

Career Planning HUB Using Artificial Intelligence

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Abstract-- The Career Planning Hub chatbot, powered by Convolutional Neural Network (CNN) algorithms, offers personalized guidance to individuals navigating educational and career decisions post-10th and post-12th grade. Beyond suggesting government exams or assisting in selecting 11th-grade streams like biology or computer science for 10th-grade completers, the chatbot provides comprehensive insights. It assesses users' interests and aptitudes to recommend suitable career paths within these streams. Furthermore, for individuals who did not pass the 10th grade, the chatbot extends its support by suggesting vocational training programs and apprenticeships in addition to ITI programs. Upon successful completion of the 12th grade, the chatbot doesn't merely suggest colleges and departments but also offers insights into specialized courses, internships, and scholarships aligned with the user's interests. Moreover, the chatbot's functionality extends to providing guidance on entrance exams, fostering holistic career development. By leveraging CNN algorithms, the Career Planning Hub chatbot aims to not only streamline career planning but also to empower users with actionable insights, enabling them to make informed decisions and embark on fulfilling career paths.

Keywords- Job recommender system, learning path recommender, deep neural networks, natural language processing.

INTRODUCTION

In an era characterized by the intricacies of the educational landscape, the Career Planning Hub chatbot stands out as a valuable resource for individuals navigating the post-10th and post-12th grade transitions. Leveraging the advanced capabilities of CNN algorithms, the chatbot customizes its recommendations to align with users' unique academic backgrounds.

A. GENERAL INTRODUCTION:

In addition to offering personalized guidance on academic streams, institutions, and government exams, the chatbot serves as a catalyst for informed decision-making, empowering users to embark confidently on their educational journey. Moreover, the chatbot facilitates access to a wealth of resources and support services, further enhancing its utility as a comprehensive educational companion. Through its user-centric approach and innovative functionalities, the Career Planning Hub chatbot aims to redefine the educational

guidance experience, equipping individuals with the tools they need to thrive in today's dynamic educational landscape. Students in developing countries primarily rely on advice from friends and family, who base their recommendations on personal experience that takes into account the student's unique qualities and abilities. In contrast, schools have advisors who are qualified and trained to assess students' academic and personal profiles and assist them in selecting the best career path. For instance, in Palestine, the educational system has made very little progress in terms of offering students personal guidance and support because of the unstable political and economic environment.

A. PROBLEM BACKGROUND:

Achieving career planning success might be difficult given the complexity of today's dynamic and competitive employment market. Finding acceptable career pathways, picking the necessary skills, and making well-informed judgments about their professional destiny are tasks that many people find difficult. The idea of a career guidance system becomes apparent as a crucial tool to

solve these issues and enable people to thrive in their industries.

Professionals at different phases of their career development journey might benefit from the systematic and all-encompassing approach of a career guidance system. It includes an extensive array of tools, resources, and support systems designed to assist people in selecting a career path, establishing realistic objectives.

know-how and abilities needed to succeed in their chosen industries. Fundamentally, the goal of a career planning hub is to give people the direction, knowledge, and tools they need to choose their professional routes. In order to achieve long-term job success, it acknowledges the significance of self-awareness, curiosity, and continual learning. A use case diagram for the project is could depict the various interactions and functionalities involved.

PROBLEM STATEMENT:

Advanced Convolutional Neural Network (CNN) algorithms, the chatbot leverages user data to tailor recommendations and provide insights that align with users' interests and aspirations. Additionally, the chatbot integrates a vast database of educational institutions, vocational training programs, internships, and scholarships, ensuring users have access to relevant information at their fingertips. Currently, many individuals face challenges in navigating their educational and career paths. People can learn more about their preferences, personality traits, strengths, and shortcomings by taking a variety of standardized tests and assessments. Aptitude exams, personality tests, interest inventories, and skills tests are some of these evaluations. To aid with career planning and development, a large variety of online tools and resources are available. Professional networking sites, job search platforms, CV builders, career assessment tools, and career exploration websites are a few examples of these.

Lack of personalization: Existing systems often provide generic recommendations that may not align with users' unique interests and aspirations.

Limited accessibility: Users may struggle to access relevant information about educational and career opportunities, leading to confusion and uncertainty.

Inefficient decision-making: Without tailored guidance, individuals may struggle to make informed decisions about their educational and career paths, resulting in Academic institutions frequently engage in partnerships with businesses and employers to offer

mentorship programs, internships, and experiential learning opportunities. Students enrolled in these programs gain invaluable practical experience, exposure to real-world work settings, and networking possibilities suboptimal outcomes.

B. RESEARCH OBJECTIVE:

The proposed Career Planning Hub chatbot aims to address the limitations of existing systems by offering personalized, comprehensive, and accessible guidance to individuals post-10th and 12th students Personalized guidance: The chatbot offers tailored recommendations based on users' interests and aptitudes, ensuring relevance and effectiveness. Comprehensive support: Users receive guidance across all aspects of career planning, including educational opportunities, vocational training programs, internships, scholarships, entrance exams, and interview preparation. The chatbot provides an easy access to a wealth of information, enabling users to make informed decisions about their educational and career paths. It can handle multiple conversations simultaneously.

E. SCOPE OF STUDY:

The scope of the Career Planning Hub project includes the development of a CNN-powered chatbot interface catering to individual's post-10th and post-12th grade. The chatbot offers personalized recommendations for academic streams, institutions, and government exams based on users' academic standing. Additionally, the project involves database integration and user interface design to enhance user experience and effectiveness.

I. LITERATURE SURVEY

Paper [1] TITLE: The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World: A Systematic Literature Review *AUTHOR:* Fernando Almeida, Jose Duarte Santos, Jose Augusto Monteiro: *IEEE YEAR:* 2020 *CONTEXT:* COVID-19 has caused dramatic effects on the world economy, business activities, and people. But digitization is also helping many companies to adapt and overcome the current situation caused by COVID-19. The growth in the use of technology in the daily lives of people and companies to face this exceptional situation is an evidence of the digital acceleration process. This exploratory study analyzes the impact of digital transformation processes in three business areas: labor and social relations, marketing and sales, and technology. The impact of digitalization is expected to be transversal to each area and will encourage the emergence of new digital products and

services based on the principle of flexibility. Additionally, new ways of working will foster the demand for new talent regardless of people's geographical location. Moreover, cybersecurity and privacy will become two key elements that will support the integrated development of the Internet of Things technology solutions, artificial intelligence, big data, and robotics.

Paper [2] TITLE: Interactive Visual Exploration of Longitudinal Historical Career Mobility Data AUTHOR: Yifang Wang , Hongye Liang, Xinhuan Shu , Jiachen Wang , Ke Xu, Zikun Deng , Cameron Campbell , Bijia Chen , Yingcai Wu , and Huamin Qu PUBLISHER: IEEE YEAR: 2020 CONTEXT: — The increased availability of quantitative historical datasets has provided new research opportunities for multiple disciplines in social science. In this article, we work closely with the constructors of a new dataset, CGED-Q (China Government Employee Database-Qing), that records the career trajectories of over 340,000 government officials in the Qing bureaucracy in China from 1760 to 1912. We use these data to study career mobility from a historical perspective and understand social mobility and inequality. However, existing statistical approaches are inadequate for analysing career mobility in this historical dataset with its fine-grained attributes and long-time span, since they are mostly hypothesis-driven and require substantial effort. We propose Career Lens, an interactive visual analytics system for assisting experts in exploring, understanding, and reasoning from historical career data. With Career Lens, experts examine mobility patterns in three levels-of-detail, namely, the macro-level providing a summary of overall mobility, the meso-level extracting latent group mobility patterns, and the micro-level revealing social relationships of individuals. We demonstrate the effectiveness and usability of Career Lens through two case studies and receive encouraging feedback from follow-up interviews with domain experts.

Paper [3] TITLE: Personalized Career-Path Recommender System for Engineering Students AUTHOR: Manar Qamhieh, (Member, IEEE), Haya Sammaneh , And Mona Nabil Demaidi PUBLISHER: IEEE YEAR: 2020 CONTEXT: . Choosing a university specialization is a challenging decision for high-school students. Due to the lack of guidance and limited online resources, students base their decisions on subjective perceptions of family and friends. This increases the risk of high university dropout rates, and students changing their university disciplines. To address the aforementioned drawbacks, this research paper presents a Personalized Career-path Recommender System (PCRS) to provide guidance and

help high school students choose engineering discipline. The design of PCRS is based on fuzzy intelligence of N-layered architecture and uses students' academic performance, personality type, and extra-curricular skills. The association between personality type and engineering discipline was built using a sample of 1250 engineering students enrolled in seven engineering disciplines at An-Najah National University. PCRS is implemented as a mobile application and it is tested against an evaluation sample of 177 engineers. The sample consists of graduate or undergraduate engineers who are satisfied with their engineering disciplines. The evaluation examined the agreement between the recommendations generated by PCRS and the 177 actual engineering discipline of the sample. The evaluation results proved a slight agreement between the suggested recommendations of PCRS and the actual discipline of the research sample. Hence, PCRS is capable of providing guidance to high-school students who are interested in pursuing their studies in Engineering.

III. SYSTEM DESIGN

A. Block Diagram

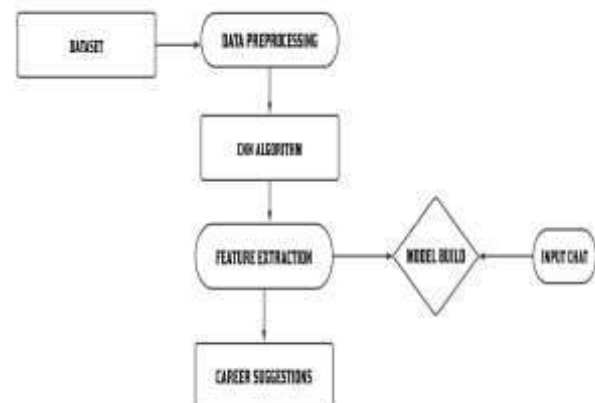


Figure 3.A Block Diagram

Architecture diagram

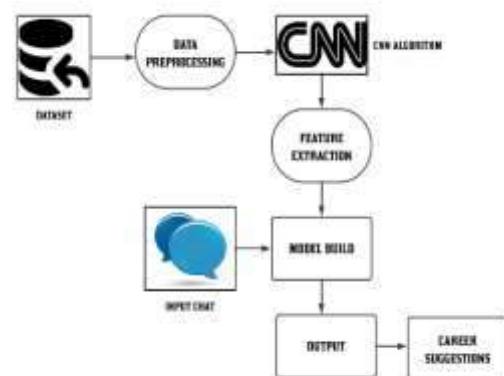


Figure 3.B Architecture Diagram

IV. RESULT

A. Login Page



Figure: 4.A Login page

B. Home Page

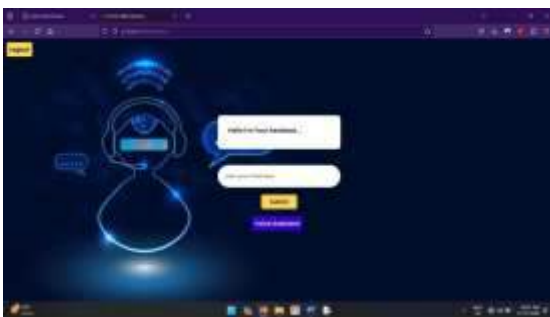


Figure: 4.B Home Page

C. Initialize

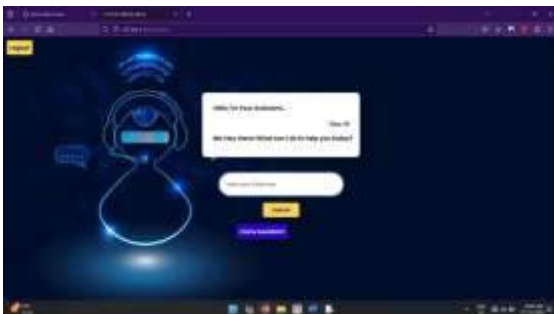


Figure: 4.C Initialize

D. Getting Reply from the Assistant



Figure: 4.D Getting Reply from the Assistant

E. SPEECH ⇔ TEXT CONVERSION



Figure: 4.E SPEECH to TEXT CONVERSION

V. CONCLUSION

Throughout this project, we have witnessed the transformative potential of leveraging advanced technologies to streamline the career planning process and empower individuals to make informed decisions about their future. By providing comprehensive guidance on academic streams, vocational training programs, colleges, internships, scholarships, and government exams, the chatbot serves as a valuable resource for users seeking clarity and direction in their educational and career pursuits. Moreover, the development of the Career Planning Hub chatbot underscores our commitment to democratizing access to educational and career opportunities. By harnessing the power of technology, we aim to ensure that every individual, regardless of their background or circumstances, has the tools and resources they need to achieve their full potential and embark on a path of lifelong learning and growth.

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