

AI Based Profession and Academics Advisor System

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Abstract: Artificial Intelligence (AI) is transforming the educational and career guidance sector by providing intelligent and personalized recommendations. Traditional academic advising systems are often manual, time-consuming, and unable to provide customized guidance to students. The AI-Based Profession and Academic Adviser System uses Machine Learning (ML), Natural Language Processing (NLP), and recommendation algorithms to analyse student interests, academic performance, skills, and career goals. The system provides suitable academic and professional recommendations that help students make better career decisions. AI-driven advising systems are becoming increasingly important in higher education because they improve accessibility, efficiency, and student success

Keywords: AI Based Profession and Academics Advisor System

I. INTRODUCTION

Selecting an appropriate profession and academic path is one of the most important decisions in a student's life. Many students face confusion while choosing academic courses, skills, and career opportunities due to lack of proper guidance. Traditional counselling systems depend heavily on human advisors and may not always provide personalized recommendations. Artificial Intelligence provides a smart solution to this problem by analysing student data and generating intelligent suggestions. AI-based advising systems can identify student strengths, weaknesses, interests, and aptitude using data analysis and predictive models. The proposed system provides personalized academic and career recommendations using AI technologies.

Every operating system, network appliance, and server continuously generates event records documenting logins, service requests, errors, and administrative actions. These records—collectively referred to as system logs—form an indispensable audit trail that allows security engineers and system administrators to reconstruct activity sequences, diagnose failures, and identify intrusion attempts. In well-connected enterprise environments this function is commonly delegated to cloud-hosted Security Information and Event Management (SIEM) platforms that aggregate, correlate, and visualise log streams in near real-time.

However, a significant class of infrastructure cannot and should not connect to external networks. Military command systems, nuclear facility controllers, classified government databases, and high-security research laboratories deliberately operate in isolation—a configuration known as an air-gap. The security benefit of disconnection is clear: no outbound channel exists for exfiltration, and no inbound channel exists for remote exploitation. The operational drawback is equally clear: none of the cloud-based monitoring tools that modern security teams rely upon can be deployed in such environments. It also supports chatbot interaction for real-time communication and guidance

II. OBJECTIVES OF PROJECT

- To develop an AI-based academic and profession adviser system.
- To provide personalized career recommendations based on student interests and skills.
- To analyse academic performance using Machine Learning algorithms.
- To reduce dependency on traditional manual counselling systems.
- To provide real-time guidance through AI chatbot interaction
- To help students understand future career opportunities and required skills



III. LITERATURE REVIEW

Several researchers have explored AI-supported academic advising systems in recent years. Studies show that AI-driven recommendation systems improve student engagement and academic decision-making. Research on ChatGPT and AI-based advising systems highlights the importance of conversational AI in educational support. Machine learning models and expert systems have been successfully used for academic advising, risk prediction, and career recommendation.

Recent developments in Generative AI have further enhanced academic advising by enabling intelligent chatbot interaction and personalized guidance. Modern advising systems also focus on ethical AI, transparency, and bias reduction in recommendation systems.

IV. PROBLEM FORMULATION

Students often face challenges while selecting academic streams, colleges, and career paths. Traditional advising systems have several limitations such as limited counsellor availability, lack of personalization, delayed responses, and inability to analyse large student datasets efficiently. In many institutions, one counsellor handles hundreds of students, which reduces the quality of guidance provided.

The proposed AI-Based Profession and Academic Adviser System addresses these problems by using AI algorithms to generate accurate and personalized recommendations. The system also helps students stay updated with modern industry trends and future career demands.

V. PROPOSED SYSTEM

The proposed system consists of multiple modules that work together to provide intelligent academic and career guidance. Student Profile Module: Collects information such as marks, interests, skills, aptitude scores, and hobbies. AI Recommendation Engine: Uses machine learning algorithms to analyze data and recommend suitable professions and academic paths.

Chatbot Assistance Module: Provides real-time interaction and answers career-related questions. Career Knowledge Base: Stores information about careers, required qualifications, salary trends, and skills. Admin Module: Maintains databases and updates academic and career information regularly.

VI. SYSTEM ARCHITECTURE

The architecture of the proposed system includes User Interface, AI Engine, Database, and Chatbot Integration. The user first enters personal and academic details into the system. The AI engine processes this data using machine learning models and recommendation algorithms.

The recommendation engine compares the user profile with career datasets and generates suitable academic and professional suggestions. The chatbot module helps users interact with the system in natural language. Finally, the system displays career recommendations, required skills, and educational guidance to the student.

TABLE I: TECHNOLOGY USED

Layer	Technology	Responsibility
Frontend	HTML,CSS, Java script	User interaction and model design
Backend	Fast API (Python)	AI model implementation
Database	My sql	Data base management

VII. ADVANTAGES OF SYSTEM

- Personalized academic and career recommendations.
- 24/7 availability of guidance services.
- Faster and more efficient decision-making



- Reduced workload on human counsellors.
- Real-time chatbot support.
- Improved academic planning and career awareness.
- Ability to analyse large student datasets effectively.

VIII. METHODOLOGY

The development methodology of the proposed system includes several stages. In the first stage, student and career data are collected from various sources. The collected data are preprocessed and cleaned to remove inconsistencies. Feature analysis is performed to identify important factors such as interests, skills, academic performance, and aptitude. Machine learning algorithms are then trained using the processed datasets. The trained model generates career and academic recommendations based on user input. Finally, the chatbot interface allows students to interact with the system in real time.

IX. LIMITATIONS

Recommendations depend on the accuracy of user-provided data.
AI systems may contain algorithmic bias.
Requires continuous database updates.
Human counsellors may still be required for emotional support and complex guidance.

X. FUTURE SCOPE

The future scope of the AI-Based Profession and Academic Adviser System is very broad. Future versions may include voice-enabled AI assistants, mobile applications, emotion recognition, and integration with university admission systems. The system can also integrate real-time job market analysis to recommend trending professions and skill requirements.
Deep learning techniques and Generative AI can further improve personalization and conversational interaction. Future systems may also provide multilingual support and predictive analytics for academic success.

XI. CONCLUSION

The AI-Based Profession and Academic Adviser System provides an intelligent and efficient solution for academic and career guidance. By using Artificial Intelligence, Machine Learning, and NLP technologies, the system generates personalized recommendations for students.
The proposed system improves accessibility, efficiency, and accuracy compared to traditional counselling systems. It helps students make informed decisions regarding academic streams, professions, and future career opportunities. AI-based advising systems have strong potential to transform educational guidance and career planning in the coming years.

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XIII. DECLARATION OF ORIGINALITY

We hereby declare that this research paper is our original work undertaken as part of the TYBCA Final Year Project at JSPM University Pune under the supervision of Shweta Magar. All external sources have been cited appropriately. The



implementation described herein was developed entirely by the authors and has not been submitted elsewhere for publication.

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REFERENCES

1. AI-Based Academic Advising Across the Student Lifecycle: A Systematic Literature Review– MDPI.
2. AI-Supported Academic Advising: Exploring ChatGPT’s Current State and Future Potential toward Student Empowerment – MDPI.
3. Generative AI Frameworks for Digital Academic Advising and Intelligent Student Support Systems – IJAIDSML.
4. An Intelligent Expert System for Academic Advising Utilizing Fuzzy Logic and Semantic Web Technologies – Springer.
5. AI-based Academic Advising Framework: A Knowledge Management Perspective – IJACSA.
6. Leveraging Generative AI for Sustainable Academic Advising – MDPI

