International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 09 | Sep 2020 www.irjet.net p-ISSN: 2395-0072

Career Guide Application using ML

Vivekkumar Mourya[1], Shubham Phatale[2], Siddhesh Thakur[3], Panjab Mane[4]

[1, 2, 3]B.E. Student, Shah & Anchor Kutchhi Engineering College, Mumbai, Maharashtra, India.
[4]Professor, Dept. of IT Engineering, Shah & Anchor Kutchhi Engineering College, Mumbai, Maharashtra, India.

Abstract - *Choosing a fitting career is one of the most significant choices and with the expansion in the quantity of profession ways and openings, settling on choice have gotten very hard for the understudies. Numerous understudies are befuddled about their vocation choices. This may prompt wrong vocation determination and afterward working in a field which was not implied for them, along these lines diminishing the efficiency of human asset. Accordingly, it is very imperative to take a correct choice with respect to the vocation at a suitable age to forestall the outcomes that outcomes because of wrong profession choice. This framework is a portable application manufactured utilizing ripple structure that would help understudies concentrating in secondary schools to choose a course for their career. The framework would suggest the understudy a profession choice dependent on their character characteristic, intrigue and their ability to take up the course.*

***Key Words*: Data Mining, Chatbot, Career Guidance, Machine Learning, Natural language processing**

1. INTRODUCTION

With the increase in research and exploration in various domain, there are many new career opportunities in every field. This create more confusions to the students studying in tenth or twelfth grade to select one career option. The reasons for this confusion could be unawareness of self-talent and self-personality trait, unawareness of the various options available, equal interests in multiple fields, less exposure, market boom, assumed social life, peer-pressure etc. Due to theses confusions, the student may select a wrong career option and the consequences of this wrong decision could be work dissatisfaction, poor performance, anxiety and stress, social disregard etc. Thus, there should be proper counselling of the student's psychology, interest and their capacity to work in a particular field. The purpose of this project is to predict the career of students based on the personality traits, interests and their capacity to take up the course. We are implementing an application that is predicting career based on student's interest and capacity of the student using flutter framework, which is a framework to build cross platform apps. The application will operate on Mobile.

In our project we have used machine learning to predict career path of students based on certain dataset. Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. The Machine learning algorithm used for predicting is a clustering algorithm named as K-means Algorithm.

2. LITERATURE REVIEW

A career guiding application should give proper guidance based on the interest, intelligence level, passion of the students. There are many websites and apps on the internet than can provide career based on the personality traits of the individual but they all don't have a human factor while deciding the career of the student. A paper written by G Srivathsan, P Garg, A Bharambe, H Varshney, R Bhaskaran describes the proper way to provide career guidance to students. They conclude that a system can give the guidance based on the interest of the students, but they don't talk about the doubts a student has while focusing on a particular path. Similarly, a paper written by Nikita Gorad, Ishani Zalte, Aishwarya Nandi, Deepali Nayak try to increase the accuracy of the algorithm used, but just increasing the accuracy is not the right way to predict career. Also, there is no dialog between a student and the career expert. The conversation between a student and career expert is a good way to decide a career. A paper written by Oznur Alkan, Elizabeth M. Daly, Adi Botea, Abel N. Valente, Pablo Pedemonte suggests the use of dialogue to decide a career. The conversation is possible because of data and previously there was not such huge amount of data, but now data is everywhere. Therefore, making a chatbot is possible with this huge amount of career guiding conversations. The proposed system decides the career of the student based on the interest and scope of the field and also makes rich human like conversations to decide the career of the student. The students can get detailed information about the field if he/she has some doubt regarding that field.

3. REQUIREMENT ANALYSIS

3.1 METHODOLOGY USED

The Proposed methodology contains following steps:

- **Data Integration and Transformation:** The data will be consist of questions and their responses by the students. Each question will have four responses with some weights. The academic scores of the student will also have weights to decide the career of the student.

- **Feature Selection:** The model will select all the features except the name and id of the student. All the features are important in deciding the career of the student. The importance of each feature will be decide by the weights given to a feature.

- **Clustering:** The model will cluster all the points using a Kmeans algorithm. This model will be fine tuned to predict the career that correctly predicts the career in the way specified by career expert. The output will be a list of clusters closest to the center of the field and also it will give a list of all field that are close to that center.

3.2 ALGORITHM

KMeans Algorithm:

Kmeans calculation is an iterative calculation that attempts to parcel the dataset into K predefined unmistakable non-covering subgroups (bunches) where every information point has a place with just one gathering. It attempts to make the between bunch information focuses as comparable as could be expected under the circumstances while likewise keeping the groups as various (far) as could be expected under the circumstances. It relegates information focuses to a bunch with the end goal that the whole of the squared separation between the information focuses and the group's centroid (number juggling mean of the considerable number of information focuses that have a place with that bunch) is at the base. The less variety we have inside bunches, the more homogeneous (comparable) the information focuses are inside a similar group.

How KMeans Algorithm is used for career counselling:

1. Specify the number of clusters K (for number of fields)

2. Introduce centroids by first rearranging the dataset and afterward arbitrarily choosing K information focuses for the centroids without substitution

3. Continue emphasizing until there is no change to the centroids.

i.e. assignment of data points to clusters doesn't change

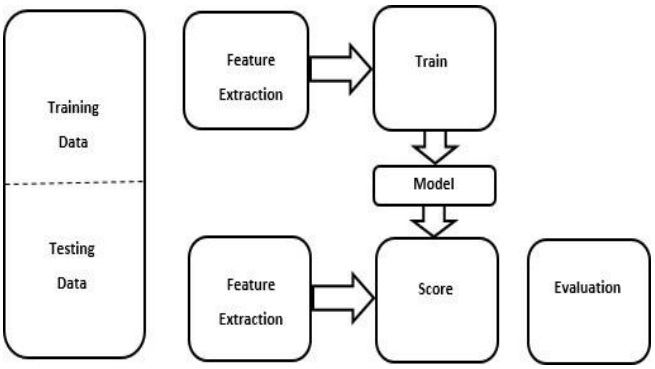
4. Process the entirety of the squared separation between information focuses and all centroids.

5. Assign each data point to the closest cluster (centroid).

6. Process the centroids for the bunches by taking the normal of the all information focuses that have a place with each group.

3.3 BLOCK DIAGRAM DESIGN

This below block diagram shows the process of training the model using training data and implementing the model for getting the testing data. By training the model it will be used for input testing the input data.



This design shows the flow of career guiding Module. Here, the training data and testing data are split into 2 parts so that the accuracy of the algorithm can e measures for the test dataset.

Then the feature extraction is done which selects the features that are important for clustering.

After the feature extraction, the training happens which creates a model that can be used for clustering other points.

4. RESULT AND ANALYSIS

- This App will help the students to select a proper stream after 10th and make the best choice.

- The app covers different streams and careers for every student and we also provide another stream if they don't like the first stream.

- Many students have some doubts about their selected stream. These doubts can be solved by our machine learned Chatbot.

- Students can get detailed information about a particular stream within this app.

5. CONCLUSION

In this Project, what we have reviewed in the current scenario is that students are facing a lot of difficulties while choosing the career and eventually under parent's pressure end up choosing a wrong career. So, to overcome this situation this app helps the student to choose the right career for their future. By using this application, it helps student in deciding the right career based on student's interest test which makes use of kmeans algorithm and also help student in getting detailed information of the selected stream using chatbot feature.

REFERENCES

[1] G. Srivathsan, P. Garg, A. Bharambe, H. Varshney, and R. Bhaskaran, "A dialogue system for career counseling," Proceedings of the International Conference & Workshop on Emerging Trends in Technology - ICWET '11, 2011.

[2] Y. Cao and L. Zhang, "Research about the college students career counseling expert system based on agent," 2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC), 2011.

[3] Nikita Gorad, Ishani Zalte, Aishwarya Nandi, Deepali Nayak, career counselling using Data mining. IJESC.

[4] O. Alkan, E. M. Daly, A. Botea, A. N. Valente, and P. Pedemonte, "Where can my career take me?," Proceedings of the 24th International Conference on Intelligent User Interfaces, 2019.

[5] Crystal D'Mello, Rini Aranha, Boni Gregory, Varsha Shrivastava, "Online Career Guidance System" International Journal of Advanced Research in Computer Science and Software Engineering.

[6] Nita Andrea Mihaela, Lecturer, PhD, Ilie Goga Cristina, Assistant Prof., PhD, A research on the educational counselling and career guidance in Romania.

[7] R. Ravi, "Intelligent Chatbot for Easy Web-Analytics Insights," 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2018.

[8] A. M. Rahman, A. A. Mamun, and A. Islam, "Programming challenges of chatbot: Current and future prospective," 2017 IEEE Region 10 Humanitarian Technology Conference (R10-HTC), 2017.