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# Online Career Counsellor System based on Artificial Intelligence: An approach

Divya Manoj Bhanushali[1], Prashant Itankar[2]

[1] Alamuri Ratnamala Institute of Engineering, Engineering and Technology, University of Mumbai, Maharashtra, India
[2] Assistant Prof., Datta Meghe College of Engineering Navi Mumbai, Maharashtra, India

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**ABSTRACT**

***Most students currently are facing challenges in deciding their career. As the students are belonging through their academics, they need to realize their capabilities and check their areas of interest so that they will decide which career is best suited for them. This system will help nowadays youth to decide which career path is best for their future that brings out the best results if they choose that prescribed career. This will help in improving the performance of the student and also motivate their interest so that they will be focused on their targeted career. This system is based on a test that a student has to perform and depend on the answers that are provided by the student, it will generate a summarized result. The main aim of this system is to provide an overview of the Artificial Intelligence techniques that we used to predict the performance of the student. This system will also be focusing on the way we are using prediction algorithms to identify attributes in student data. Using this system proved to be beneficial for the students, Educational Institutions and educators also.***

***Index Terms: Career Guidance System, Artificial Intelligence***

## 1. INTRODUCTION

We all know that nowadays the competition goes on increasing day by day, choosing a career is also one of the important tasks of today's generation as the world is getting more technical. This issues mostly happens with the students that what their interest lies in. Every parent wants to see their children engineer or doctor but nobody asks what the child interested for, also the parents are worried about the future of their child. So, this software helps both student and their parents.

It helps the student to know where his/her actual interest lies in, which subject he has to choose that provides the best result of his future. We are trying to guide the student by taking him through a series of test that will give them the idea about how to start the career by telling them what subject they will choose so that this will be beneficial for them and what they will do further to get the best result. So, the website starts with conducting the aptitude test as it is better topolish their mind.

The student will have to sign up on our website. The main process will start after the registration of the student into our website, here we are providing a platform to the student where he or she has to perform the aptitude test. So basically, when the student gets to log in to our website, there we ask him to select his standard, as there are different levels of test for different standards. After that, they will proceed for the test. On proceeding further, a student is asked about the field in which he is interested in and based on that the test questions will come.

There are different fields given as Engineering and Technology, Arts, Commerce, Law, Humanities, Hotel Management, social science. The questions are based on these fields. When the student successfully submitted the quiz, the student will receive the detailed result along with the perfect advice from the expert. The expert will tell which career is best for the student. After getting summarized result from the system expert, the student will get to know about in which subject he is interested in, which proves to be a better decision for his future.

Existing system does not provide a generic solution for a larger population, as these systems are customized to a particular geographical area, where a student of different cultures and background are looking through. There are several solutions developed like using data mining, advance statistical models, and algorithms. So, computing a system using these techniques will result in highly complex systems which are difficult to maintain. Many information is present on the internet and getting relevant data from a large source is a difficult task.

## 2. LITERATURE SURVEY

The main purpose of the system is to understand what the student wants. The Artificial intelligence that we used in our system will help in better decision making and provide robustness in the system. A large number of students are still not sure about the occupation they want, even after taking admission in college or universities. Many will join the colleges just because their friends are taking admission, also because of convenience and comfort. This leads to the lack of planning, goal setting and self-understanding which leads to the limited work efficiency and demoralized worked attitude due to lack of interest. Many technologies which use Artificial Intelligence and Machine are evolving nowadays which helps the user in making their choices during career planning according to their interest. There are following existing systems.

### 2.1 Career counseling chatbots

The bots are natural language computer-based program that performs conversations. It has mainly three parts. First is take input from the user either in a spoken or typed format in natural language, second is to generate the spoken output from the bot and then pass the input through the program so that proper and understandable output is produced. These counseling bots are mainly used for the prediction sand queries related to a career like which field to is best to choose, latest courses. The main purpose of this system is understanding human conversation with the help of natural language processing to get the output to the user.

### 2.2 Fuzzy expert system

This system role is to recommend different career possibilities to the user based on the input that the individual has given. The system will plan the interest of student based on information provided by the student at the time of registration.

The fuzzy expert system utilizes symbolic logic because the paradigm to precise rules and thus uses a fuzzy inference engine to reason about this sort of rules. Symbolic logic uses a scale for degrees of truth that range between 0 and 1 instead of the standard Boolean logic which uses either the 0 or 1 value to explain false and truth. This fuzzy expert career system should be capable of analyzing actual career possibilities based on interest and aptitude analysis. This application also helps the students to explore different career options and new scopes.

### 2.3 Woebots

Woebots are automatic chatbots who can monitor your mood and also helps you to learn about yourself. It is the world's first mental health chatbot designed for youths in colleges and school graduates. Woebots ask s user about what they are feeling and their mental health and depend on your mood it sends videos. It is a kind of self-help books that stores all the information and gets specific to your need over time. It works with the help of Natural Language Processing by creating a friendly conversation with the user that uses woebot.

## 3. PROPOSED APPROACH

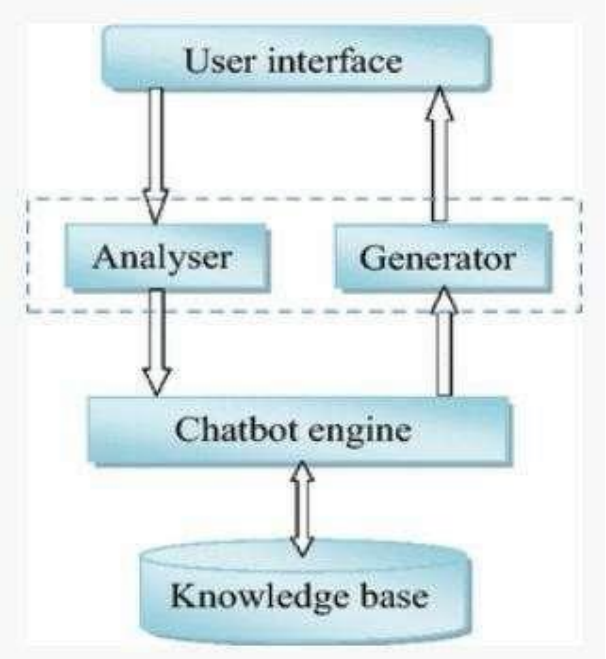


Fig. 1. Flow Diagram of Proposed System

### 3.1 Modules

- Query Tokenization
- Parsing Query
- Knowledge Based
- Keyword Matching algorithm
- Naïve Bayes
- SVM

### 3.2 Methodology

The system of the software is built in such a format that there is a link between software and the student. As the system is based on Artificial Intelligence and the information we embedded into the system, so based on that it will declare the final result. This system is basically for the people who are confused about what career they want in future and what career they will choose so that it would be beneficial for their future. So our product has two main components one is for recommendation and the other is for displaying the summarized result. The first set will contain the questions from all the domain of the preferred area of interest of the user. Once the user will answer these questions, then the domains will be narrowed and this process will be several times until the final set of questions after which an appropriate result can be given to the user. So this test is particularly based on levels wherein first level we will ask a general question based on which we will categorize the interest of the student.

For each level, we will increase the ratio of the questions. The Proposed Chatbot 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 use 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 in the will perform a search to customize the input text with an existing intent in the data corpus. The second part is the configuration section.

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 model used (in our system this is done by the ontology module). We have used the Naïve Bayes Algorithm for our project implementation. We are using this algorithm as this algorithm will calculate the class probability for each class at the last step and will show us the class with maximum probability. We have modified this algorithm in such a way that we will get three output at last for any of our input.

### 3.3 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 with the keywords in Knowledge base, and provide an appropriate response. The keywords will be matched with the help of Minimum_Similarity algorithm.
Step 6: Return the query response as an output to the user.
Step 7: Exit.

Sub Algorithm Minimum_Similarity (p, q) Input
P:is the object (Career) presents in the leaf node of the R-Tree
q:is the queried object (Student score)

Output
a numeric value representing the similarity measure between two objects

1. a= total list of students marks and inputs
2. b= total list of students Career q
3. similarity =
4. return similarity

Reverse Top-k computation Algorithm Reverse Top-k Full()
Reverse Topk[][]=new int [Career][students score] for i=1 to number of colleges do
{
Col=0

```
for j=0 to number of elements in each row in top-k results set
{
for k=0 to number of elements in row

{
if (topkresultset == I ) then reverseTopk[i-1][col++]= j+1
}
}}
```

## 4. CONCLUSION

Career counselor system is an interesting idea. The opportunities that we are providing to the students through an online medium can make the use of this software for choosing the career based on the appropriate skills. There is a need of career counseling or career guidance in today's world of increasing career paths day by day.

This system is not only comprising of chatbot but also an intelligent engine which delivers best career choices on the data of industry leading professional and with the help of AI applications system will perform accurately and at high performance. This system will be helpful to very individual seeking career guidance. This research paper concludes that this career counselor system with AI is a boon for upcoming and today's world.

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