Career Guidance Application using Web Scraping

Ranjani. R[1], Akshaya. K[2], Ms. M. Sirija[3], Mrs. Reena. R[4]

Students, Department of Computer Science Engineering[1,2]
Assistant Professor, Department of Computer Science Engineering[3]
Associate Professor, Department of Computer Science and Engineering[4]
Prince Shri Venkateshwara Padmavathy Engineering College, Chennai, Tamil Nadu, India
ranjaniramanathan11@gmail.com, akshaya010101@gmail.com, sirijamurugesan95@gmail.com

Abstract: *In today's society, finding the ideal career is critical. For the pupils, it is a highly confusing and demanding work. When deciding on a career, one should consider their talents, areas of interest, abilities, and capacities. This is not as easy as it seems, because most students struggle with settling on a job. We now have online advisers to help us navigate websites thanks to technological advancements. The proposed application students to the appropriate route by utilising collected data from many career counselling websites via Web Scraping. We use the data acquired to conduct data mining algorithms to estimate the scope of all professions, which serves as the database for the app, which is created entirely in Android studio. Thus, Our application forecasts the future scope of all courses and recommends the best way to further their career.*

Keywords: Web Scraping, Data Mining, Career advancement, Database, Career Prediction

I. INTRODUCTION

Choosing a job is not always a simple undertaking for students, especially when the decision must be made based on various variables and at a young age. This critical choice influences not only the academic and professional lives of students, but also the effectiveness of educational institutions. In reality, poor educational or professional advice may be at the root of a variety of educational and social issues, including school failure, dropout from school, a lack of skills, integration challenges, unemployment, and so on.

Career advancement is a never-ending process. Your professional development is influenced by your interests, talents, values, personality, history, and circumstances. Career guidance can assist you in getting to know and understand yourself as well as the workplace so that you may make informed career, educational, and life decisions. Career guidance is a service offered by a school to assist students in making wise decisions and adjustments in order to maximise their potential as individuals and contributors to society. It is a method of assisting a person in realising and developing their occupational, educational, and psychological potential while also attaining the maximum level of personal satisfaction and society utility. Career Guidance is a combination of services that assist people in effectively managing their career planning and growth.

Our application allows students to learn more about a certain career option. We start by scraping data from several websites. The scraped data is then analysed using data mining methods, which provides us with a precise future scope for each and every job. The analysed data is loaded into a database of the application and shown to the user via the mobile app. For enhanced visual inspection, our app also provides a graphical depiction.

II. EXISTING SYSTEM

The current system entails one-on-one counselling or written instructions. This has a number of disadvantages, including decreased accuracy, counsellor availability, and so on. There are also certain websites that lead kids only primarily on their academic grades, disregarding their abilities and hobbies. Counsellors and career counselling websites demand exorbitant prices for their services, which are out of reach for the majority of the population. Many websites have confusing user interfaces that are difficult to navigate. There are also no Android applications available that give accurate information on the future scope of various sectors/domains.

The existing system displays many fields accessible for graduation after 12th grade, as well as fields available after graduation. It also provides a list of institutions where students may look for universities based on their course requirements. The system then allows users to take a test. It's actually a set of tests that cover a wide range of topics. Each

test is given a score when it has been completed. The system manipulates and determines the optimal career for that person based on those outcomes. This result is then sent to the user through email. The aptitude ratings show the student's particular abilities. Counsellors use the same strategy to advise pupils on their future plans. Counsellors are not always devoted and might be difficult to reach.

III. PROPOSED SYSTEM

The suggested solution is an Android application that informs pupils about the numerous job options available to them. We will leverage sophisticated technologies like web scraping and Android application development in the suggested solution. We will first scrape data from the most popular career counselling websites, and then use data mining algorithms to filter and organize the information. The Android application is built on top of this sorted data. The application consists of four sections. They are:

- To aid Grade X students in making decisions about their post-secondary studies.
- To assist students in Grade XII in learning about the many courses offered in order to aid them in choosing a profession.
- Encourage graduates to explore post-secondary education possibilities.
- In general, about the various job opportunities.

This application is based on the most important jobs that will be forthcoming in the next years. The user can choose a job and explore options based on his or her hobbies and course of study
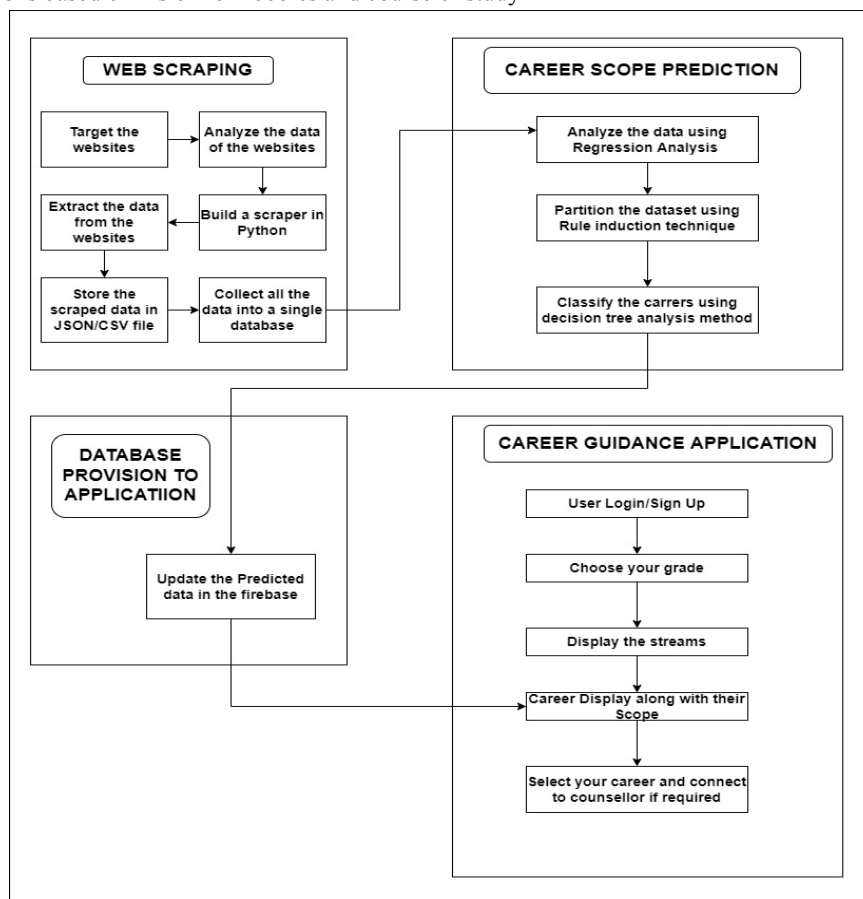

Fig 1.System Architecture

IV. MODULE DESCRIPTION

The proposed application has three main modules. They are

- Web Scraping
- Career scope Prediction
- Database Provision to Application

MODULE 1: Web Scraping

Web scraping is a method of extracting vast volumes of information from several websites. Scraping is the process of extracting data from another source (webpages) and storing it to a local file. The process of obtaining unstructured data from webpages is known as web scraping. It aids in the collection and conversion of unstructured data into an organised format.

The method starts by cycling over the search results for n pages of career counselling websites. Following that, all of the pages that fit the criteria are looped and kept separately. Data is scraped from every single webpage and stored in a database (such as a CSV file, Excel sheet, etc.).

Fig 2. Web Scraping Process
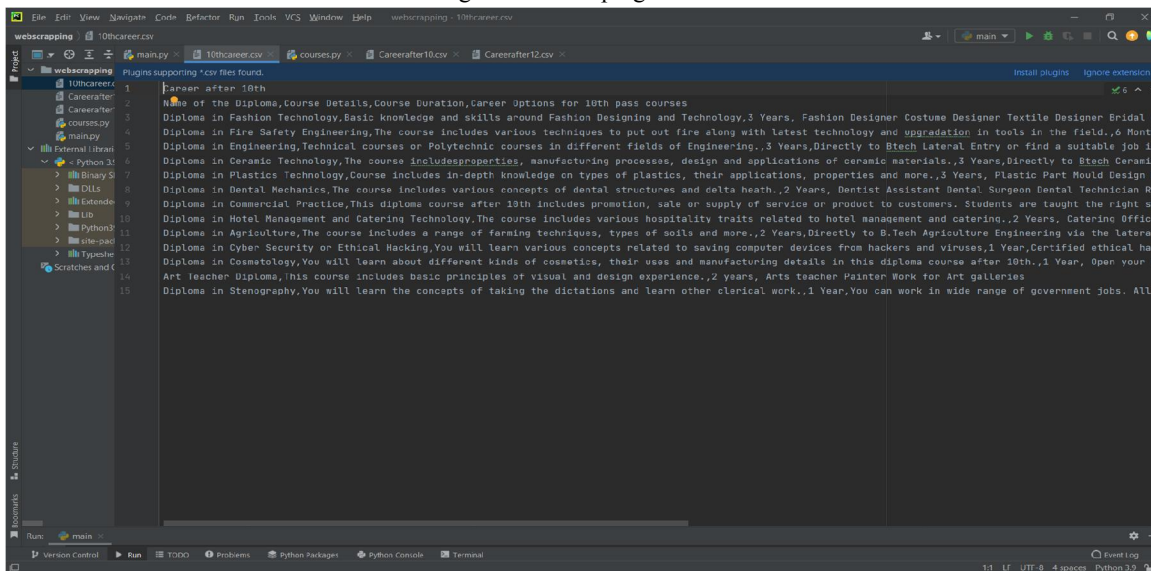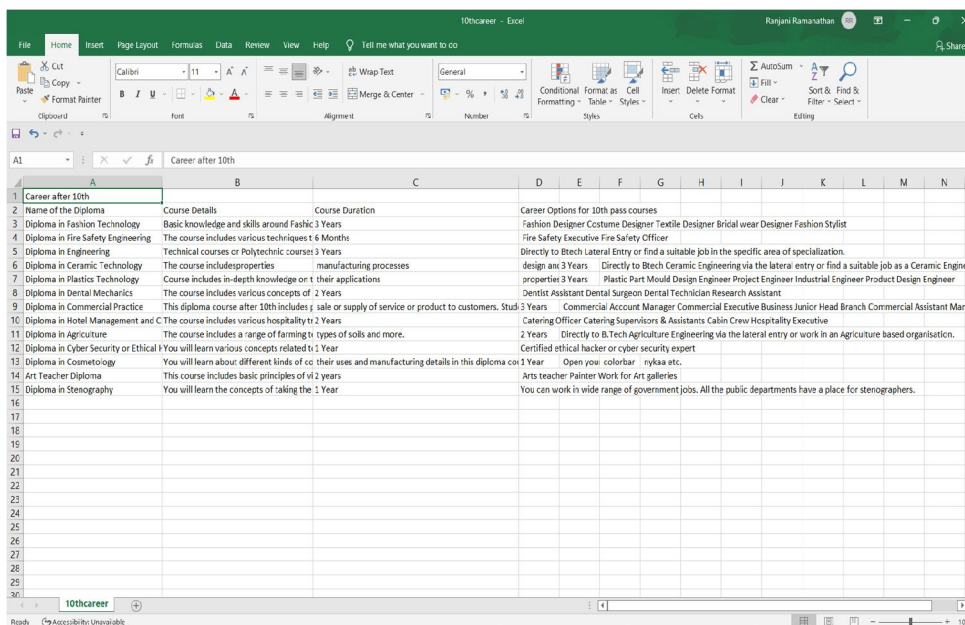
Fig 3.Web Scraped Data using Pycharm

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Fig 4.Scraped Data in CSV file format

MODULE 2: Career Scope Prediction

The extraction of fresh knowledge from massive datasets is known as data mining. In this rapidly developing sector, a variety of methodologies are now being applied, including statistical analysis and machine learning-based approaches. New technology and applications are constantly emerging in this sector, thanks to the rapid expansion of the World Wide Web and the rapid growth of unstructured databases.

Data mining is a technique for dealing with large volumes of data that are dispersed across several sites. The quantity of data that can be stored can rapidly surpass the terabyte limit. Data mining is a computationally expensive technique that uses a significant amount of data. To achieve acceptable time and space performance, it is usually required to split and distribute the data for parallel processing.

Predictive data mining techniques are employed in the proposed system to determine the future scope of vocations. Some data mining techniques, such as regression analysis, rule induction, and decision trees, are used with the scraped data. Regression analysis is a statistical approach for predicting/forecasting the values of a career (dependent variable) given certain parameters such as availability, scope, and so on (independent variables). Following that, rule induction creates formal rules based on the collection of observations. The extracted rules indicate either a scientific model of the data or local patterns in the data. Finally, decision tree analysis aids in the selection of a course of action as well as the exploration of various outcomes.
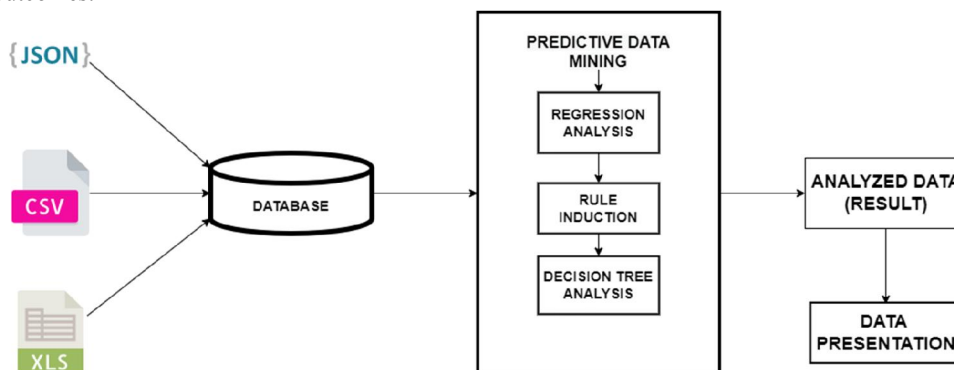

Fig 5. Career Scope Prediction Process

MODULE 3: Database Provision to Application

Finally, the analysed data is directly loaded into the application's database. This classified data will be used by the career counselling application to show the user the breadth of each and every career.

Students will have simple access to the information they need with the proposed Online Career Guidance Application named Bavishya. It will walk students through the process and connect them to trusted resources. Students will also be able to gather all of the information they require and save it in an easily accessible way. The different modules of the application are:

1. Login Module
2. Main page Module
3. Career Display Module
4. Information display Module
5. Connect to Counsellor

Login Module: The user's information is collected via the login module. The user is led to the registration page if they are new to the applications. The user must register by providing their name, phone number, email address, username, and password. If the user already has an account, they will be asked to enter their username and password. The information is verified by comparing it to the database. The user can continue to use the programme if the data they submitted is valid.
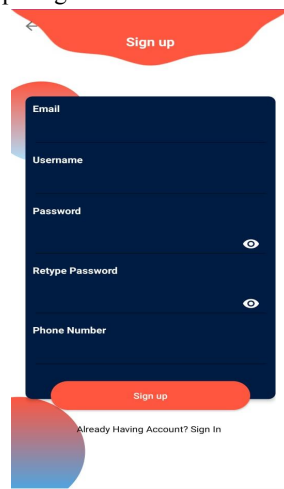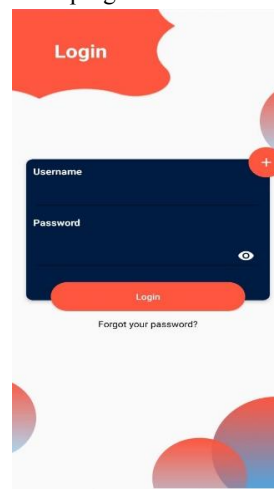

Fig 6.Sigup Page

Fig 7.Login Page

Main Page Module: The user can choose the module for their future,i.e they have to choose whether they are looking out for the careers after 10th/12th/UG/PG
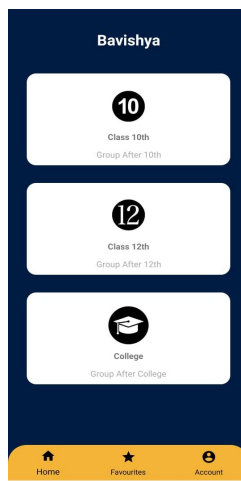

Fig 8.Main Page

Career Display Module: This page outlines all of the professional options accessible across the world. It also represents the potential of each and every profession in the future. Furthermore, it reveals the top vocations with the most potential over a lengthy period of time. The user may learn about many profession options and select the best one for them to live a secure life.

Information display Module: The whole information for the chosen career will be presented, as well as certain details such as where to pursue the course, how to access it, and so on. On this page, you will find a detailed description of each career.

Connect to Counsellor: The user can further connect to the counsellor if required through this page.
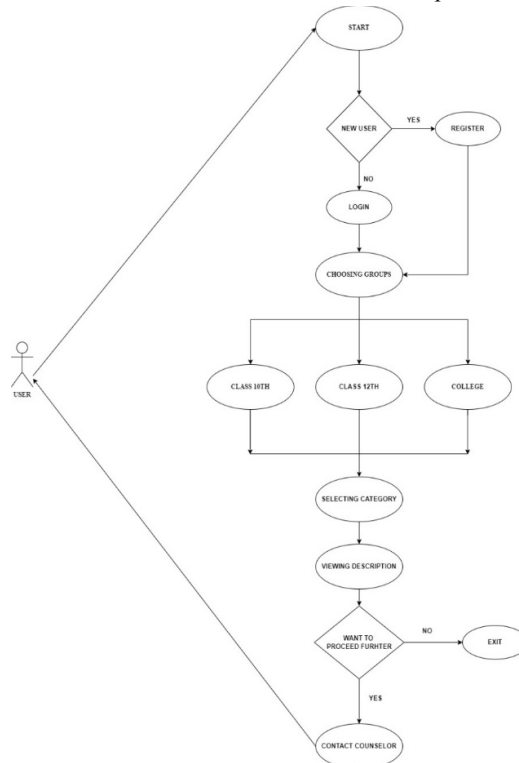

Fig 9. Application Process

V. CONCLUSION

The bright future of a student is critical to the country's progress. This is why we try to propose a methodology for leading students to the most appropriate professional career route in this research. Technology opens up a world of possibilities, and many students may take use of it to choose a vocation that is more suited to their abilities. To create an effective online career counselling system, certain obstacles in manual career guidance systems have been identified. The implementation of this method will assist young people in selecting the appropriate professional route for them. This application will meet the demand for quick and dependable access to the information needed to make the best career decision. It may also be used as a career supplement, as a guide, and as a counsellor. This programme will recommend a number of career possibilities and work prospects in order to influence the student's career architecture.

VI. FUTURE SCOPE

The application would be updated in a future version by adding other capabilities such as connecting to the appropriate institution for the user's chosen field and finishing the admission process. It will also assist the user in their future studies by providing the most up-to-date information.

REFERENCES

[1]. R. S. Chaulagain, S. Pandey, S. R. Basnet and S. Shakya, "Cloud Based Web Scraping for Big Data Applications," 2017 IEEE International Conference on Smart Cloud (SmartCloud), 2017, pp. 138-143, doi: 10.1109/SmartCloud.2017.28.

[2]. V. D. Kamath, A. Meher, V. Vidhya and S. Deepthi, "An Android based Mobile Application for Career Guidance," 2018 Second International Conference on Inventive Communication and Computational Technologies (ICICCT), 2018, pp. 854-860, doi: 10.1109/ICICCT.2018.8473128.

[3]. Rucha Ghatugade, Gauri Chormunge, Vyas Kumar, Rupali Nikhare," Web based Career Guidance System", IRJET 2021

[4]. Lakshmi prasanna, 2DR.D.Haritha, "Smart Career Guidance and Recommendation System", IJEDR 2019.

[5]. Phagwat, Shraddha Dethe, Sunny Chavan, "Career Guidance System using Machine Learning For Engineering", rof. Ranjan Singh, Ronit Pandita, Kaushik Kalyanaraman, Gursimran Singh Chhabra, "Career Guidance System",International Journal of Advanced Research in Computer and Communication Engineering IJARCCE, Vol 7, February 2018

[6]. Shweta Kolekar, Mansi Surve, Pallavi Redkar, Sachin Bojewar, "A Review:E-Counseling", International Journal of Scientific Research in Computer Science, Engineering and InformationTechnology, IJSRCSEIT, Volume 3, Issue 3, ISSN : 2456-3307, 2018

[7]. Rucha Rangnekar, Khyati Pradeep Suratwala, Sanjana Krishna,Dr. Sudhir Dhage, "Career Prediction Model Using Data Mining And Linear Classification", IEEE2018.

[8]. Kazi Fakir Mohammed, Sushopti Gawade, Vinit Nimkar, "Online Career Counseling System using Adaptive e-Learning", Proceeding International conference on Recent Innovations is Signal Processing and Embedded Systems (RISE -2017), October 2017.

[9]. Prof. Seema K. Yadav, Mr. Sujit J. Singh, Mr. Akshay M. Bora, Mr. Shashankit N. Thakur, "Educational Recommendation and Tracking System",International Journal of Scientific & Engineering Research, Volume 7, Issue 11, 1443 ISSN 2229-5518, November-2016.

[10]. Vishal Bende, Prachi Erande, Priyanka Jore, Ankita Bhor, Ms.Dumbre, "ONLINE CAREER GUIDANCE SYSTEM", INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY, February 2016.