

Chapter 11

AI-Based Career Counseling Chatbot for Secondary- Level Students

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ABSTRACT

Making a career selection may be a complex process, and many students struggle to choose a route that fits their interests, skills, and personality. Creating a career path requires careful consideration of these factors, and career coaching done in the old-fashioned manual way is ineffective. This study suggests a paradigm change that would use an AI-driven chatbot career advising system created especially for secondary school pupils. This cutting-edge technology, which uses machine learning, carefully examines users' personalities, interests, and talents in addition to incorporating up-to-date job market data to provide customized career recommendations. Above and beyond simple directions, the chatbot actively assists users in refining their abilities, guaranteeing a smooth transition into the careers of their choice. The ethical aspect of this investigation is essential, as it addresses certain worries and issues related to AI-driven career guidance. User testimonials highlight the system's effectiveness and its critical role in promoting informed career decisions.

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INTRODUCTION

The emergence of Artificial Intelligence (AI) has significantly altered the educational environment and given rise to new approaches to career counseling. In the framework of secondary education, career counseling is crucial as students approach important choices affecting their future academic and professional trajectories. By offering tailored career advice and utilizing machine learning algorithms to comprehend the student's personality, talents, academic ability, and job preferences, AI technology can dramatically improve this mentoring. The chatbot can aid students in selecting viable career pathways associated with their abilities, interests, and aspirations by integrating these insights and applying a machine learning-powered decision-making mechanism.

The login or sign-up process for counseling is the first step in the suggested chatbot's structured approach. The student is then included in an interactive session where machine learning algorithms are used to identify their personality traits, gauge their aptitude and talents, assess their academic knowledge, and determine their job inclinations. Machine learning, which uses specific APIs and models to assess the data and create a personalized career plan for the student, is essential to the synthesis of this information. The goal of this research is to use machine learning to enable secondary school students to make wise decisions regarding their future educational and professional paths. The chatbot intends to aid informed career decisions by integrating AI skills with machine learning expertise, ultimately raising a generation of professionals who are capable of excelling in their chosen industries.

Motivation and Problem Definition

This study is driven by the urgent need to use AI's transformative potential to improve secondary school students' career advising. Students now have a wide range of professional options as the educational landscape changes, which makes making well-informed decisions more difficult. It can be difficult for traditional job counseling methods to offer timely, individualized advice. Students may also be reluctant to speak openly about their hobbies and skills in face-to-face conversations. By utilizing AI to build a chatbot that engages students in a more comfortable and engaged way, this research solves these issues and enables a thorough assessment of their personality, talents, academic proficiency, and career aspirations. The objective is to get over the constraints of conventional career counseling by giving students individualized recommendations and enabling them to choose rewarding career options in line with their special qualities and aspirations.

Challenges

- **Diverse Career Landscape:** Secondary-level students may find it difficult to navigate the vast selection of career opportunities that are accessible to them, demanding individualized help to make decisions.
- **Limitations of Traditional Approaches:** Time, money, and the capacity to provide each student individualized attention may be barriers to traditional face-to-face counseling approaches.
- **Reluctance and Openness:** Due to shyness, fear, or privacy concerns, students may be hesitant to freely discuss their personality traits, skills, or academic issues in face-to-face conversations, which could compromise the accuracy of assistance.

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