

ABSTRACT

The growth of technologies like Artificial Intelligence (AI), Big Data & Internet of Things (IoT), etc. has marked many advancements in the technological world since the last decade. These technologies have a wide range of applications. One such application is “Chatterbot or “Chatbot”. Chatbots are conversational AIs, which mimics the human while conversing & eliminates the need of human by automating mundane tasks. In the study undertaken, we have created a chatbot in education domain & it is named as “College Chatbot”, This chatbot is a web-based application that analyses and understands user's queries and provides an instant and accurate response. Rasa technology is used to construct this chatbot. It's an open-source technology, which uses its two main packages i.e., Rasa Core & Rasa Natural Language Understanding (NLU) in order to build a Contextual AI Chatbot.

NLU is used to infer the intent and to extract the necessary entities from user input & the Rasa Core provides the output by building a probabilistic model with the help of Recurrent Neural Network (RNN). Evaluation of the model is done by getting a confusion matrix and performance measures like Precision, Accuracy & F1 Score which come out to be 0.628, 0.725 and 0.669 respectively on average basis. This chatbot's accuracy, lack of dependability on human resources, 24 x 7 accessibility and low maintenance creates various opportunities for its implementation. This conversational agent can not only be used in educational institutions but also in places where enquiry becomes a tedious task.

Keywords: Chatbot, Artificial Intelligence, Natural Language Processing,Rasa

LIST OF ABBREVIATIONS

A table or list of abbreviations used in the document for technical terms such as

NLP (Natural Language Processing),

RNN (Recurrent Neural Network),

NLU (Natural Language Understanding),

AI (Artificial Intelligence),

IoT (Internet of Things),

and others specific to the project.

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1. INTRODUCTION

1.1 PREAMBLE

In the ever-evolving landscape of education, traditional systems face persistent challenges, marked by a lack of personalization, engagement hurdles, and inefficiencies in information delivery. This study introduces an Educational Chatbot with advanced language processing (NLP) to address problems in traditional education. By using cutting-edge technology, particularly AI, the aim is to create a more engaging and personalized learning experience. The project focuses on enhancing learning, reaching diverse users, and improving existing educational systems. The research will use a careful approach and sophisticated tools to design and implement an interactive Educational Chatbot. The ultimate goal is not just to solve current challenges but to usher in a new era of accessible and engaging learning experiences, fundamentally changing the educational landscape.

1.2 PROBLEM STATEMENT

In the realm of education, traditional systems frequently fall short in providing personalized support and fail to captivate students, resulting in diminished motivation and suboptimal learning outcomes. This Traditional education struggles to give personalized support, especially when students are researching colleges. They face difficulties finding information on admissions, fees, facilities, and more. To solve this, a smart educational chatbot, powered by Natural Language Processing (NLP), is introduced. This chatbot quickly gives students personalized insights about colleges, making research faster and learning more engaging. By using NLP, it aims to create an interactive and tailored learning environment, overcoming the limitations of traditional education and improving the overall educational experience.

1.3 AIM OF THE PROJECT

The aim of this proposed work is to design, develop, and implement an Educational Chatbot integrated with Natural Language Processing (NLP) capabilities and RNN with Porter Stemming algorithm in machine learning to revolutionize the educational experience.

The goal is to create an intelligent, user-friendly system that addresses the limitations of traditional educational systems by providing personalized assistance, enhancing engagement, and offering efficient access to educational resources and information.

1.4 OBJECTIVE OF THE PROJECT

It revolutionize learning experiences by providing personalized, accessible, and engaging educational support. By harnessing NLP, such chatbots aim to offer learners instant access to educational content, explanations, and resources in a conversational manner, thereby enhancing comprehension and retention. These chatbots adapt to individual needs and preferences, delivering tailored learning experiences while promoting continuous engagement and motivation through interactive elements and gamification. The objectives of the project are

- Here we are implementing chatbots by RNN with Porter Stemming algorithms in machine learning that accurately understands student queries related to colleges and universities.
- Develop a comprehensive knowledge base containing information on college admissions, fees, facilities, student life, and other relevant details.
- Design a user-friendly and intuitive web interface for the chatbot that provides a seamless and engaging user experience for students.
- Conduct user testing and feedback analysis to refine the chatbot and ensure its effectiveness in meeting student needs.

1.5 PROPOSED METHODOLOGY

The proposed system leverages the best of both rule-based and neural networkbased approaches by integrating them into the Rasa framework. By combining rulebased engines and neural network-based models, the chatbot is capable of delivering user-like conversations while maintaining control and transparency over the conversational flow. Additionally, the system utilizes stemming algorithms in machine learning, such as the Porter stemming algorithm, to normalize words and retrieve their base forms, enhancing the understanding of user inputs.

1.6 SIGNIFICANCE OF THE WORK

The significance of the proposed system lies in its ability to address several key challenges and improve the overall experience for students seeking information about college facilities:

1.6.1 Accessibility

By implementing a web-based chatbot, the system ensures that students can access information about college facilities anytime and anywhere with an internet connection. This enhances accessibility for students who may not have the means or time to physically visit the college.

1.6.2 Efficiency

The system streamlines the process of obtaining information by eliminating the need for students to go to the college and interact with administrative staff. Instead, they can quickly and easily access the information they need through the chatbot, saving time and effort.

1.6.3 Enhanced User Experience

With the integration of Rasa framework and stemming algorithms, the chatbot is capable of delivering user-like conversations and understanding natural language inputs more effectively. This results in a more intuitive and engaging user experience for students.

1.6.4 Reduced Training Time

Utilizing pre-trained neural network models and transfer learning techniques reduces the time required to train the system. This allows for faster deployment and adaptation to specific domains or use cases, improving efficiency and time-to-market.

1.6.5 Scalability

The proposed system can easily scale to accommodate a large number of users and handle a wide range of inquiries about college facilities. This scalability ensures that the system can effectively meet the needs of students, even during peak periods.

Overall, the proposed system represents a significant advancement in providing information to students about college facilities. By leveraging cuttingedge technologies and methodologies, the system offers a more accessible, efficient, and user-friendly solution, ultimately enhancing the overall experience for students.

1.7 APPLICATIONS OF THE PROJECT

The project involving the development of an Educational Chatbot with NLP capabilities has a wide range of applications across various educational settings and user groups. The stemming algorithms will play a vital role in this chatbot with machine learning alogorithms like RNN. Some of the key applications includes the following are

1.7.1 Student Support and Assistance

Providing personalized learning support to students by offering explanations, resources, and guidance on academic topics and assignments, Assisting students in exam preparation, solving queries related to coursework, and offering study tips and materials.

1.7.2 College and Course Information

Offering immediate access to comprehensive information about colleges, admissions requirements, fees, available courses, and specialized programs, Assisting students in making informed decisions about their educational pathways, majors, or career choices.

1.7.3 Teacher and Educator Assistance

Providing resources, lesson plans, teaching aids, and suggestions for classroom activities to support educators in lesson preparation and delivery, Assisting educators in answering queries related to teaching methodologies, subject-specific information, or classroom management.

1.7.4 Parental Guidance and Support

Offering information to parents about their child's educational progress, school-related queries, educational methodologies, and ways to support their children's learning at home, providing resources and guidance on educational strategies for parents to facilitate their child's learning journey. This will provide all resources like guiding the students like a parent and make student to choose a good path for their career.

1.7.5 Continuing Education and Lifelong Learning

Offering access to a wide range of courses, resources, and information for lifelong learners interested in self-improvement, skill development, or exploring new subjects, Catering to individuals seeking continuous learning opportunities regardless of age or educational background.

1.7.6 Administrative and Institutional Support

Assisting educational institutions in disseminating information about policies, events, academic calendars, and administrative procedures, providing support in managing inquiries from students, parents, and staff regarding various institutional matters.

1.7.7 Specialized Educational Programs and Support Services

Offering support and guidance for specialized educational programs, including language learning, special needs education, vocational training, and career counseling, Providing resources and information tailored to specific educational needs or programs.

1.7.8 Accessible Learning for Diverse Demographics

Enabling accessibility to education for individuals in remote areas or with limited access to traditional educational resources, catering to diverse learner demographics, including individuals with disabilities, by providing adaptable and inclusive learning materials and resources.

1.14 SUMMARY

This chapter includes a brief introduction to an overview of the project. And this chapter deals with the identifying problem statement, estimating the objective of the project, a brief introduction about the methodology used in the project, the significance of the project, organization of the project which includes the output of every chapter introduction. The next chapter is the literature review which discusses various journal papers to obtain the specific problem statement by analyzing all the relevant work and information mentioned in that reference paper to understand the present problem statement existing in that area.

2. LITERATURE REVIEW

2.1 PREAMBLE

The purpose of the literature survey is to obtain a clear understanding of the existing problem in the particular area of the domain. By clearly understanding all the previous development and their works will provide the best way to obtain the perfect problem statement existing in the present situation.

The following section summarizes the history and methods of those works which are done previously, highlighting the strengths and weakness of each method. In the literature survey, several methods had been proposed for Chatbots. Among the most recently published works are those presented as follows:

2.2 RELATED WORK

The implementation of this Educational Chatbot is done based on the papers which are described below. These papers are all about the chatbots which were already implemented and are very helpful in many sectors.

The Chen li *et al* [1] introduced as a humanized task-oriented dialogue system for industrial robots. The system is designed to assist with manufacturing tasks and enhance user experience. It incorporates conversation strategies and small talk principles for natural and engaging interactions. The document presents the IRWoZ dataset, which is the first industrial-oriented dialogue corpus. The core algorithm for the dialogue system is likely based on pre-trained language models and transformer architectures, as is common in many modern natural language processing (NLP) applications. Future work includes expanding the IRWoZ dataset to cover more industrial domains and tasks and coherence of dialogues generated by ToD4IR. Finally, the system holds promise for improving humanrobot interactions in manufacturing settings through natural and task-oriented dialogue [1].

The another author Liang Zhang *et al*[2] proposed a model that combines retrievalbased and generation-based methods to improve the fluency and informativeness of chatbot responses. The RP model consists of a prototype selector, a generation-based polisher, and a polished response filter. The prototype selector retrieves contextually similar prototypes, the generation-based polisher refines the draft response using the retrieved prototypes, and the polished response filter ensures high-quality responses. The paper presents experimental results using a large-scale Chinese dialog corpus, demonstrating that the proposed RP model outperforms both retrieval-based and generation-based models in terms of relevance, establishing a new state-of-the-art relevance score. Overall, the paper provides a novel approach to response generation for chatbots, addressing key challenges in diversity and contextual relevance. The proposed RP model shows promising results in improving the quality of chatbot responses, with potential implications for enhancing user experience in chatbot communication.

Likewise the author Nina Evans *et al*[3] proposed a comprehensive analysis of the role of chatbots in digital business transformation. The research aims to summarize the current state of research on chatbots, identify their role in digital business transformation, and suggest areas warranting further attention. The systematic literature review included 74 high-quality journal research papers, and the findings are organized to provide insights into the research focus, applications, methodologies used, and bibliometric aspects. The research focuses on user perceptions of chatbots, communication, customer service, performance, satisfaction, and learning. It also identifies various applications of chatbots, such as customer service, marketing, and internal processes. The authors employed a rigorous methodology for paper selection, including exclusion criteria based on content, language, quality, and availability of full text. The research impact was assessed using citations and Almetric Attention Score, providing insights into the reach and influence of the included publications. Overall, the paper provides valuable insights for scholars and practitioners, offering a comprehensive overview of the current state of research on chatbots and their implications for

digital business transformation. It serves as a valuable resource for identifying research topics, methodologies, influential publications, and publication outlets in the field of chatbots and digital business transformation.

The Sachin Kolekar *et al* [4] and his team from Zeal College of Engineering & Research, Pune, India, presents a comprehensive study on the development of a chatbot system to streamline day-to-day operations in restaurants. The research aims to address the growing need for automation in the restaurant industry to enhance customer satisfaction and improve operational efficiency. The paper discusses the use of IBM Watson's API to create, train, and deploy AI and ML models for various purposes, with a focus on reducing the workload of restaurant staff. The chatbot system is designed to handle tasks such as ordering, reservations, and FAQs at the reception, thereby allowing the staff to focus on other important aspects of their routine. The study also highlights the use of the Naïve Bayes algorithm to find the most correct answer to user queries by determining the probability of intent. Additionally, the paper outlines the non-functional requirements, performance requirements, safety requirements, and security requirements of the chatbot system.

The above contains all information about all types of chatbots. Here we are providing all the important data that gives simple and clear idea about the papers. Now there are some comparison tables below to know all about the chatbots and its related types. These chatbots are very popular in these days for helping the users by giving instant responses. It identifies significant differences in student engagement based on the usage of online learner support services, indicating that students who used these services were more engaged in online learning. The comparison tables are described below. These tables contains comparison of methods used in various chatbot implementation, Existing systems, Unique findings and Features.

2.3 Existing Solutions and Unique Findings

TABLE 2.2: EXISTING SOLUTIONS AND UNIQUE FINDINGS

| Authors | Existing solutions | Unique Findings |
|------------------------|--|--|
| Xiaochun et al [2022] | pre-trained language models like gpt2, gpt2-large, gpt2-xl. | a task-oriented dialogue system for industrial robots, and IRWoZ dataset. |
| Yan et al [2023] | Manual processes, static web interfaces | Uncovers chatbots' underutilized potential for digital transformation |
| Nina et al [2021] | Chatbot frameworks such as Microsoft Bot Frameworks was used for educational chatbots | Capable of handling misspellings and lack of diacritics in Vietnamese |
| Nancy et al [2021] | IBM Watson Assistant, Microsoft Bot Framework | Voice-Activated Systems, Integration with IoT Devices |
| Han et al [2023] | Restaurant chatbot-like mobile apps or websites to facilitate online ordering, reservations. | augmented reality (AR) or virtual reality (VR), Contactless Ordering and Payment |
| Megha et al [2023] | Wireless Technology Integration, Online Food Ordering System | Integration of Chatbot in Three Restaurant Areas |
| Silvia et al [2022] | SOCIO V1 incorporates natural language communication with web-based tool. | positive feedback for quick responses. |
| Spina et al [2023] | Integrating ConsultAI into occupational health services, | contributes insights into integrating conversational interfaces. |
| Al-Hanouf et al [2021] | Wit.ai is a platform that allows developers to integrate NLP into their applications. | A combination of data-driven and rule-based approaches. |
| Vidya et al [2021] | The document presents an evaluation of KnowCOVID-19 | Effective Evidence-Based Filtering, Crowdsourcing |

The table covers a range of topics in natural language processing and technology applications. It discusses the use of pre-trained language models like GPT-2 in task-oriented dialogue systems and emphasizes chatbots' transformative potential in digital processes. Examples include educational chatbots, restaurant applications, and integration with wireless technologies. The table also touches on conversational interfaces in occupational health services, NLP integration using Wit.ai, and evaluates KnowCOVID-19 with the CORD-19 dataset. Additional topics include machine learning for stock price prediction, text generation in English literature, TF-IDF representation, and strategies for enhancing student engagement in online learning environments

2.4 SUMMARY

The synthesis of a comprehensive literature survey focusing on the educational chatbot domain reveals an array of crucial advancements and challenges in this transformative technology. The analysis spans across a spectrum of publications, each contributing significant insights into the evolution and potential of educational chatbots, symbolizing a pivotal shift in traditional educational paradigms. As educational systems strive for enhanced engagement and personalized learning experiences, the emergence of chatbots stands as a progressive response to these challenges. The exploration of literature underscores the imperative nature of personalized learning experiences, illuminating the limitations inherent within conventional educational systems. Existing methodologies often lack the adaptability required to cater to diverse learning styles and individual needs, necessitating the infusion of innovative solutions to bridge this gap.

In conclusion, the collective findings emphasize the pivotal role of personalized, multi-modal, and real-time educational chatbots in revolutionizing the educational landscape. Addressing identified gaps can usher in more accurate, and widely accepted educational technologies, fostering a more adaptive, engaging, and personalized learning environment for students across diverse educational settings.

3. SYSTEM ARCHITECTURE & DESIGN

3.1 PREAMBLE

The architecture and design of a system serve as its blueprint, outlining the framework within which the system operates. In the context of the **Educational Chatbot using NLP**, this section describes how various components interact and work together to achieve the project's goals.

3.2 INTRODUCTION

In the realm of educational chatbots powered by Natural Language Processing (NLP) and utilizing the Rasa framework, input design holds paramount importance. Input here refers to the queries, statements, or commands users input into the chatbot to seek information, guidance, or assistance regarding various educational topics. Efficient input design in this context revolves around optimizing the chatbot's ability to understand and respond accurately to user queries, thus enhancing the overall learning experience. Key considerations in input design for an educational chatbot include:

- The design should focus on capturing user queries effectively to fulfill their educational needs.
- NLP techniques integrated into the chatbot should enable it to comprehend the semantic meaning of user inputs, allowing for more contextually relevant responses
- Input design should take into account the diverse needs and preferences of users, allowing for personalized interactions.
- Input interfaces should be designed to be intuitive and user-friendly, guiding users in formulating clear and concise queries inputs.

3.3 ARCHITECTURE

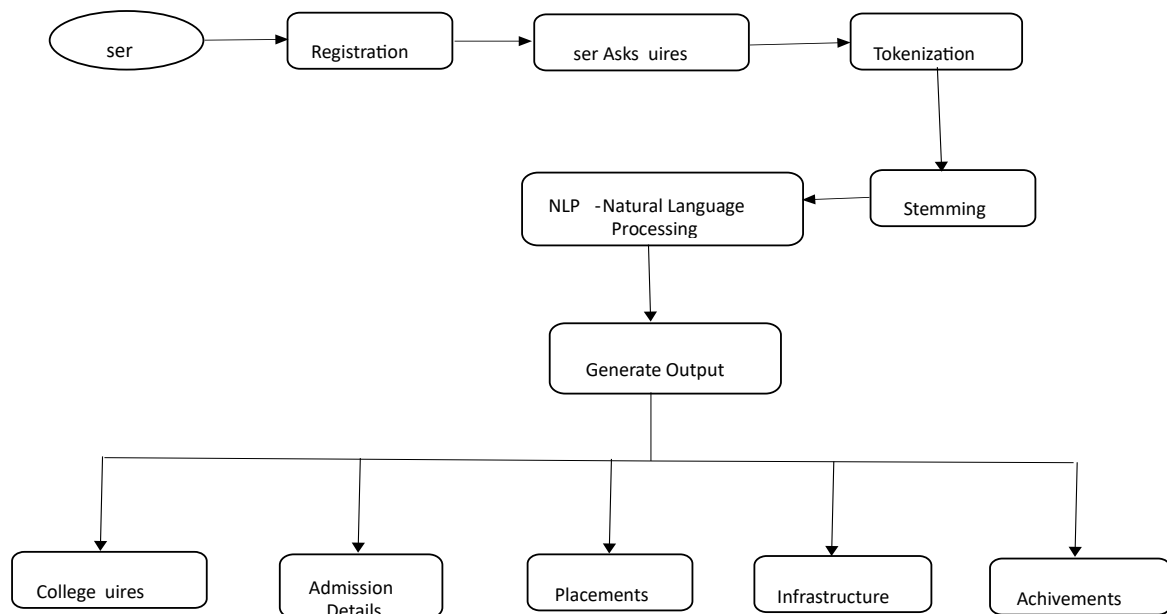


Figure 3.1: Architecture of Educational Chatbot

3.3.1 User Registration: The process begins with user registration, where the user presumably creates an account with the system.

3.3.2 User Queries: Once registered, the user can then pose college-related queries to the system.

3.3.3 System Preprocessing: The system preprocesses the user's query, likely performing tasks such as tokenization (splitting the query into words or phrases) and stemming (reducing words to their base form).

3.3.4 NLU (Natural Language Understanding): Next, the NLU component attempts to understand the intent and meaning of the user's query.

3.3.5 Training: The NLU model is likely trained on a dataset of college-related queries and corresponding responses.

3.3.6 Testing: The system undergoes testing to ensure its accuracy in understanding and responding to user queries.

3.3.7 RASA Neural Networks: The system may leverage RASA, an open-source framework for building chatbots, powered by neural networks.

3.3.8 Output Generation: Based on the processed query and its understanding of the user's intent, the system generates a response.

3.3.9 Knowledge Base: The system appears to rely on a knowledge base that includes information on college placements, infrastructure, environments, achievements, and admission details.

3.3.10 End: The process ends with the system delivering its response to the user's query.

Overall, the architecture of Rasa chatbot is modular and flexible, allowing developers to build powerful conversational AI applications that can understand natural language inputs, manage complex dialogues, and provide meaningful responses. It leverages multiple components, including user registration, query preprocessing, natural language understanding, and a knowledge base to deliver its functionalities

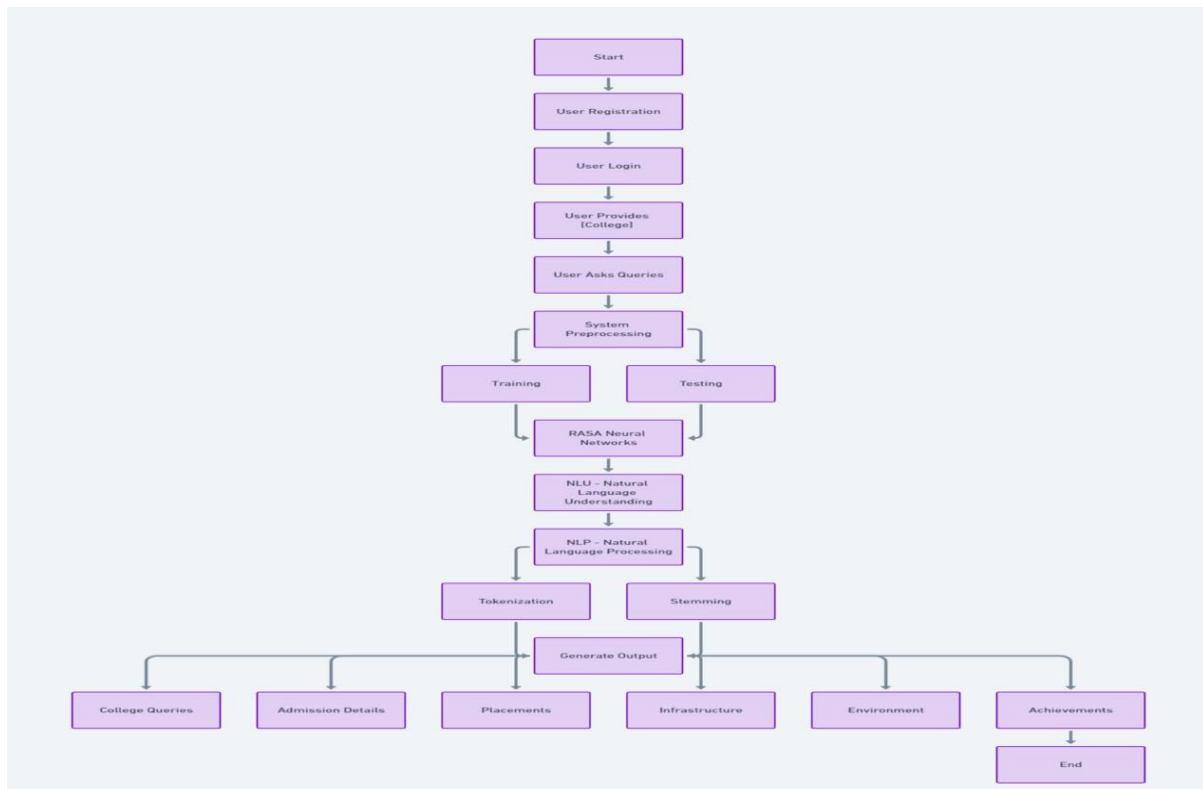


Figure 3.2: Block Diagram of Educational Chatbot

3.4 UML DIAGRAMS

3.4.1 Use Case Diagram

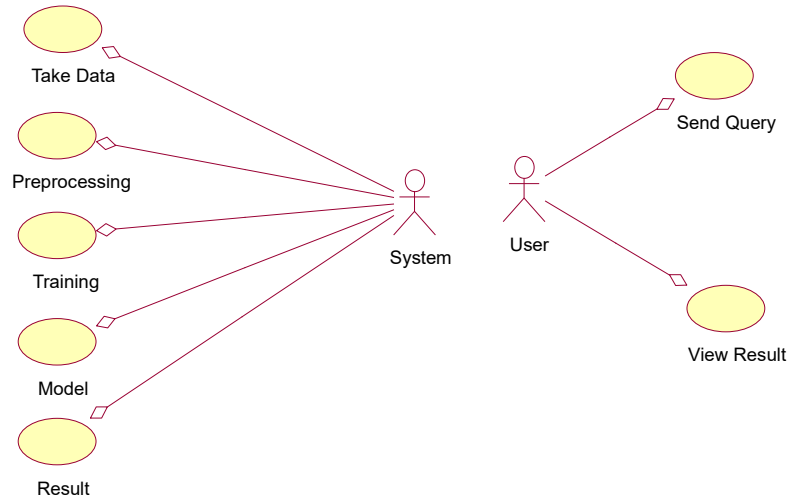


Figure 3.3: se Case Diagram of Educational Chatbot

3.4.2 Class Diagram



Figure 3.4: Class Diagram of Educational Chatbot

3.4.3 ER Diagram

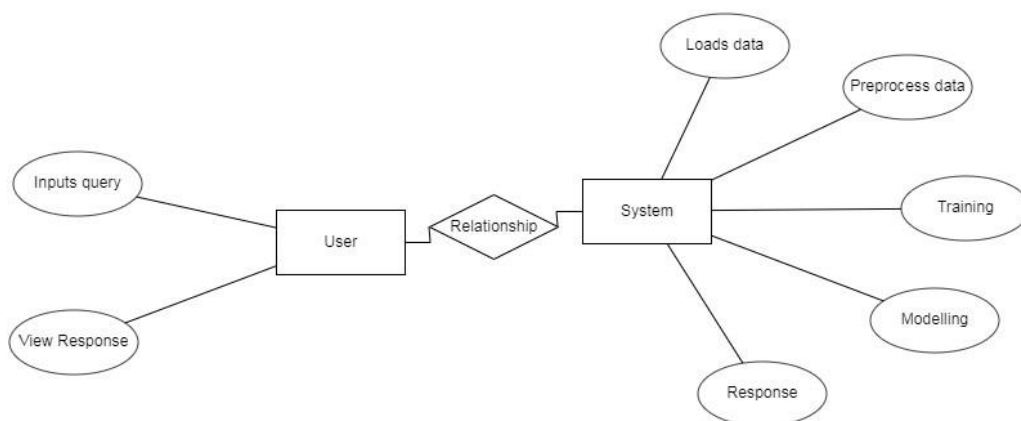


Figure 3.5: ER Diagram of Educational Chatbot.

3.4.3 Sequence Diagram

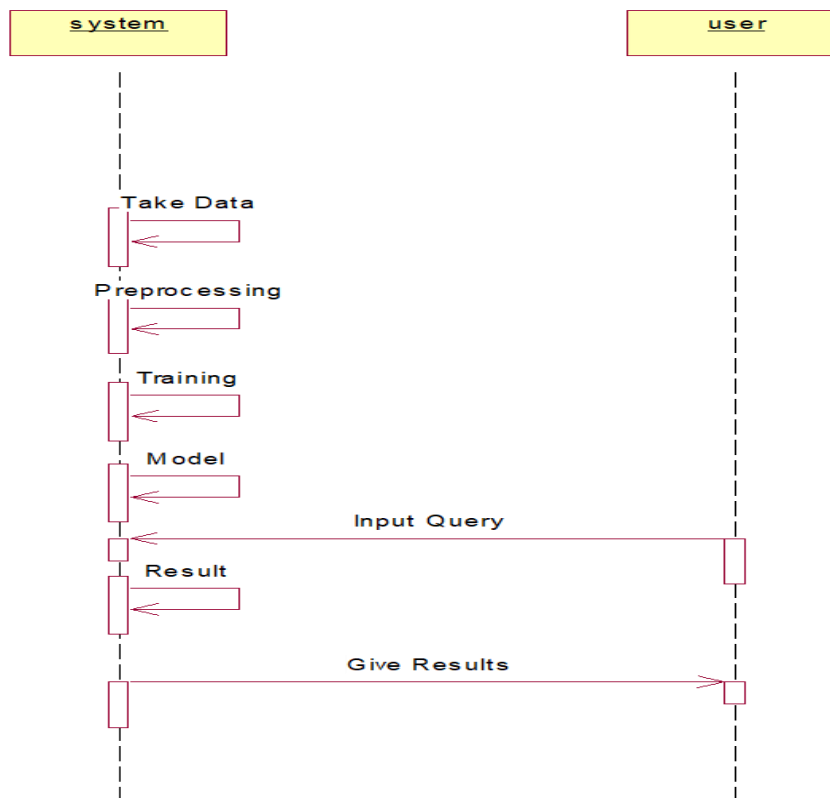


Figure 3.6: Sequence Diagram of Educational Chatbot

3.5 SUMMARY

This chapter deals with the system design. System architecture, data flow diagrams, use case diagrams, and sequence diagrams are all included. System architecture is a conceptual framework that describes the organisation, behaviour, and system parts that will cooperate to construct the whole system. Data movement from one phase to another is shown using a data flow diagram. This project has only a system architecture diagram. The next chapter describes the implementation details like modules or steps in implementation and proposed approach, techniques, and equations.

4. METHODOLOGY

4.1 Preamble

The previous chapter focused on system architecture, flow diagrams, and UML representations. This chapter outlines the implementation process, dividing the project into modules and briefly describing each method used.

4.2 Proposed Method

4.2.1 Data Preprocessing: The text data is cleaned by removing special characters, emojis, and irrelevant symbols. Tokenization breaks the text into words, followed by converting to lowercase, and applying stemming or lemmatization to reduce words to their root forms. Stopwords are removed to enhance the analysis.

4.2.2 NLU and NLP Algorithm: Rasa Neural Networks are employed to classify user intents and extract relevant entities from queries. This framework helps in understanding and interpreting the natural language input.

4.2.3 Query Comparison: Queries are preprocessed and tokenized, with words reduced to their root forms using stemming/lemmatization. The algorithm identifies relevant responses based on similarity scores and provides the best-matching response to the user.

4.2.4 Model Training: The Rasa neural network model is trained on annotated datasets. Training data includes labeled user queries with intents (user goals) and entities (specific information).

4.2.5 Response Generation: After classifying intents and extracting entities, the chatbot generates responses by combining predefined templates and real-time data retrieval, ensuring the answers are accurate and contextually appropriate.

4.2.6 Deployment: The backend, built using Rasa, is integrated with the frontend through RESTful APIs. Files like endpoints.yml and config.yml define the interaction between the chatbot and the user interface.

4.2.7 Fine-tuning and Optimization: Fine-tuning involves adjusting model architecture and hyperparameters iteratively to enhance performance, ensuring the chatbot responds accurately to diverse queries.

4.3 Description

4.3.1 Natural Language Processing (NLP): NLP deals with the interaction between computers and human language, enabling the chatbot to process and analyze large volumes of natural language data. This technology interprets and extracts key insights from user messages, categorizing and understanding their intent.

4.3.2 Rasa: Rasa, an open-source platform, provides the essential tools for NLP and NLU. Using machine learning libraries like TensorFlow and spaCy, Rasa helps chatbots understand user messages by extracting entities and recognizing intent, generating machine-readable outputs to guide the next action.

4.4 Data Collection

4.4.1 Data Preprocessing: Data is cleaned, tokenized, and normalized. Techniques like Porter stemming and stopword removal ensure the text is simplified for analysis. Data is labeled with intents to improve accuracy.

4.4.2 Data Splitting: The dataset is divided into training and testing sets. The training set is used to build the models, while the testing set evaluates the chatbot's performance on unseen queries.

4.4.3 Training Data: Rasa uses YAML files for training data, where NLU data, stories (conversation flows), and rules are defined. The chatbot learns to predict responses based on this structured data.

4.4.4 Training the Model: The NLU model is trained using `rasa train nlu`, while the dialogue management model is trained using `rasa train core`. The performance is then evaluated with real-time conversation tests.

4.5 Limitations and Considerations

4.5.1 Limitations: Challenges include complex setup, the need for substantial labeled data, handling multi-turn conversations, and the continuous maintenance required to keep the chatbot up to date. Integration with other systems may also present difficulties.

4.5.2 Considerations: To improve performance, strategies like simplified configuration, automated model training (AutoML), continuous learning, and enhanced integration are recommended. These steps would help mitigate the challenges and improve scalability.

4.6 Summary

This chapter outlines the step-by-step approach for implementing the Educational Chatbot using Rasa. It covers data preprocessing, model training, response generation, deployment, and performance optimization. These processes ensure the chatbot delivers accurate, context-aware responses to user queries.

5. SOURCE CODE

YAML Configuration for NLU Training Data

version: "3.1"

```
nlu: - intent:
  greet examples:
  | - hey
  - hello
  - hy
  - hai
  - hi
  - hello there
  - good morning
  - good evening
  - moin
  - hey there
  - let's go
  - hey dude
  - goodmorning
  - goodevening
  - good afternoon - intent: goodbye examples: |
  - cu
  - good by
  - cee you later
  - good night
  - bye
  - goodbye
  - have a nice day
  - see you around
  - bye bye
  - see you later - intent: affirm examples: |
  - yes
  - y
  - indeed
  - of course
  - that sounds good
  - correct

  - intent: deny examples: |
  - no
  - n
  - never
  - I don't think so
  - don't like that
  - no way
```

- not really - intent: mood_great examples: | - perfect
- fine
- great
- amazing
- feeling like a king
- wonderful
- I am feeling very good
- I am great
- I am amazing
- I am going to save the world
- super stoked
- extremely good
- so so perfect
- so good
- so perfect
- intent: mood_unhappy examples: | - my day was horrible
- I am sad
- I don't feel very well
- I am disappointed
- super sad
- I'm so sad
- sad
- very sad
- unhappy
- not good
- not very good
- extremely sad
- so sad
- so sad
- intent: bot_challenge examples: |
- are you a bot? are you a human? am I talking to a bot?
- am I talking to a human? -
- intent: programsoffered
- examples: |
- programsoffered?
- What are the programs available in this college?
- Could you provide information about the programs offered here?
- Can you list the programs available for study at this college?
- What majors or degrees does this college offer?
- I'm interested in learning about the academic programs here. Can you help?
- Could you tell me more about the courses or degrees available?
- What kind of programs can I expect to find at this college?
- Do you have any information on the academic offerings of this institution?
- I'm curious about the educational programs. Where can I find information about them?
- What are the areas of study or disciplines covered by this college?
- intent: B.Tech examples: | - BTech
- Bachelor of Technology

- What are the courses offered in the B.Tech program?
- Can you list the majors available within the B.Tech degree?
- I'm interested in the B.Tech program. What specific areas of study does it cover?
- Could you give me an overview of the courses included in the B.Tech program?
- What are the core courses required for completing a B.Tech degree?
- I'm considering enrolling in B.Tech. What are the different specializations or concentrations available? - intent: AI&ML examples: |
- aiml
- Artificial Intelligence & Machine Learning
- Could you provide information about the AI & ML course?
- What are the details of the AI & ML course?
- How many available seats are there in the AI & ML course?
- Are there any seats left for the AI & ML course?
- What is the duration of the AI & ML course?
- How many years does the AI & ML course last?
- intent: Civil examples: |
- civil
- Could you provide information about the Civil course?
- What are the details of the Civil course?
- How many available seats are there in the Civil course?
- Are there any seats left for the Civil course?
- What is the duration of the Civil course?
- How many years does the Civil course last?
- intent: Cse examples: |
- cse
- seats

Computer Science and Engineering

- Could you provide information about the Cse course?
- What are the details of the Cse course?
- How many available seats are there in the Cse course?
- Are there any seats left for the Cse course?
- What is the duration of the Cse course?
- How many years does the Cse course last?
- intent: CST examples: |
- cst
- Computer Science & Technology
- Could you provide information about the Cst course? - What are the details of the cst course?
- How many available seats are there in the cst course?
- Are there any seats left for the cst course?
- What is the duration of the cst course?
- How many years does the cst course last?
- intent: CSE(AI&ML) examples: |
- cseaiml
- Artificial Intelligence (cse)
- Machine Learning (cse)

- Could you provide information about the CSE(AI&ML) course?
- What are the details of the CSE(AI&ML) course?
- How many available seats are there in the CSE(AI&ML) course?
- Are there any seats left for the CSE(AI&ML) course?
- What is the duration of the CSE(AI&ML) course?
- How many years does the CSE(AI&ML) course last?
- intent: CSE(Data Science) examples: | - CSE(Data Science)
- datascience
- DS
- Could you provide information about the CSE(Data Science) course?
- What are the details of the CSE(Data Science) course?
- How many available seats are there in the CSE(Data Science) course?
- Are there any seats left for the CSE(Data Science) course?
- What is the duration of the CSE(Data Science) course?
- How many years does the CSE(Data Science) course last?
- intent: CSE(Iot) examples: |
- CSEIot
- Internet of Things iot

Could you provide information about the CSE(Iot) course?

What are the details of the CSE(Iot) course?

- How many available seats are there in the CSE(Iot) course?
- Are there any seats left for the CSE(Iot) course?
- What is the duration of the CSE(Iot) course?
- How many years does the CSE(Iot) course last?
- intent: ECE examples: |
- ece
- Electronics and Communication Engineering
- - Could you provide information about the ECE course?
- What are the details of the ECE course?
- How many available seats are there in the ECE course?
- Are there any seats left for the ECE course?
- What is the duration of the ECE course?
- How many years does the ECE course last?
- intent: ECT examples: |
- ect
- Could you provide information about the ECT course?
- What are the details of the ECT course?
- How many available seats are there in the ECT course?
- Are there any seats left for the ECT course?
- What is the duration of the ECT course?
- How many years does the ECT course last?
- intent: EEE examples: |
- eee
- Electronics and Communication Technology
- - Could you provide information about the EEE course?
- What are the details of the EEE course?

- How many available seats are there in the EEE course?
- Are there any seats left for the EEE course?
- What is the duration of the EEE course?
- How many years does the EEE course last?
- intent: IT examples: |
- it
- Information Technology
- Could you provide information about the IT course?
- What are the details of the IT course?
- How many available seats are there in the IT course?
- Are there any seats left for the IT course?
- What is the duration of the IT course?
- How many years does the IT course last?
- intent: MECH examples: | mech Mechanical Engineering
- Could you provide information about the MECH course?

What are the details of the MECH course?

- How many available seats are there in the MECH course?
- Are there any seats left for the MECH course?
- What is the duration of the MECH course?
- How many years does the MECH course last?
- intent: M.Tech examples: |
- MTech
- Master of Technology
- What are the courses offered in the M.Tech program?
- Can you list the majors available within the M.Tech degree?
- I'm interested in the M.Tech program. What specific areas of study does it cover?
- Could you give me an overview of the courses included in the M.Tech program?
- What are the core courses required for completing a M.Tech degree?
- I'm considering enrolling in M.Tech. What are the different specializations or concentrations available? - intent: CSE(M.Tech)
- examples: | -
- csemtech
- cse Master of Technology
- Could you provide information about the CSE(M.Tech) course?
- What are the details of the CSE(M.Tech) course?
- How many available seats are there in the CSE(M.Tech) course?
- Are there any seats left for the CSE(M.Tech) course?
- What is the duration of the CSE(M.Tech) course?
- How many years does the CSE(M.Tech) course last?
- intent: VLS&ES examples: |
- vlse
- Very Large Scale Integration & Embedded Systems - Could you provide information about the VLS&ES course?
- What are the details of the VLS&ES course?
- How many available seats are there in the VLS&ES course?
- Are there any seats left for the VLS&ES course?

- What is the duration of the VLS&ES course?
- How many years does the VLS&ES course last?
- intent: CE&SP examples: |
- cesp
- Construction Engineering and Structural Planning - Could you provide information about the CE&SP course?
- What are the details of the CE&SP course?
- How many available seats are there in the CE&SP course?
- Are there any seats left for the CE&SP course?
- How many years does the CE&SP course last?
- intent: Electronics examples: |
- electronics
- Could you provide information about the Electronics course?
- What are the details of the Electronics course?
- How many available seats are there in the Electronics course?
- Are there any seats left for the Electronics course?
- What is the duration of the Electronics course?
- How many years does the Electronics course last?
- intent: CAD&CAM
- examples: |
- cadcam
- Computer-Aided Design and Computer-Aided Manufacturing
- - Could you provide information about the CAD&CAM course?
- What are the details of the CAD&CAM course?
- How many available seats are there in the CAD&CAM course?
- Are there any seats left for the CAD&CAM course?
- What is the duration of the CAD&CAM course?
- How many years does the CAD&CAM course last?
- intent: MBA examples: |
- MBA
- Master of Business Administration
- What are the courses offered in the MBA program?
- Can you list the majors available within the MBA degree?
- I'm interested in the MBA program. What specific areas of study does it cover?
- Could you give me an overview of the courses included in the MBA program?
- What are the core courses required for completing a MBA degree?
- I'm considering enrolling in MBA. What are the different specializations or concentrations available? - intent: Coursesof MBA
- examples: |
- mba
- Master of Business Administration
- Could you provide information about the MBA course?
- What are the details of the MBA course?
- How many available seats are there in the MBA course?
- Are there any seats left for the MBA course?
- What is the duration of the MBA course?

- How many years does the MBA course last?
- intent: Diploma examples: |
- Diploma
- What are the courses offered in the Diploma program?
- Can you list the majors available within the Diploma degree?
- Could you give me an overview of the courses included in the Diploma program?
- What are the core courses required for completing a Diploma degree?
- I'm considering enrolling in Diploma. What are the different specializations or concentrations available? - intent: DECE examples: |
- dece
- Diploma in Electronics and Communication Engineering - Could you provide information about the DECE course?
- What are the details of the DECE course?
- How many available seats are there in the DECE course?
- Are there any seats left for the DECE course?
- What is the duration of the DECE course?
- How many years does the DECE course last?
- intent: DCME examples: |
- dcme
- Diploma in Computer Engineering
- Could you provide information about the DCME course?
- What are the details of the DCME course?
- How many available seats are there in the DCME course?
- Are there any seats left for the DCME course?
- What is the duration of the DCME course?
- How many years does the DCME course last?
- intent: DEEE examples: |
- deee
- Diploma in Electrical and Electronics Engineering - Could you provide information about the DEEE course?
- What are the details of the DEEE course?
- How many available seats are there in the DEEE course?
- Are there any seats left for the DEEE course?
- What is the duration of the DEEE course?
- How many years does the DEEE course last?
- intent: DME examples: |
- dme
- Diploma in Mechanical Engineering
- Could you provide information about the DME course?
- What are the details of the DME course?
- How many available seats are there in the DME course?
- Are there any seats left for the DME course?
- What is the duration of the DME course?
- How many departments are there in the organization?
- Can you provide a list of all the departments in the company?
- What are the different departments within the organization?
- Could you tell me the names of the departments in the company?

- What areas do the different departments cover within the organization?
- How are the departments organized within the organization?
- intent: AS&H.DT examples: |
- timetable AS&H
- Can I see the timetable for the AS&H department?
- Where can I find the schedule for AS&H department classes?
- What is the class timetable for AS&H students?
- Could you provide me with the AS&H department's timetable?
- When are the classes scheduled for AS&H courses?
- Is there a specific timetable for AS&H lab sessions?
- Are there any changes to the AS&H department timetable this week?
- Can I access the AS&H department timetable online?
- Are there any breaks or free periods in the AS&H department timetable?
- intent: Civil.DT examples: |
- timetable Civil
- Can I see the timetable for the Civil department?
- Where can I find the schedule for Civil department classes?
- What is the class timetable for Civil students?
- Could you provide me with the Civil department's timetable?
- When are the classes scheduled for Civil courses?
- Is there a specific timetable for Civil lab sessions?
- Are there any changes to the Civil department timetable this week?
- Can I access the Civil department timetable online?
- Are there any breaks or free periods in the Civil department timetable?
- intent: ECT.DT examples: |
- timetable ECT
- Can I see the timetable for the ECT department?
- Where can I find the schedule for ECT department classes?
- What is the class timetable for ECT students?
- Could you provide me with the ECT department's timetable?
- When are the classes scheduled for ECT courses?
- Is there a specific timetable for ECT lab sessions?
- Are there any changes to the ECT department timetable this week?
- Can I access the ECT department timetable online?
- Are there any breaks or free periods in the ECT department timetable?
- intent: CSE.DT examples: |
- timetable CSE
- Can I see the timetable for the CSE department?
- What is the class timetable for CSE students?
- Could you provide me with the CSE department's timetable?
- When are the classes scheduled for CSE courses?
- Is there a specific timetable for CSE lab sessions?
- Are there any changes to the CSE department timetable this week?
- Can I access the CSE department timetable online?
- Are there any breaks or free periods in the CSE department timetable?
- intent: CST.DT examples: |
- timetable CST

- Can I see the timetable for the CST department?
- Where can I find the schedule for CST department classes?
- What is the class timetable for CST students?
- Could you provide me with the CST department's timetable?
- When are the classes scheduled for CST courses?
- Is there a specific timetable for CST lab sessions?
- Are there any changes to the CST department timetable this week?
- Can I access the CST department timetable online?
- Are there any breaks or free periods in the CST department timetable?
- intent: ECE.DT examples: |
- timetable ECE
- Can I see the timetable for the ECE department?
- Where can I find the schedule for ECE department classes?
- What is the class timetable for ECE students?
- Could you provide me with the ECE department's timetable?
- When are the classes scheduled for ECE courses?
- Is there a specific timetable for ECE lab sessions?
- Are there any changes to the ECE department timetable this week?
- Can I access the ECE department timetable online?
- Are there any breaks or free periods in the ECE department timetable?
- intent: EEE.DT examples: |
- timetable EEE
- Can I see the timetable for the EEE department?
- Where can I find the schedule for EEE department classes?
- What is the class timetable for EEE students?
- Could you provide me with the EEE department's timetable?
- When are the classes scheduled for EEE courses?
- Is there a specific timetable for EEE lab sessions?
- Are there any changes to the EEE department timetable this week?
- Can I access the EEE department timetable online?
- Can I access the IT department timetable online?
- Are there any breaks or free periods in the IT department timetable?
- intent: AI&ML.DT examples: |
- timetable AI&ML
- Can I see the timetable for the AI&ML department?
- Where can I find the schedule for AI&ML department classes?
- What is the class timetable for AI&ML students?
- Could you provide me with the AI&ML department's timetable?
- When are the classes scheduled for AI&ML courses?
- Is there a specific timetable for AI&ML lab sessions?
- Are there any changes to the AI&ML department timetable this week?
- Can I access the AI&ML department timetable online?
- Are there any breaks or free periods in the AI&ML department timetable?
- intent: MECH.DT examples: |
- timetable MECH
- Can I see the timetable for the MECH department?
- Where can I find the schedule for MECH department classes?

- What is the class timetable for MECH students?
- Could you provide me with the MECH department's timetable?
- When are the classes scheduled for MECH courses?
- Is there a specific timetable for MECH lab sessions?
- Are there any changes to the MECH department timetable this week?
- Can I access the MECH department timetable online?
- Are there any breaks or free periods in the MECH department timetable?
- intent: MBA.DT examples: |
- timetable MBA
- Can I see the timetable for the MBA department?
- Where can I find the schedule for MBA department classes?
- What is the class timetable for MBA students?
- Could you provide me with the MBA department's timetable?
- When are the classes scheduled for MBA courses?
- Is there a specific timetable for MBA lab sessions?
- Are there any changes to the MBA department timetable this week?
- Can I access the MBA department timetable online?
- Are there any breaks or free periods in the MBA department timetable?

library

sports environment

about college

infrastructure

Is there a dedicated area for student gatherings or events?

- How are the classrooms equipped?
- Do they have audiovisual facilities?
- Can you provide information about the college's environmental initiatives or sustainability efforts? - intent: Placements examples: |
- Placements
- What is the placement percentage of the college?
- Can you provide information about the average salary package offered during placements?
- Which companies visit the college for placements?
- What is the placement record of specific departments or courses?
- How does the college prepare students for placements?
- Can you share some success stories or testimonials from students regarding placements?
- Are there any internship opportunities provided by the college?
- Can you provide details about the placement process followed by the college?
- What is the placement support system like at the college?
- Are there any alumni networks or connections that help with placements?
- intent: Hostel examples: |
- - hstl facility
- Hostel
- What types of accommodation options are available in the hostel?
- Can you provide details about the amenities offered in the hostel rooms?
- How many students typically share a room in the hostel?
- Are there separate hostels for male and female students?

- What are the meal options available in the hostel mess? Is it included in the hostel fees?
- Can students cook their own meals in the hostel kitchen?
- Are there any laundry facilities available in the hostel?
- What are the security measures in place in the hostel premises?
- Is there a curfew for students in the hostel?
- How do students apply for hostel accommodation, and what is the allocation process?
- Are there any recreational facilities available in the hostel, such as a common room or sports facilities?
- How is the cleanliness and maintenance of the hostel ensured?
- Are there any study spaces or libraries within the hostel premises?
- Can students receive guests or visitors in the hostel?
- What is the procedure for reporting maintenance issues or requesting repairs in the hostel rooms?
- intent: FeeStructure examples: |
- fee
- FeeStructure
- What is the fee structure for [specific program/course] at the college?
- Can you provide details about the tuition fees for undergraduate programs?
- How much does it cost to study [specific program] per semester?
- Are there any additional fees apart from tuition, such as hostel fees or examination fees?
- Can you break down the fee structure for international students?
- Are there any scholarships or financial aid options available to help with the fees?
- What is the payment schedule for the fees? Is it paid annually, per semester, or monthly?
- Do fees vary for different departments or programs within the college?
- How can I get a detailed fee statement for my current semester/year?
- intent: Transport examples: |
- bus
- transport
- What are the bus routes provided by the college's transportation facility?
- Can you provide details about the pickup/drop-off points along each bus route?
- How frequently do the buses operate?
- Are there any special arrangements for students or staff with disabilities?
- How do I apply for a bus pass or transportation service?
- Is there a mobile app or online system to track the bus locations in real-time?
- What are the operating hours of the transportation service?
- Are there any additional costs associated with using the transportation service?
- How do I report issues or provide feedback about the transportation service?
- Can I request additional bus stops or changes to existing routes?
- intent: NAAC examples: | - naac
- NAAC
- What is the NAAC accreditation status of the college?
- Can you provide details about the NAAC accreditation process undergone by the college?
- What is the grade awarded to the college by NAAC?
- When was the last NAAC assessment conducted for the college?
- intent: Srm
- examples: | - vison

- mison
- About collge
- Why this college
- About vison and mison
- Special about this college
- Objective of the college - intent: Srm events examples: |
- events
- Can i Know about the events in the college
- extracircular activites - intent: Faculty examples: | - faculty details
- names of faculty
- list of faculty
- intent: FacultyCount examples: |
- no of availble faculty count
- total no of faculty
- faculty count
- intent: Studentscount examples: |
- no of availble students count
- total no of students

For Rasa Rules

version: "3.1" rules:

- rule: Say goodbye anytime the user says goodbye steps:
- intent: goodbye
- action: utter_goodbye
- rule: Say 'I am a bot' anytime the user challenges steps:
- intent: bot_challenge
- action: utter_iamabot

for Rasa Intents and Responses

version: "3.1" intents: - greet

- goodbye
- affirm
- deny
- mood_great
- mood_unhappy
- bot_challenge
- programsoffered
- B.Tech
- M.Tech
- MBA
- Diplomo
- AI&ML

- Civil
- Cse
- CSE(AI&ML)
- CSE(Data Science)
- CSE(Iot)
- ECE
- ECT
- CST
- EEE
- IT
- MECH
- CSE(M.Tech)
- VLS&ES
- CE&SP
- Electronics
- CAD&CAM
- Coursesof MBA
- DECE
- DCME
- DEEE
- DME

Dept

- AS&H.DT
- Civil.DT
- ECT.DT
- CSE.DT
- CST.DT - ECE.DT - EEE.DT
- IT.DT
- AI&ML.DT
- MECH.DT
- MBA.DT
- Infrastructure
- Placements
- Hostel
- FeeStructure
- Transport
- NAAC
- Sasi
- Srmevents

- Faculty
- FacultyCount
- - Studentscount responses: utter_greet:
- - text: "Hey! How are you?" utter_cheer_up:
- text: "Here is something to cheer you up:"
- utter_did_that_help:
- text: "Did that help you?" utter_happy:
- text: "Great, carry on!" utter_goodbye:
- text: "Bye"
- utter_iamabot:
- text: "I am a bot, powered by Rasa." utter_programsoffered:
- text: "The programs offered at our college include 'B. Tech,M. Tech,MBA,Diploma'"
- utter_B.Tech:
- text: 'Artificial Intelligence & Machine Learning,Civil Engineering,Computer Science & Engineering,Computer Science & Technology,CSE (Artificial Intelligence & Machine Learning),CSE (Data Science),CSE (Internet of Things and Cyber Security including Block Chain Technology),Electronics & Communication Engineering,Electronics & Communication Technology,Electrical & Electronics Engineering,Information Technology,Mechanical Engineering.' utter_Artificial Intelligence & Machine Learning:
- text: 'The Artificial Intelligence & Machine Learning program spans four years with an intake of 60 students annually.' utter_Civil Engineering:
- text: 'The Civil Engineering program has a duration of four years with an intake of 30 students.'
- utter_Computer Science & Engineering

For Rasa Stories

- story: happy path steps:
- intent: greet
- action: utter_greet
- intent: mood_great
- action: utter_happy - story: sad path 1 steps:
- intent: greet
- action: utter_greet
- intent: mood_unhappy
- action: utter_cheer_up
- action: utter_did_that_help
- story: sad path 2 steps:
- intent: greet
- action: utter_greet
- intent: mood_unhappy

- action: utter_cheer_up
- action: utter_did_that_help
- intent: deny
- action: utter_goodbye - story: About College Programs steps:
- intent: programsoffered
- action: utter_programsoffered - story: Program1 steps:
- intent: B.Tech
- action: utter_B.Tech - story: B.Tech Courses steps:
- intent: AI&ML
- action: utter_Artificial Intelligence & Machine Learning
- intent: Civil
- action: utter_Civil Engineering
- intent: Cse
- action: utter_Computer Science & Engineering
- intent: CST
- action: utter_Computer Science & Technology
- intent: CSE(AI&ML)
- intent: CSE(Data Science)
- action: utter_CSE (Data Science)
- intent: CSE(Iot)
- action: utter_CSE (Internet of Things and Cyber Security including Block Chain Technology)
- intent: ECE
- action: utter_Electronics & Communication Engineering
- intent: ECT
- action: utter_Electronics & Communication Technology
- intent: EEE
- action: utter_Electrical & Electronics Engineering
- intent: IT
- action: utter_Information Technology
- intent: MECH
- action: utter_Mechanical Engineering.

- story: Program2 steps:
- intent: M.Tech
- action: utter_M.Tech - story: M.Tech Courses steps:
- intent: CSE(M.Tech)
- action: utter_Computer Science & Engineering_M. Tech
- intent: VLS&ES
- action: utter_VLSI&ES
- intent: CE&SP
- action: utter_CE&SP
- intent: Electronics
- action: utter_CAD&CAM - story: Program3 steps:
- intent: MBA
- action: utter_MBA
- story: MBACourses steps:
- intent: Coursesof MBA
- action: utter_Master of Business Administration
- story: Diplomo steps:
- intent: Diplomo
- action: utter_Diploma - story: Diplomo Courses steps:
- intent: DECE
- action: utter_DECE
- intent: DCME
- action: utter_DCME
- intent: DEEE
- action: utter_DEEE
- intent: DME
- action: utter_DME - story: Departments steps:
- intent: Dept
- action: utter_Dept
- story: TimeTables steps:

- intent: AS&H.DT
- action: utter_AS&H.T
- intent: Civil.DT
- action: utter_Civil.T
- intent: ECT.DT
- intent: Placements
- action: utter_placements
- intent: Hostel
- action: utter_hstl
- intent: FeeStructure
- action: utter_fee
- intent: Transport
- action: utter_transport
- intent: NAAC
- action: utter_naac
- intent: Sasievents
- action: utter_events
- intent: Faculty
- action: utter_faculty
- intent: FacultyCount
- action: utter_facultycount
- intent: Studentscount
- action: utter_studentscount

6.RESULT

6.1 RESULTS

Result analysis in a Rasa chatbot project involves the examination and interpretation of various metrics and outputs generated during the training, testing, and validation phases. This process is crucial for understanding the performance and behavior of the chatbot, identifying areas for improvement, and ensuring that it meets the desired objectives. By analyzing results such as accuracy, precision, F1-score, and confusion matrices for intents, actions, and stories, developers gain insights into how effectively the chatbot understands user input, generates appropriate responses, and follows predefined conversation paths. Through thorough analysis, developers can refine the chatbot's training data, optimize its behavior, and enhance the overall user experience.

6.2 DATA VALIDATION

Data validation is crucial for ensuring a RASA chatbot functions smoothly and understands user queries accurately. It involves two key components: intent validation and story validation.

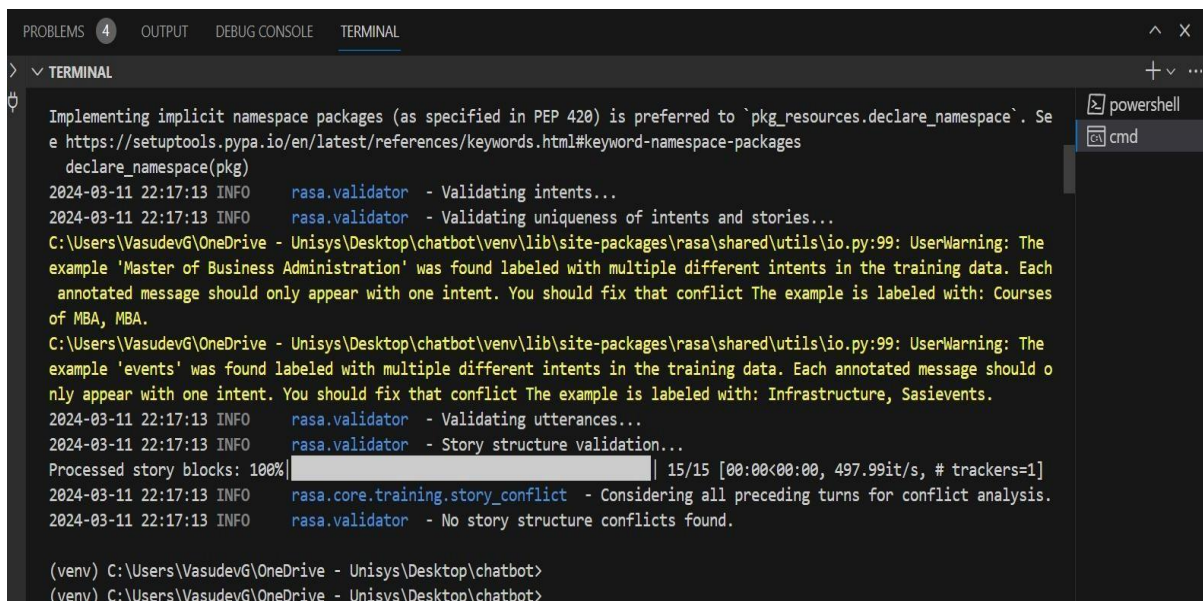
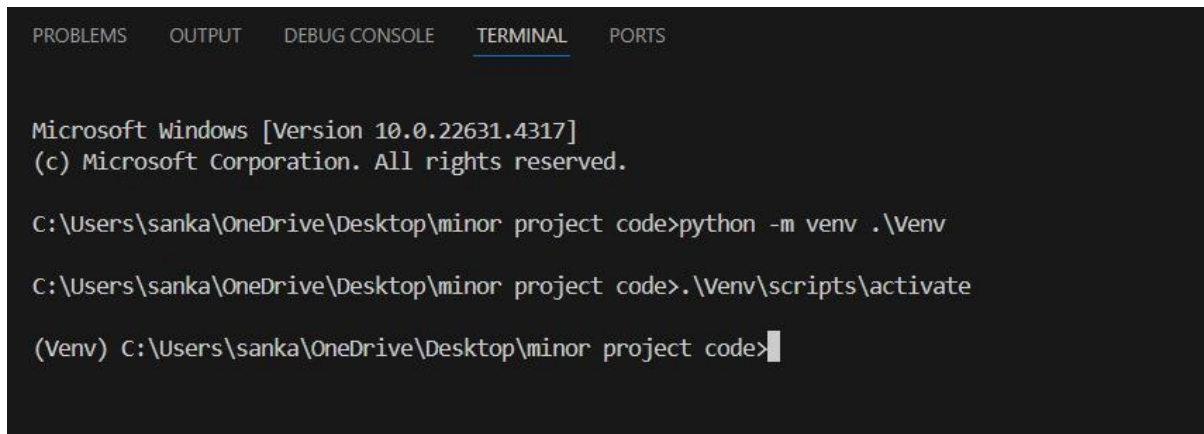
A screenshot of a terminal window with a dark background. The terminal shows the output of a Rasa validation command. It includes several log messages from 'rasa.validator' and 'rasa.core.training.story_conflict'. There are two yellow warning messages about training data conflicts: one for 'Courses of MBA, MBA' and another for 'Infrastructure, Sasievents'. The terminal also shows progress bars for story blocks and utterances, and a final message stating 'No story structure conflicts found.' The terminal window has tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL', with 'TERMINAL' being the active tab. On the right side, there are icons for 'powershell' and 'cmd'.

Figure 6.1 : Data Validation

6.3 VIRTUAL ENVIRONMENT



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

Microsoft Windows [Version 10.0.22631.4317]
(c) Microsoft Corporation. All rights reserved.

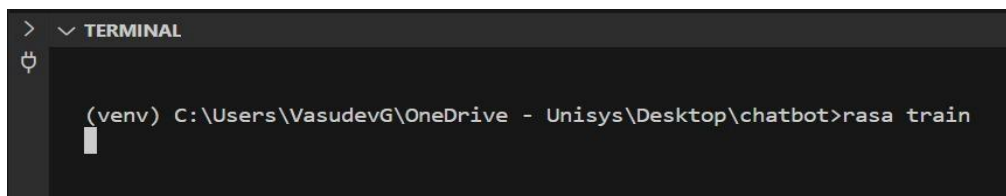
C:\Users\sanka\OneDrive\Desktop\minor project code>python -m venv .\Venv

C:\Users\sanka\OneDrive\Desktop\minor project code>.\Venv\scripts\activate

(Venv) C:\Users\sanka\OneDrive\Desktop\minor project code>
```

Figure 6.2 : Activating the virtual environment

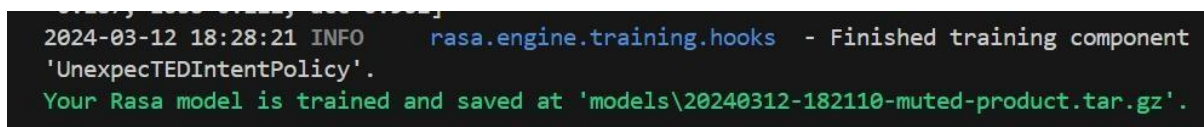
6.4 TRAIN DATA



```
>  ▾  TERMINAL
🔌

(Venv) C:\Users\VasudevG\OneDrive - Unisys\Desktop\chatbot>rasa train
```

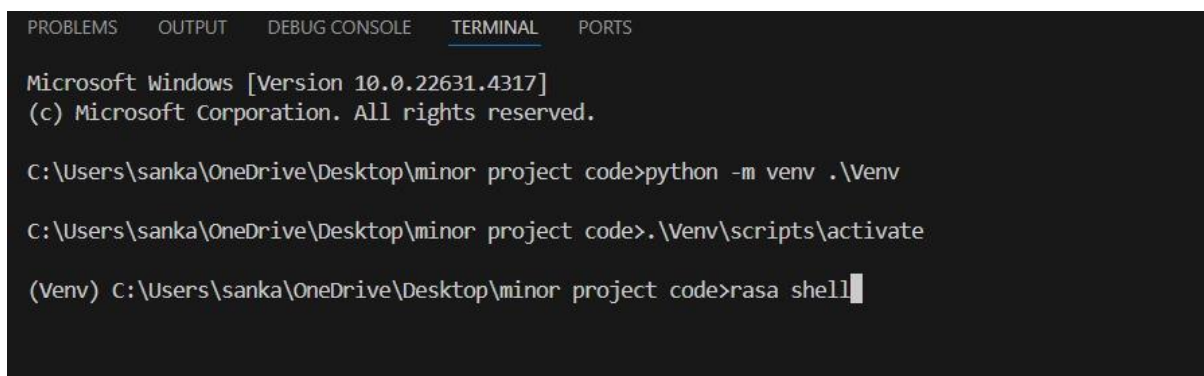
Figure 6.3.1 Training the dataset



```
2024-03-12 18:28:21 INFO      rasa.engine.training.hooks - Finished training component
'UnexpectEDIntentPolicy'.
Your Rasa model is trained and saved at 'models\20240312-182110-muted-product.tar.gz'.
```

Figure 6.3.2 Sucessfully Trained the dataset

6.5 INTERACTING



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

Microsoft Windows [Version 10.0.22631.4317]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sanka\OneDrive\Desktop\minor project code>python -m venv .\Venv

C:\Users\sanka\OneDrive\Desktop\minor project code>.\Venv\scripts\activate

(Venv) C:\Users\sanka\OneDrive\Desktop\minor project code>rasa shell
```

Figure 6.4.1 : Initializing cmd for interaction

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

Your input -> fine
Great, carry on!
Your input -> college
The college, with its classic infrastructure and abundant greenery, provides a pleasant atmosphere for learning. It boasts vast classrooms equipped with projectors and smart screens, facilitating interactive teaching. The central library offers a diverse range of resources, catering to every course and academic need. Separate hostel facilities for boys and girls ensure a safe and comfortable living environment, albeit with slightly expensive fees. Despite the cost, the hostel provides good food, 24/7 water, and a focus on healthy surroundings. The canteen offers decent food options, albeit at a higher price point. Additionally, amenities like a medical dispensary and a large sports ground contribute to the overall well-being and development of students.
Your input -> department
Our organizational structure comprises Computer Science & Engineering, Electronics and Communication Engineering, Electrical & Electronics Engineering (EEE), Mechanical Engineering, Master of Business Administration departments
Your input -> cse
The Computer Science & Engineering program extends over four years with an intake of 180 students.
Your input -> |
```

Figure 6.4.1 : Result of the Educational Chatbot

7. CONCLUSION AND FUTURE WORK

7.1 CONCLUSION

Chat bots are a thing of the future which is yet to uncover its potential but with its rising popularity and craze among companies, they are bound to stay here for long types of chat bots being introduced, it is of great excitement to witness the growth of a new domain in technology while surpassing the previous threshold. We are inventing the system because of the need of the increasing population of our country. As we know if we want to join in a college we need to go to colleges and from the college admins, college staff we need to get the all information about college structure in the sense how would be the faculty lecture, How many branches in college, Hostel fee structure, College fee structure, How many seats available for specific branch, About college environment, Available Specializations in a department like Data Science, Machine Learning in CSE , Infrastructure of college like labs, library, College placements, Internships and college professors, Special events that occur in our colleges.

7.2 FUTURE ENHANCEMENT

Future enhancements for the college chatbot system include introducing multilingual support, enhancing personalization for tailored user experiences, integrating virtual reality for remote campus tours, improving natural language processing capabilities, integrating with student information systems for real-time updates, implementing voice recognition for hands-free interaction, exploring virtual assistant integration, incorporating a feedback mechanism for continuous improvement, expanding content coverage, and utilizing machine learning for predictive analytics. These enhancements aim to provide students with a seamless and efficient way to access essential college-related information and support services.

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