

# Design of Chatbot System for Student Counselling

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**Abstract** -In today's competitive world it is must for students to meet their respective needs from universities. For this, student should know the different colleges, different fields to have clear vision of what activities and programs any college conducts. For making a decision of the career in the future students have to know how their interests could be related to required skill and future career path. If they have inadequate knowledge of skills, this means that students may not be able to choose their appropriate future career. Here we propose a chat-bot system on website using artificial intelligence to help any metrics level or undergraduate student providing information of college.

**Key Words**- AI base response, Chatting bot, Text-basedChat , Discussion support.

## I. INTRODUCTION

Nowadays, most of universities use a corporate website to offer services to the student candidates. In the field of upper education services, a university must always provide excellent service to make sure student candidate's satisfaction. To obtain student candidate satisfaction apart from the quality of education, a university must also be accompanied by providing consultation services and information to student candidates. The use of web-based candidate service system and social media is one of the facilities that are given to candidates to meet the needs of information. Along with the increase in the world of web services, many of the latest innovations in development, focus on developing websites that pay great attention to user convenience. In the website itself, there are various types of student candidate service available such as phone service and live chat support. All available supports aim to communicate between people, therefore it needs time to answer candidate questions. In addition, the increase in number of web visitors may lead to increased questionnaires and waiting times, resulting in poor client satisfaction. The rapid development of computer-based information technology has made many changes in the joints of human life. One of the promising technological developments is Artificial Intelligence (AI). By using AI, the computer can perform certain tasks as performed by humans such as robot chat. Robot chat refers to as Chabot system that adopts knowledge of human nature interaction to the computer (HCI). So that computers have intuitive abilities to realize the conversation with their users using natural language. AI stated that Currently text-based Chabot is used extensively in commercial web systems. Based on natural Language complexity, the implementation of Chatbot system is not an easy task because we need a set of mechanisms to extract knowledge from user FAQs.

## II. LITERATURE SURVEY

In the linear connections from hidden vectors over child unit in the any application Long Short-Term Memory (LSTM) networks could prevent the model from capturing complex semantic representations of co-occurrence of textual sentence. Although the improved versions aforementioned have been developed under the recurrent neural network architecture, it is difficult to capture compositional semantic representations of natural language texts [5].The recommender system is based on one of two strategies. The external information is required for the system, so it's got to collect external information. The collection of external information is not easy. The content-based strategies require gathering external information that might not be available [3].The collaborative filtering plays a vital role in various automatic recommendation systems and has been used in many online applications. Successful as they are, one limitation of most existing collaborative filtering algorithms is that they're static models during which relations are assumed to be fixed at different time. Learning from relational data has always been a central topic in the fields of data mining and machine learning [2]. Recommendation systems have developed in parallel with the web technology [14]. At the initial time of their existence, they were supported demographic, content-based and collaborative filtering. Now they're during a position to include social information also. A knowledge-based recommendation system considers user centric requirements rather than his/her past history in order to make recommendations [12] discussed the comparison of different similarity measures for improving the classification process. Authors said that automatic knowledge acquisition and management methods are needed to build consistent, robust, reliable, fault-tolerant, and effective decision support systems. Recommendation systems for college selection [7] explained that recommender

systems are being used (have been using) in many real-world applications such as e-commerce based applications – Amazon and eBay. Recommender systems must be accurate and useful to as many numbers of users as possible. The fundamental goal of the academic recommender systems is to satisfy many quality features like accuracy, usefulness, effectiveness, novelty, completeness, and diversity. Recommender systems must satisfy user-centric requirements [9]. User-centric based recommender systems are more useful than data-centric recommender systems [10]. Recommender systems were developed for various domains associated with daily life of people such as product recommendation, service recommendations, and people recommendations and so on. This kind of recommendations increases both user convenience and buy transactions of products and/or services. Course/college recommendation for college kids may be a challenging domain that has not reached the target community thoroughly. Since there are many options for colleges/courses students have to spend a lot of time for exploring the details and they may not do it in a proper way. Students need a system that accepts the scholars preferences and recommends the proper college/course. college selection is one of the issues that the students community tends to solve. Recommender systems were developed for multiple domain related lifestyle of individual like product recommendation, service recommendation, other people recommendation and so on . The methods existing for the recommendation are content-based filtering, collaborative filtering, and rule mining approaches. Content-based filtering approach recommends an item to a user by clustering the items and the user pairs into groups. This clustering is used to gain similarity between user and item. Personal information of the user isn't considered here. Queen Esther Booker creates a prototype of a system for course recommendations [15]. The system accepts user requirements as keywords and recommends courses for students. Collaborative filtering (CF) approach recommends an item to a user by grouping similar users based on user profiles and predicts the user interests towards the items. Hana introduces a system based on CF approach to recommend courses for a student by analyzing and matching the student's academic records [11]. Then the system analyses and recommends a course that meets the student's profile. Elham S .Khorasani et al. proposed a Collaborative Filtering model supported Markov chain to recommend courses supported historical data [7] Rule mining approach focuses on recommending a series of items to a user by discovering the association rules. Itmazi and Megias developed a recommendation system based on rule mining to recommend learning objects [13].

### III. PROPOSED SYSTEM

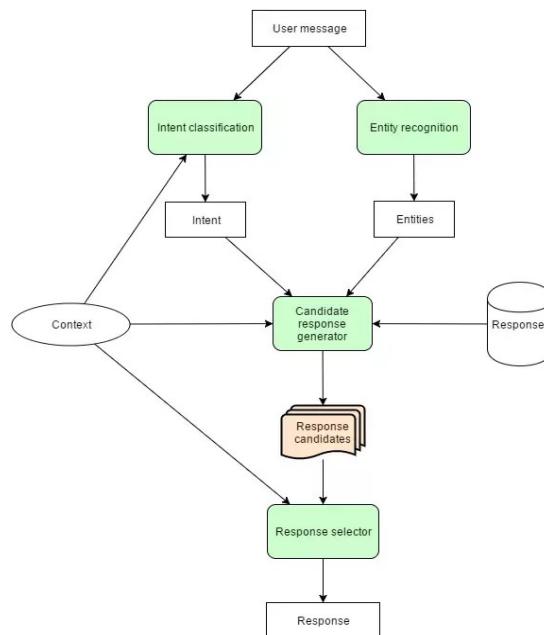


Fig 1:Proposed System.

The Proposed Chatbot Fig 1 takes input through user

platform. It analyses that input using NLP provided by module to find out what the user is trying to ask and responds accordingly. System uses a modular architecture to respond to user input. Each module contains knowledge based initialization mechanism, and logic to handle user requests. System also uses a modular architecture to respond to the user input. Each module includes knowledge based, initialization mechanism and logic to handle user requests. The Chatbot module will be divided into two parts. The first part is the integration part used to process user requests. This section will send a query that inputs the user to the conversation agent and continues processing phases using proposed module. Platform module will perform a search to customize the input text with an existing intent in the data corpus. The second part is the configuration section. In this section it will process input to fetch keywords from the database and will return appropriate data regarding the query. Therefore both modules can communicate and interact with the web server. The configuration part of one of the modules must include logic to handle the module used (in our system this is done by the ontology module).

➤ **Advantages**

- A user friendly Chatbot
- Proper guidance for career
- A humanly conversation in no cost
- Ease of use

➤ **Disadvantages & Limitations**

- Language Barrier
- Can't differentiate between genuine and fake users.
- Require proper trained dataset

IV. SUB ALLGORITHM AND MINIMUM SIMILARRITY(p,q)

Input

P:is the object (college) presents in the leaf node  
of the R-Tree

q:is the queried object(college)

Output

A numeric value representing the similarity  
measure between two objects

1. a= total list of students referenced the college  
object p

2. b= total list of students referenced the college  
object q

3. similarity (returns numeric similarity value)

Reverse Top-k computation Algorithm Reverse Top-k

Full() [checks if the array is full]

Reverse Topk[][]=new int [college][students]

fori=1 to number of colleges do

{

Col=0

for j=0 to number of elements in each rows in top-k

resultset [the resultant data is stored in this resultset]

{

for k=0 to number of elements in row

{

if (topkresultset == I) then

reverseTopk[i-1][col++]=j+1

}

}

}

## V. ALGORITHM FLOW OF SYSTEM:

The basic algorithm that is to be implemented

Step 1: Start.

Step 2: Get the user query. (INPUT)

Step 3: Pre-processing of the query

Step 4: Fetch the remaining keywords only from the query.

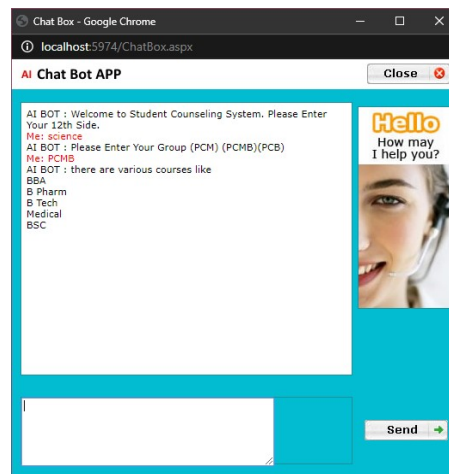
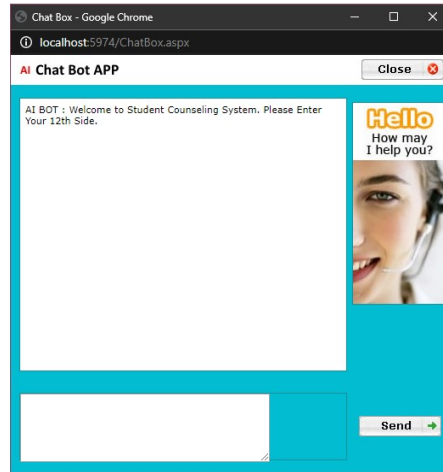
Step 5: Match the fetched keywords keywordsfrom Knowledge base and provide an appropriate replay. The keywords will be matched with the help of Minimum Similarity algorithm.

Step 6: Return the query output.

Step 7: Exit.

## VI. RESULT AND DISCUSSION

The students are able to get proper guidance for career in the field of their choice, also the college list for the same is provided as per requirement. It is a platform for students, colleges and counselors to come up to place and interact freely.



The most important part of the system is strong database of the system. For efficient counseling with the help of Chatbot we've a strong database that contains information of all possible career options. We have included a set of around 800 questions. Here some of examples of questions are given below.

1. What is diploma in art and craft?
2. What is eligibility criteria for merchant navy?
3. What are the courses available in engineering diploma?
4. Can non commerce student do CA?
5. Which banking exam is best?
6. How to join NDA?
7. What further courses can be done before after B.Sc. Dairy Technology?

## VII. CONCLUSIONS

This paper proposes a method to a chat bot for becoming a member of a discussion in a chat tool. Thus this is a student counseling chat bot, and user can get easy to choose desired college and branch. User can choose college as per his requirements, like he can choose college on the idea of his priority.

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