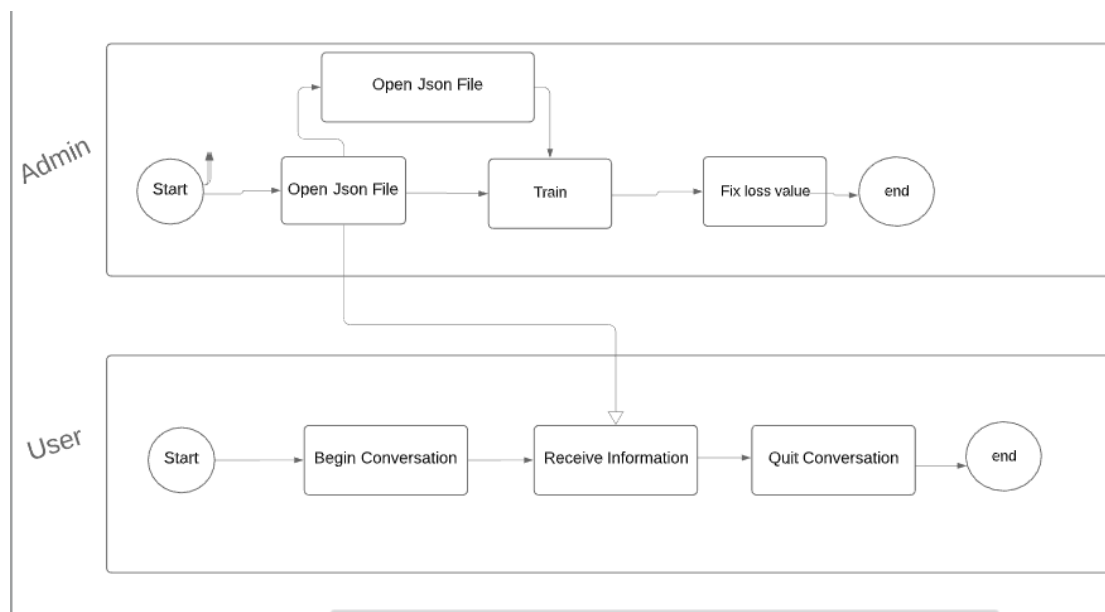


Figure 3.1.2: Business Process Model

3.2 Requirement Collection and Analysis

Prerequisite assortment assumes a key job and necessity investigation sets the base of application improvement or programming advancement. Necessity examination is arranged and can be useful, execution and execution. In this application, we have worked necessity investigation for hardware and software.

3.2.1 User Requirement

In this system user can be anyone. User can get access to the application and can have a conversation with it. If user wants, they can talk casually without asking any formal question. There is also a function to end conversation.

3.2.2 Hardware Requirement

It needs at least one computer to run the program.

Table 3.2.1: Hardware Requirement

Processor	Intel Pentium Dual Core or above
Motherboard	Any
Ram	2GB or more
Hard Disk	200GB
Monitor	Any colour monitor
Keyboard	Any
Mouse	Any
Internet Connection	Not required

3.2.3 Software Requirement

Different types of software are needed to provoking and manage this website

Table 3.2.2: Software Requirement

Software	Usage
<ul style="list-style-type: none">➤ Operating system✓ Windows (any version)	Start the computer and adjust to customize all hardware components, applications, and software
<ul style="list-style-type: none">➤ Environment	Pycharm 3.0
<ul style="list-style-type: none">➤ Browser	A web browser that able to run a web application.

3.3 Use Case Modelling and Description

3.3.1 Overview

Use case model cooperates various sorts of client with the software to take care of an issue. There are two sorts of client in our venture. We have structured use case model for client and administrator. Here is our use case model and portrayal.

3.3.2 Use Case Model

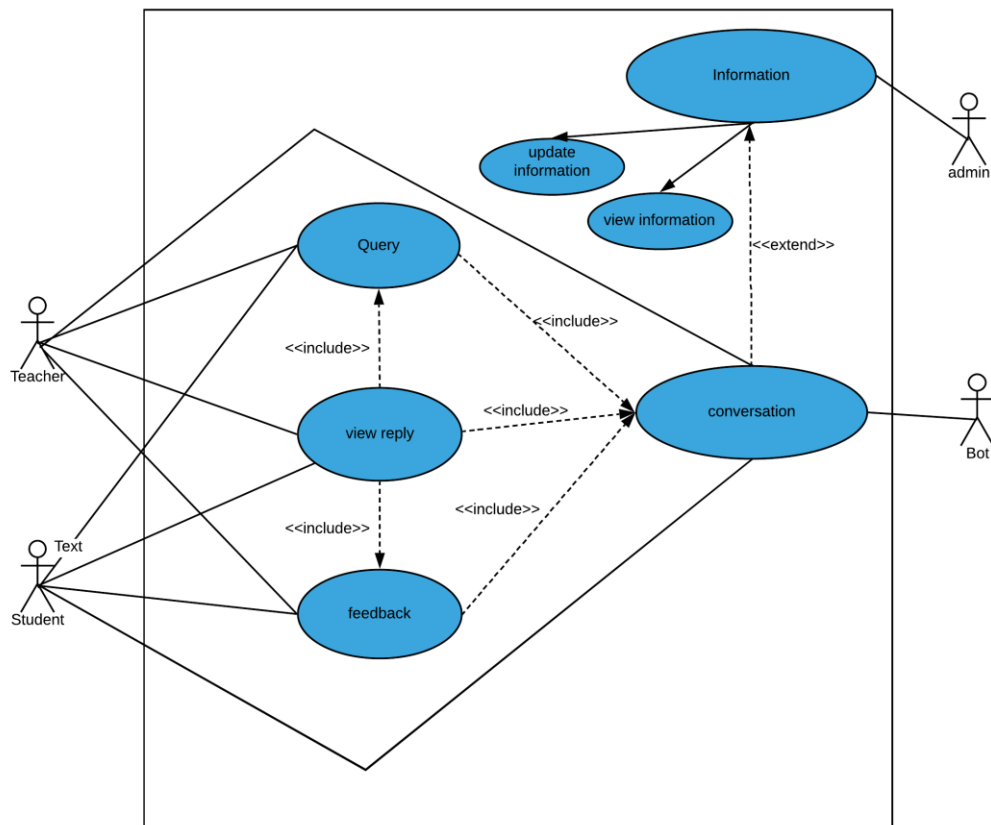


Figure 3.3.2: Use Case Model

3.4 Logical Data Model

To describe attributes, entities and relationships between them, we need logical data model.

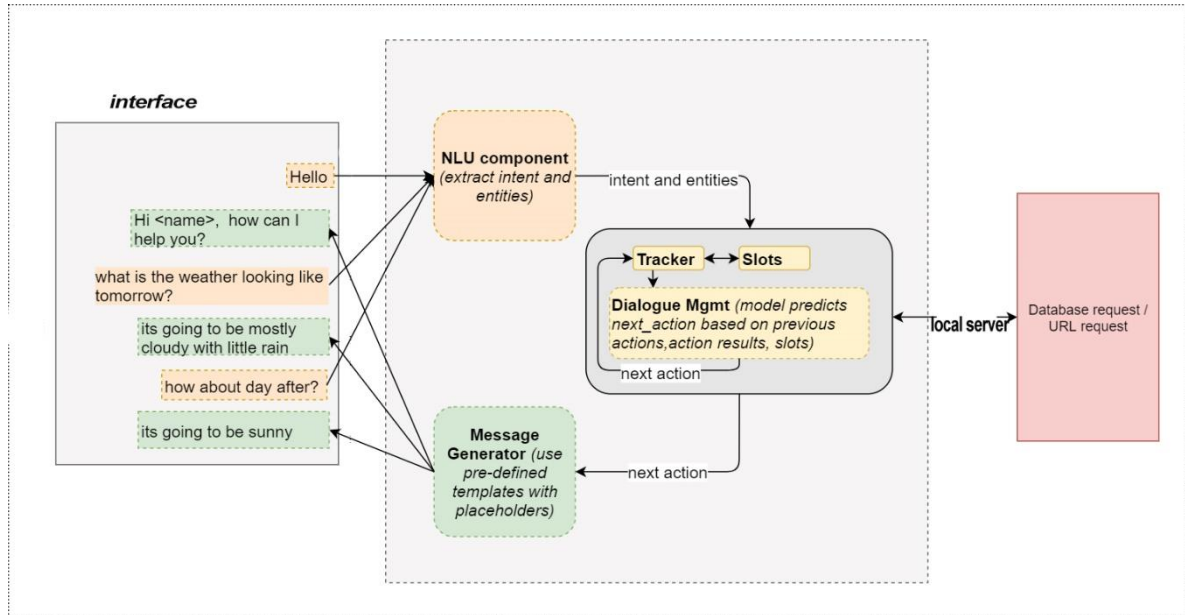


Figure 3.4: Logical Data Model

3.5 Context Diagram

This Context diagram is drawn in order to define the boundaries of the software system. It identifies the flows of information between the system and external entities.

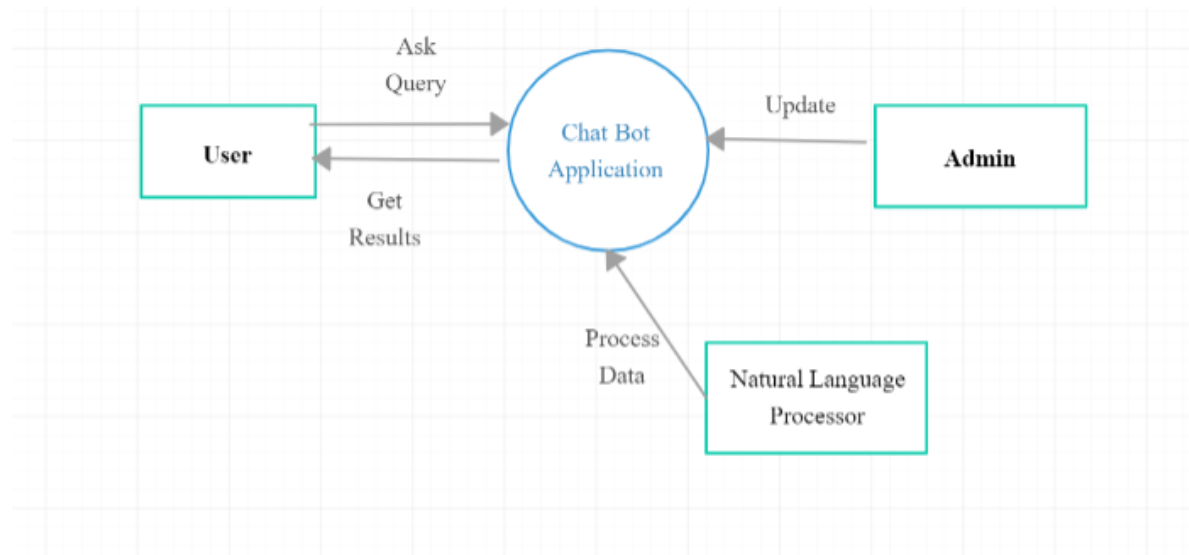


Figure 3.5: Context Diagram

3.6 Sequence Diagram

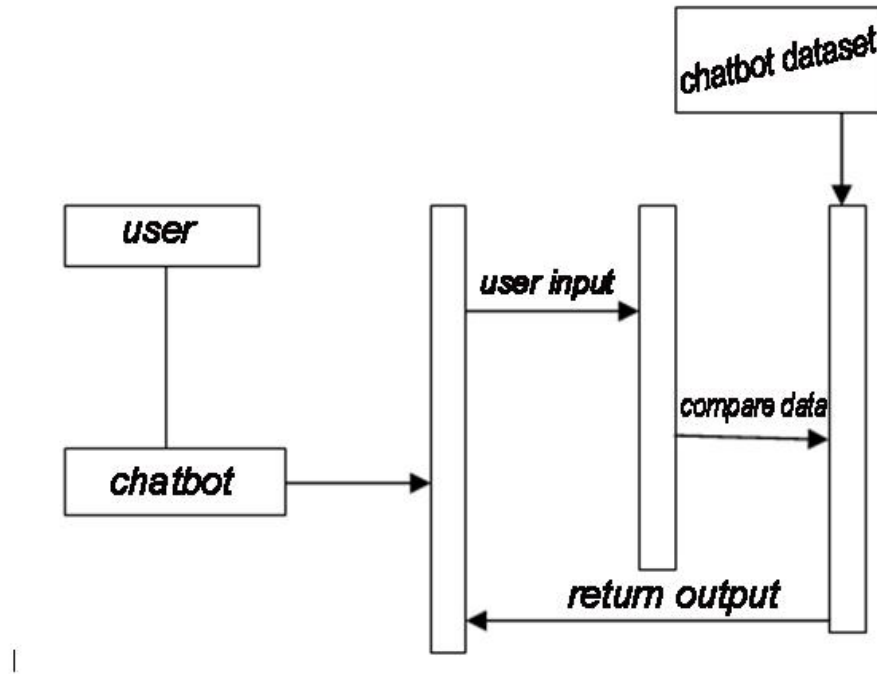


Figure 3.5: Sequence Diagram

3.7 Design Requirements

In our task, we have executed back-end and front-end design. Structure necessity is the practical prerequisite. Right off the bat, we have executed front-end structure that how looks our application. For front-end structure we need some programming language and mark-up language. We have utilized HTML, CSS, and BOOTSTRAP for text style end plan. Back-end configuration is the primary part for building up a web application. Back-end configuration is utilitarian that how connects it with client. For back-end plan, we have utilized python and its system Flask. We additionally need a PC for structure this web application.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

We have completed front-end design for this project by mark-up language and programming language.

- HTML
- CSS
- Bootstrap

4.1.1 HTML

Hypertext Mark-up Language (HTML) is the standard increase. HTML isn't a program-ming language. A Mark-up Language is a way that PCs address each other to control how a content is prepared and exhibited. To do this HTML utilizes two things: labels and traits. Labels are utilized to increase the beginning of a HTML component and they are generally encased in edge sections. For example, `<h1>` tag must be opened `<h1>` and closed `</h1>`.

4.1.2 CSS

CSS is the template language. We have utilized CSS in this venture for plan. We can include shading and foundation pictures and change the format of our page utilizing CSS.

We can embed CSS in three different ways,

- Inline CSS
- Internal CSS
- External CSS

4.1.3 Bootstrap

Bootstrap is considered as a free front-end structure for web improvement and responsive view. Bootstrap is created with HTML and CSS. We have utilized this system in this task.

4.2 Back-end Designs

Back-end design of this project was completed with some programming languages, framework and some libraries.

- Python
- Flask

4.2.1 Python

The language Python is an object-situated and significant level of programming language including dynamic semantics. Its significant level inherent information structures, which are joined with dynamic composing and dynamic authoritative, make it especially beseeching for Rapid Application Development, just as for use as a scripting to associate existing parts together. Python is so straightforward, easy to learn grammar stresses propriety and in this mode lessens the outlay of program stays conserved. Python underpins modules and bundles, which energizes program weighed quality and the code reuse. The Python intercessor and the broad standard library are approachable by generation or twofold structure without charge for every significant stage, and can be unreservedly dispersed.

4.2.2 Flask

Flask, a micro web framework. It is written in Python. It is named a micro web framework in light of the fact that it doesn't require specific apparatuses or libraries. There is no database reflection layers or whatever other segments where previous incomer libraries give adjustable strength.

4.3 Interaction Design and UX

Interaction design is the cooperation among framework and client by its interface. Here are a few elements of connection. For example, Text, physical items and movement. In our venture what we have seen like content that is are all content measurement. PC is a physical article that associate among framework and client. Movement and pictures are likewise measurement of association plan. Association configuration is identified with User Experience. Client experience is the procedure plan that give forming and significant experience to clients. UX is a higher priority than communication structure.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Dataset

A dataset is known as the storage of all sorts of data. There are many types datasets used according to its purpose. Here are steps of implement of dataset.

- Install the python libraries, JSON and PICKLE.
- Running.
- Execute PICKLE library to take data.
- Training.
- Save data into data files.
- Integrating with application.

5.2 Implementation of Front-end Design

Some rules are there to follow in designing a website or any type of web application. Front-end design needs to create the HTML, CSS, and presentational JavaScript code that builds a user interface. It is a graphical interface for a user to view and interface. Here, we have implemented front-end design for this project.

5.2.1 Home page

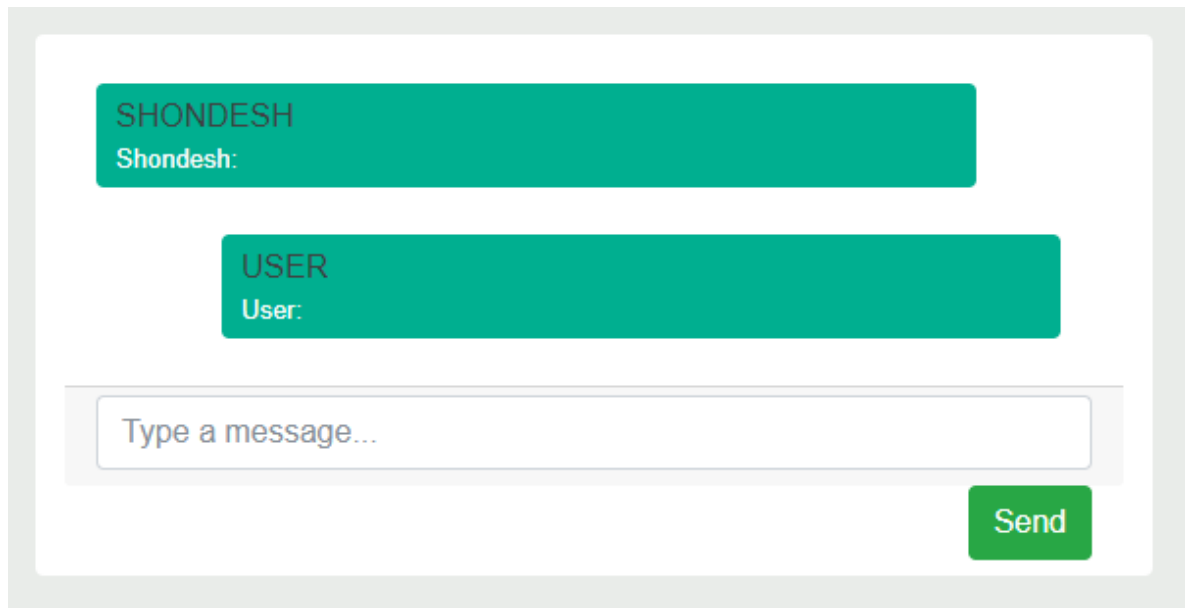


Figure 5.2.1: Home page

5.2.2 Conversational view

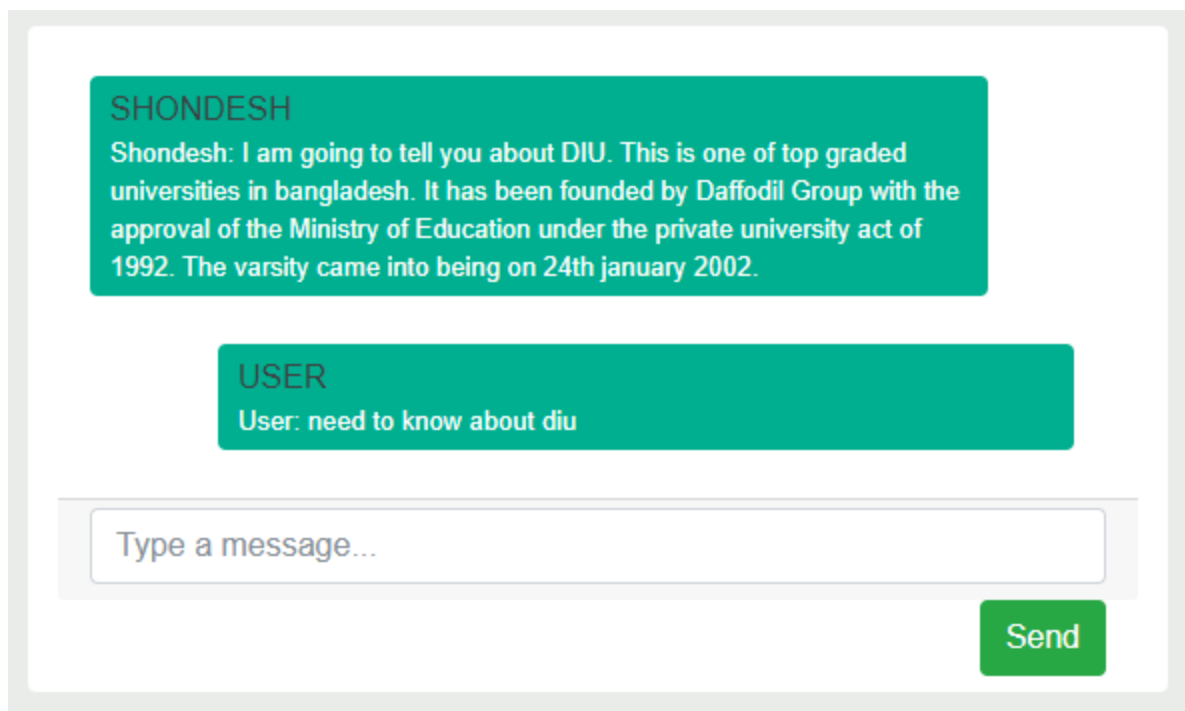


Figure 5.2.2: Conversational View

5.3 Implementation of Interactions

Association execution is significant for building up an application. Here cooperation can be actualised to code. Execution of collaboration is the improvement period of utilisation and code are composed. How user and admin are associated with the system and its experience framework has created in this usage.

5.4 Testing Implementation

Testing execution is a procedure of this usage. We have tried system testing and dataset testing is for our undertaking.

5.4.1 System Testing

System testing is an advancement of several test. It is an inward work of this application. We have yield results from this framework that we wanted. In the event that we input some off-base information, system can identify and message to client and on the off chance that we input right information, system can collaborate with dataset and demonstrate information to user.

5.4.2 Usability Testing

Ease of use testing is a test how cooperate this application with the client and centres user's usability this application and adaptability in taking care of controls.

5.4.3 Dataset Testing

Dataset testing is a requirement for a system to perform information honesty and information consistency. Backend framework get to database for numerous explanation. At that point hurtful or off base information can be put away in dataset. As our task depends on web application information comes it through web and erroneous information put away in dataset. This off base information put away can be stop Schema or mapping testing.

5.5 Test Results and Reports

The consequence of this test was close what we have wanted. Each capacity is executed and tried through various kinds of system test. Each test was functioning admirably and the outcome was alright. Be that as it may, at the future we will include some usefulness and afterward framework will be again test and afterward results can be extraordinary.

Chapter 6

CONCLUSION AND FUTURE WORK

6.1 Discussion and Conclusion

This venture is a web based application concentrated on Artificial Intelligence. Teachers and students are co-working with one another to arrive at their objective. Trainers will give explicit data and information and get understanding. We are having heaps of positive result from this application. Proper idea of this age like Chabot and data based visiting framework are executed here. Fulfilment from client and giving legitimate data are our inspiration and motivation to include highlights and functionalities for future improvement of our application. This application is being worked on, we are attempting to improve client experience and adequacy in effectively actualized highlights, functionalities.

6.2 Work for Further Developments

Web is where anybody can get to data from any figuring gadget utilizing web. Executing Artificial Intelligence in web will be an extraordinary venture for what's to come. We need to include features in our framework produced with AI to satisfy clients need all the more for all intents and purposes and productively. At first we are concentrating on the users of the university. Be that is not so distant future, we have an arrangement to present this application with successful highlights and functionalities to universally. Speaking to the country is constantly a matter of pleased for us.

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