

Stream Analysis for Career Choice

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Abstract: Career choice has a pivotal role in college students' life planning. In today's world choosing the right career is the toughest decision. Today many students are confused about their future. They do possess some skills but they are not able to identify their abilities and a proper domain. Different people suggest different career options but at last, the student has to select their career. In this project, we have focused on this problem of the student using machine learning. With the help of machine learning, we will help the student to decide which is the best career option and domain for them using different machine learning techniques. The career is decided based on academic information filled by the student. This project will help the student to get directed towards a specific domain as per their skills.

I. INTRODUCTION

Career choice is a crucial decision for any individual as it determines their professional path and affects their overall life satisfaction. However, choosing a career path that aligns with one's interests, skills, and abilities can be a challenging task, given the vast array of options available.

To address this challenge, we propose the project "Stream Analysis for Career Choice." The project aims to assist students in selecting a suitable career stream based on their interests, skills, and abilities. The project involves the analysis of a large dataset containing information about various career streams according to their skills entered.

The project utilizes data mining techniques such as clustering and association rule mining to identify patterns and relationships among different career streams. The project also involves the development of a user-friendly web application that allows students to enter their interests, skills, and abilities and receive recommendations for suitable career streams.

The application makes use of machine learning algorithms such as the KNN algorithm to predict the most appropriate career streams for individual students. The system's accuracy is evaluated using various performance metrics, and feedback from users is used to improve the system's performance.

Overall, the project aims to provide students with a comprehensive and personalized approach to choosing a career path that aligns with their interests and abilities. The results of the project can be used to guide students in making informed decisions about their career paths, ultimately leading to a more fulfilling and successful professional life.

II. PROBLEM STATEMENT

To design and develop an application which will help a student to pick the right career choice based on their interest and skill.

III. LITERATURE SURVEY

[1]S. Dolhopolov, T. Honcharenko, S. A. Dolhopolova, O. Riabchun, M. Delembovskyi and O. Omelianenko, "Use of Artificial Intelligence Systems for Determining the Career Guidance of Future University Student," This study is devoted to solve the problem of determining the career guidance of future university student using artificial intelligence systems. It is proposed Fully Connected Feed- Forward Neural Network (FNN) architecture and performed empirical modeling to create a Data Set. Model of artificial intelligence system allows evaluating the processes in an FNN during the execution of multi-label classification of professional areas. A method has been developed for the training process of a machine learning model, which reflects the internal connections between the components of an artificial intelligence system that allow it to "learn" from training data. To train the neural network, a data set of 29 input parameters and 23 output parameters was used; the amount of data in the set is 936 data lines. The software product was developed by Python and uses Keras, Numpy and Pandas libraries

[2]J. R. D. Atienza, R. M. Hernandez, R. L. Castillo, N. M. De Jesus and L. J. E. Buenas, "A Deep Neural Network in a Web-based Career Track Recommender System for Lower Secondary Education," In this paper, web-based career track recommender system was used to guide guidance counselor in assisting their students in choosing an appropriate careertrack. Many junior high school students struggled with track uncertainty and were perplexed when it came to deciding whether senior high school career track was appropriate and suitable for them. Increased in drop-out rate is also a bigger concern in the country, and students switching to another program can be a waste of government funds intended for free tuition at state universities.

Given the current state of K- 12 evaluation, adequate counseling of guidance counselor in the selection of relevant career tracks should be undertaken. This study included 1500 students from the first to third grades of the K-12 curriculum, and their grades and socio- demographic profiles were used as factors in determining their academic strand in Senior High School with the utilization of Deep Neural Network. The study's findings suggest that the DNN algorithm predicts the academic strand of students quite well with a prediction accuracy of 83.11%. Using the devised approach, guidance counselors' work became more efficient in dealing with student concerns. With the use of the DNN technique, it is concluded that the recommender system acts as a decision tool for counselors in advising their students to select which Senior High School track is appropriate for them. The web- based career track recommender system has effectively integrated the DNN predictive model.

[3]L. Wang and Y. Bai, "Research on Career Guidance Course System based on Apriori Algorithm and Computer Big Data," The article applies the Apriori algorithm in data mining technology, takes university employment history data as the research object, and takes the student employment guidance as the research purpose. Through the mining of university employment data, it finds the internal factors that affect the employment of students, and discovers the education attributes and education attributes of students. The correlation between employment attributes. Through the actual test of the optimization algorithm, the generation of a large number of meaningless association rules can be avoided and the mining efficiency can be improved.

[4]D. Srinivasan, A. Uthayakumar, P. Thiyagalingam, S. Ravindran, H. De Silva and D. Kasthururarthna, "Escort - Natural Language Processing Based University Students Guidance System," This paper proposes an approach to overcome these issues. With the help of Natural Language Processing (NLP), in this paper, several solutions are recommended for the mentioned issues. First, a chatbot helps to communicate with the university administration, where students can ask relevant administrative-related questions. A recommendation system is developed to provide solutions for their psychological issues. Another recommendation system is built for career guidance which will help students to identify the future career of their interest, and the provided mentors will be able to guide them. Another recommendation system identifies the performance of students in each module according to their performance level. The system recommends learning materials to improve their level. With these components, ESCORT – A university students' guidance system, will make students' life easier and more efficient.

IV. OBJECTIVES

- To develop a web application that can analyze large datasets of career information and provide personalized recommendations to students based on their skills.
- To provide students with accurate and reliable information about various career streams, including job roles.
- To help students identify their strengths and interests and guide them towards a career path.
- To provide a Knowledge Network page to show the description of all the suitable positions.
- To provide a platform for courses according to their interests.

V. FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

A. Functional Requirements

User Registration: The system should allow users to create accounts and provide their personal information, including their interests and skills.

Career Choice: Student should select their skills and interests to analyze their career path.

Career Stream Analysis: The system should analyze large datasets of career information and recommend suitable career streams based on the user's interests, skills, and abilities.

Courses: The system should provide all types of courses to skill up student skills.

Knowledge Network: The system should provide an interface to show descriptions of all the roles.

B. Non-Functional Requirements

Portability: The system can run on different platforms with minimal changes.

Security: The system is secure from unauthorized access.

Maintainability: The system is easy to maintain and update.

Reliability: The system is reliable and meet the requirements of the user.

Scalability: The system is able to scale up or down as needed.

Performance: The system is able to handle the required number of users without any degradation in performance.

VI.HARDWARE USED

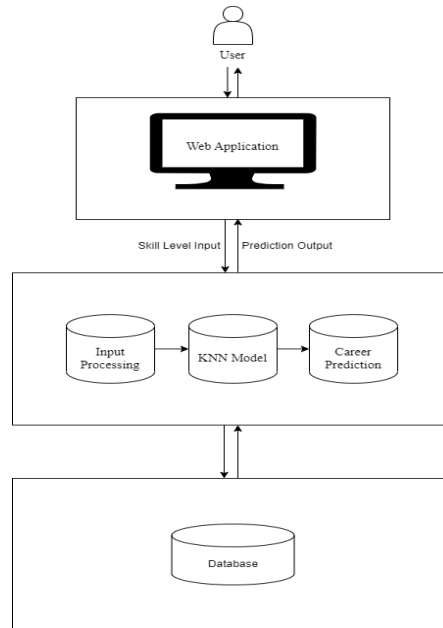
- RAM: 8GB
- Processor:2.5ghz, i5
- Hard disk drive: 500GB
- Input: Keyboard
- Monitor: LCD

VII.SOFTWARE USED

- Operating System: Windows 10
- Languages: Python 3.0, Flask framework, HTML, CSS, JavaScript, PHP.
- Tools: XAMPP

VIII.SYSTEM ARCHITECTURE

The conceptual model, often known as the system architecture, of a system determines its structure, behavior, and other characteristics. An architecture description is a formal description and representation of a system that is constructed to make it easier to analyze its structures and behaviors.



IX.SCOPE

The scope of the proposed system is used to predict the interests and provide a roadmap to excel in the field. The application is limited to the users who have registered into the application and is suitable to BE undergraduate students.

X.CONCLUSION

“Stream Analysis for Career Choice” is a powerful system that enables students and job seekers to input their preferences, interests, and skills and use machine learning algorithms to predict their preferred career streams. The system recommends relevant courses and degrees and helps users make informed decisions about their future by providing personalized career recommendations.

The system has the potential to revolutionize the way people make career choices and benefit both individuals and organizations by providing valuable insights into the demand for different careers and the skills required to succeed in those careers.

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