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Career Prediction System

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ABSTRACT

Career selection is one of the important and difficult tasks as we all know that there are many different career opportunities and paths are available for students. So the situation of students is quite confusing during the selection of career. If the student
selects the right field of his choice then he can do study in that field more precisely. Wrong career selection which he or she does not likemay affect the low productivity of a student in that field and also may affect his professional life. This system is a web application that would use different data mining algorithms to help students to select for their appropriate career. Based on their interest and willingness to take up the course, the system would help students choose career option.

KEYWORDS

Career prediction System, Machine Learning Algorithm, Questionnaires set.

INTRODUCTION

As various domains are exploring and also research is increasing, a number of career opportunities are available in different domains. This creates more confusion in students to choose right career option. This may be due to unawareness about the fields that are available, not knowing his personal strength, less exposure, market situation, equal interest in multiple fields etc. There is a risk of choosing the wrong career path due to these confusions, and the effects of this may be anxiety, depression and poor work performance, and it could affect professional life. So there is a requirement of a system which will help students to make decisions while choosing theircareer option by taking all the necessary aspects into consideration.

Literature Review

[1] describes Best Career Options for Modern Society students using different analysis. They provide subjective as well as objective evaluation for opting individual career options and career-based sessions for future growth. Quantitative Research involves the gathering of knowledge on logical and problem solving and the use of numerical methods of analysis to draw evaluation conclusions. It includes tests, structural observations and examination. Qualitative measures refer to situational tests and behaving recording etc. They measure career acceptance of candidates by combining text algorithms and various item techniques. They have used text classification to provide more assured results and for increasing the efficiency of the system.

[2] discusses the system where they are going to help Final year CS students to select appropriate domains or fields after completing their engineering course. In this work, they are performing different data mining algorithms on dynamic data sets to check student vision based on factors like technical, interpersonal and academics. The motive behind this study is to predict the best career option for ongoing CS students by analyzing college Alumni information by taking different parameters into consideration. These parameters mostly underline professional skill, interpersonal skill and academic results for prediction study. Then prediction is done by analyzing data using classification algorithms. Fig.1 shows the steps they used to get information from alumni data.

[3]owing to the increasing career paths with diversified opportunities, choosing a suitable career has become the most important and crucial phase in life. So, they proposed that analytic would definitely help the students to select an institution and program or course in accordance to their field of interest, personality traits, mental ability. role in the education sector like counselling performs a major function. This system appends factors like 1. Student population 2. Seat filling by category 3. performance 4. Placements 5. NAAC 6. NBA. they differentiate two or more colleges with respect to performance and student-staff ratio, affiliations and student rating.

[4] The aim of this study is to improve student satisfaction with their course by taking parameters such as academic workload, readiness for students in topic selection. The study suggested what students are studying in universities and how it would be useful for their future. The application provides students with knowledge about their course and curriculum and raises awareness among students about the skills needed and the skills students should have forany specific work.

[5] It has been proposed that for proper counselling and for selection of courses in engineering institutions data mining is an effective tool. All further careers of a student only depend on the branch selection of the student while taking admission. If a student chooses any branch because of their parents' pressure or due to their friends' suggestions, then it is of no use. Based on student's interest, career goals and skills of students one must have to select a career. This application helps students to select branches as per their skills and interests. Decision trees are used for this classification and regression problems. This includes :1]data collection from professional survey. 2] This data from the survey is then used for making decision trees for choosing various courses. 3] Then the REP tree classifier algorithm was applied for the classification of students according to their skills and interests. The following diagram shows the information about student, choice of program and student's placement details.

[6] Where data storage is not feasible and more information is generated in that situation, the incremental learning algorithm is found to be a useful technique to provide students with the best career choices. The incremental learning algorithm is used in the event that the batch classifiers are of no use at that time. For future work, this algorithm uses data of various types such as web log, time series, multimedia purpose, and spatial since this data is like stream data. Data from students in the educational system is growing day by day,so incremental learning properties are essential for machine learning research. Various polling methods are used to merge voting with a weighted majority vote. In addition to these various important laws, there are to find the timeliness between the various mixing laws. The individual classifier and the collection of data used for that.

[7] To inspect course identification questions and address pieces, data mining is used. Classification is one of the most common application domains. The key task in classification is to assign a class mark from a set of possible class values to an unseen instance composed of a set of variables. Which is the most critical variable, differentiating " satisfactory " and " not satisfactory " tutor outputs based on the appreciation of students. These can be assistive detectors to enhance their efficiency. Questions and responses to course evaluations in higher education institutions are assessed by the efficacy of the detector and, of course, by various proportions. Such results can be used to enhance measuring instruments. There are four different classification techniques: (a) decision tree algorithms, (b) support vector machines, (c) artificial neural networks, (d) discriminant analysis. Data mining correctly distinguishes " satisfactory " and " not satisfactory " detector outputs. And there are seven distinct categorizations used. Via this prediction, the

usefulness of using data mining techniques in course assessment shows. In higher education mining, the efficacy and disclosure of data mining techniques, specifically decision tree algorithms, boosting, SVM, ANN, and DAA are provided over a dataset from daily life. For the classifiers, the understanding of the variable significant analysis is used, it is expressed that there are several potential areas of improvement in the nature of the measurement instruments. And a performance appraisal of the teacher was included in it.

[8] Pattern mode and Batch mode are used for fetching the data. In Data mining well developed technique is used i.e. pattern mode. Instead of batch learning mode, pattern mode learning is preferred. The psychological condition of the students analyzed by this system and suggest their career. In that for a career suggestion system and snapping of the node is based on information pick up the C4.5 algorithm is used. The system shows accuracy is up to 86% for the career data. The precision may vary relying on the data provided.

[9] Tanya V Yadalam et al. in this system, they used flask which is written in python and the forecast career of a student depends on the data and executes similarities between two vectors on that. To manage data in the format essential for similarities, use Pandas and NumPy files and use Pandas which is fast and for manipulation of data effective data frames is used. This system realizes the user area of interest and capabilities that makes relevant career ideas for users.
The structure provides extra capabilities to UG students. Users can lengthen their briefcase. Users can allow their estimation and observation to rely on their experience on various guidelines. For Engineering students this system is made, it can involve complementary streams like business and arts. By assigning codification, the user's profile can be managed in an extra assured way. By using Collaborative approach this system can be developed.

[10] Min Nie et al. It is said that to decide the career of a student is the pivotal role in anyone's life. For solving the post-graduation problem of students, the traditional machine learning method is limited. Based on student's behaviour and skills of student we can decide career choices of students. For improving the model several insights are offered. For getting a priori information from college a prototypical cluster centre generation approach is used. Examples in the same cluster have the same label as the motivation of cluster assumption. We have introduced a novel regularization item to bridge the gap between the real-world examples and prototypical cluster centers. The results of multiple experiments demonstrate that our approach is superior to other approaches to career choice prediction. In future studies, three directions can

be followed with interest. First Cluster Centers can be discovered in a more precise method. Our model can be extended from using only behavioural data to using multi modal data, such as adding school achievement and questionnaire data. It is meaningful to improve our model to not only predict career choices but also advise on career planning, such as advising on the coursesrequired.

ALGORITHM

Machine Learning Algorithms

The machine learning engine uses several algorithms to analyze user data and provide career recom mendations. This type of statistical model (also known as logit model) is often used for classification and predictive analytics. Logistic regression estimates the probability of an event occurring, such as voted or didn't vote, based on a given dataset of independent variables. Since the outcome is a proba- bility, the dependent variable is bounded between 0 and 1 In logistic regression, a logit transformation is applied on the odds that is, the probability of success divided by the probability of failure. This is also commonly known as the log odds, or the natural logarithm of odds, and this logistic function is represented by the following formulas

Logistic Regression $f(x) = \frac{L}{1+e^{-k(x-x_0)}}$

Logistic regression is a statistical model used to predict the probability of a binary outcome based on one or more predictor variables. It estimates the probability of a certain event occurring by fitting a logistic function to the data, which allows for the classification of new observations into one of two categories

Within machine learning, logistic regression belongs to the family of supervised machine learn- ing models. It is also considered a discriminative model, which means that it attempts to distinguish between classes (or categories). Unlike a generative algorithm, such as naïve bayes, it cannot, as the name implies, generate information, such as an image, of the class that it is trying to predict (eg. a picture of a cat)..

CONCLUSION

The aims of this study are to help students to select appropriate career options among all other available options. This shows that for selecting a career not only the personality trait of a student is important, but also the interest of the student and the capability of the student to take that course is also important. It will help not only for course but also list of colleges providing those courses and other necessary information about that course. Thus, the effort required to search the colleges will also reduce.

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