

Career Guidance System Using LLM

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Abstract: *Choosing the right career after completing the 12th grade is a major challenge for most students, as they often lack proper guidance, awareness of available options, and access to reliable information. Traditional career counseling methods are usually manual and limited in personalization, making it difficult to provide accurate and scalable advice. To address these issues, this research introduces an advanced web-based Career Guidance and Resume Analysis System developed using Python Flask and MySQL.*

The system allows students to identify suitable career paths, evaluate their resumes, and review college CET score requirements through a unified platform. Additional features such as job description analysis and automated interview question generation further enhance student preparedness for academic and professional opportunities. The system also includes an administrative dashboard that offers insights into user engagement and activity. Overall, the platform improves transparency, reduces dependency on manual counseling, and delivers a structured, technology-driven approach to career planning. Experimental results indicate that the system effectively assists students in making informed decisions and provides a modern, efficient alternative to conventional counseling practices

Keywords: Career Guidance System, Resume Analysis, Job Description Analysis, Interview Question Generation, CET Score Tracking, Student Decision Support

I. INTRODUCTION

Deciding on a career path after the 12th grade is challenging for many students, mainly because they often lack proper information and personalized guidance. Traditional counseling methods are manual, time-consuming, and not suited for large numbers of students. To address these issues, this project presents a web-based Career Guidance and Resume Analysis System built with Python Flask and MySQL. The platform helps students identify career options, review their resume strengths, check CET cut-offs, understand job requirements, and practice through system-generated interview questions. An admin dashboard allows monitoring of user activity and system performance. By bringing all these features together, the system provides a more reliable, efficient, and technology-supported alternative to conventional counseling.

II. LITERATURE REVIEW

Various research studies have focused on developing web-based systems to manage user data and provide efficient services. Earlier systems such as online complaint and grievance management platforms demonstrate the importance of centralized data handling, transparency, and user interaction. Recent studies have introduced the use of artificial intelligence and machine learning to improve system performance and decision-making. These technologies help in analyzing user data, identifying patterns, and providing better recommendations. Some research also highlights the role of decision support systems in guiding users by processing structured information. Additionally, cloud-based and scalable architectures ensure that such systems can handle a large number of users effectively. Overall, existing research shows that integrating web technologies with intelligent features can significantly improve accessibility, efficiency, and user experience. These concepts form the basis for developing the proposed Career Guidance System.



III. PROBLEM STATEMENT

Choosing a suitable career path after completing the 12th grade is a critical decision that significantly impacts a student's future. However, many students face difficulties in making informed choices due to the lack of proper guidance systems and limited access to structured information. Existing methods of career counseling are often manual, fragmented, and not easily accessible to all students.

The major problems identified are as follows:

- **Lack of Career Awareness:**

Students are often unaware of the wide range of career options available based on their interests and skills.

- **Limited Access to Guidance:** Traditional counseling services are not always available, especially in rural or underdeveloped areas.

- **Absence of Centralized Platform:**

There is no single system that integrates career guidance, resume evaluation, and college-related information.

- **Difficulty in Resume Evaluation:**

Students struggle to assess their resumes and identify areas for improvement without expert support.

- **Insufficient Information on Colleges and CET Scores:**

Students find it difficult to gather accurate and updated data about college admission criteria and entrance exam requirements.

- **Manual and Time-Consuming Processes:**

Existing systems rely heavily on paperwork and human intervention, making them inefficient.

- **Lack of Data Management and Monitoring:**

Institutions face challenges in tracking student activities and maintaining organized records.

- **Security and Accessibility Issues:**

Many systems do not ensure secure handling of student data or provide easy access across platforms.

Therefore, there is a need to develop a web-based Career Guidance System that provides a centralized, secure, and user-friendly platform for career exploration, resume analysis, and academic information management, while also enabling administrators to monitor and manage system activities efficiently.

IV. EXISTING WORK

Existing career guidance methods mainly include traditional counseling and basic online platforms. In traditional systems, students depend on teachers or career counselors for guidance, which is often limited, time-consuming, and not accessible to everyone.

Some web-based platforms are available, but they usually provide only general information about courses and careers without personalization. These systems do not include features like resume analysis, real-time career recommendations, or integrated CET score tracking.

Additionally, most existing systems lack a centralized structure, making it difficult for students to access all required information in one place. They also offer limited data analysis and do not provide proper monitoring tools for administrators.

- **Manual and Time-Consuming Process:**

Traditional career guidance relies on face-to-face counseling sessions, which require scheduling and physical presence. This makes the process slow and inefficient, especially when handling a large number of students.

- **Lack of Personalization:**

Most existing systems provide general advice without considering individual interests, skills, or academic performance. As a result, students may not receive guidance that truly matches their abilities or career goals.

- **Limited Accessibility:**

Access to professional career counseling is often restricted to urban areas or well-equipped institutions. Students in rural or remote regions may not have equal opportunities to receive proper guidance.



- **No Resume Analysis Feature:**

Existing platforms do not offer tools to evaluate resumes. Students are unable to identify their strengths, weaknesses, or areas that need improvement, which impacts their career readiness.

- **Fragmented Information Sources:**

Important information such as career options, college details, and CET scores is scattered across different websites and sources. This makes it difficult and time-consuming for students to gather complete and accurate information.

- **Outdated or Incomplete Data:**

Many systems do not update their data regularly, leading to outdated information about courses, colleges, and admission criteria. This can result in poor decision-making.

- **Poor Data Management:**

Traditional systems do not maintain proper digital records of student data. Information is often stored manually, making it difficult to track, update, or retrieve when needed.

- **Lack of Real-Time Insights:**

Existing systems do not provide instant feedback or analysis. Students must wait for manual responses, which delays the decision-making process.

- **No Centralized Platform:**

There is no single platform that integrates all career-related services such as guidance, resume analysis, and college information. This lack of integration reduces efficiency.

- **Limited User Interaction:**

Many platforms are not interactive and fail to engage users effectively. They often provide static information rather than dynamic and personalized experiences.

- **No Progress Tracking:**

Students cannot monitor their development, skill improvement, or career planning progress over time, which limits self-assessment.

- **Absence of Admin Control:**

There are no proper tools for administrators to monitor system usage, analyze user behavior, or manage data efficiently.

- **Security Issues:**

Some systems do not implement strong security measures, which can lead to risks such as data breaches and unauthorized access to sensitive information.

- **Low Use of Modern Technology:**

Existing systems make minimal use of advanced technologies like artificial intelligence, automation, or data analytics, which limits their ability to provide intelligent recommendations.

V. ARCHITECTURE

1. Overview:

The Career Guidance System is a web-based application designed using a modular architecture. It consists of two main components: the User Module and the Admin Module, connected through a backend server and a centralized database. The system follows a client-server architecture, where users interact through a web interface, and all processing is handled on the server side.

2. Working Of The System

1. User Registration and Login

The user first registers by entering details such as name, email, and password. This information is securely stored in the database. During login, the system verifies the credentials through the backend to ensure authorized access.

2. Input Data

After logging in, the user provides necessary information such as interests, skills, and academic details.



The user can also upload a resume, which will be used for further analysis and personalized suggestions.

3. Processing by System

The backend (Flask server) processes the user data:

- Career Analysis: Suggests suitable career options based on interests
- Resume Analysis: Evaluates resume content and identifies strengths/weaknesses
- CET Module: Retrieves college and cutoff score information

4. Database Interaction

All user data, resumes, and career-related information are stored in the MySQL database. The system retrieves required data whenever needed for processing and display.

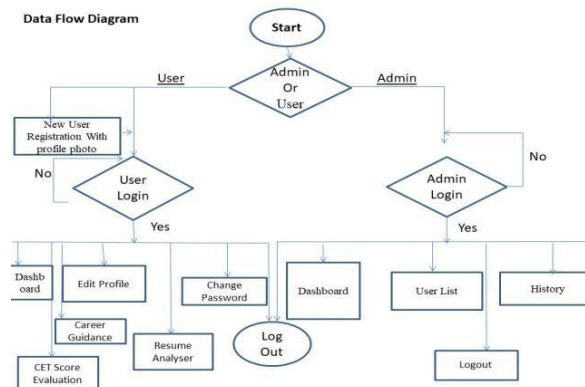
5. Output Display

After processing, the system generates results such as career suggestions, resume feedback, and CET details. These results are displayed clearly on the user dashboard.

6. Admin Monitoring

The admin logs into the system to monitor user activities, manage data, and ensure the system runs smoothly. The admin can also update or maintain the database.

3. Data Flow Diagram



4. Technical Details

The Career Guidance System is developed using a web-based client-server architecture with the following technologies:

• Frontend:

HTML and CSS are used to design the user interface, providing an interactive and user-friendly experience.

• Backend:

Python with the Flask framework is used to handle server-side logic, process user requests, and manage system functionalities.

• Database:

MySQL is used for storing user data, resumes, career information, and CET score details efficiently.

• Architecture:

The system follows a 3-tier architecture consisting of presentation layer, application layer, and data layer.

• Authentication:

A secure login system is implemented to protect user data and ensure authorized access.

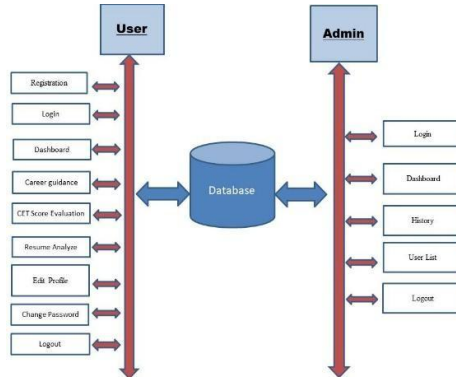
Modules:

The system includes two main modules:



- User Module (career analysis, resume upload, CET tracking)
- Admin Module (user management, system monitoring)

3. Architecture diagram



VI. LIMITATION

The system depends on a stable internet connection, which may limit access in remote areas. It handles sensitive user data, creating potential security and privacy risks if not properly protected. The career recommendations and resume analysis are based on basic logic, which may not always provide highly accurate or personalized results. Additionally, the system requires technical expertise for maintenance and updates. Scalability may become an issue as the number of users increases.

The database of colleges and CET scores must be regularly updated, otherwise it may provide outdated information. Initial development and maintenance costs can also be high. The system may face performance issues under heavy user load if not properly optimized. It also relies on user-provided information, which may sometimes be incomplete or inaccurate. Lastly, the lack of human interaction makes it less effective compared to professional career counseling.

VII. FUTURE SCOPE

The proposed system can be further enhanced by integrating advanced technologies such as Artificial Intelligence and Machine Learning to provide more accurate and personalized career recommendations. Future improvements may include intelligent resume analysis using natural language processing to deliver detailed and meaningful feedback. The system can also be expanded by adding real-time notifications, email alerts, and chatbot support to improve user interaction and engagement. Integration with external educational platforms and job portals can provide users with updated information about courses, internships, and employment opportunities.

Additionally, mobile application development can increase accessibility, allowing users to access the system anytime and anywhere. The database can be continuously updated and expanded to include a wider range of colleges, courses, and global career options.

In the future, features such as skill tracking, progress monitoring, and personalized learning paths can be introduced to help users improve their competencies. These enhancements will make the system more efficient, scalable, and capable of providing comprehensive career guidance.

VIII. CONCLUSION

The Career Guidance System is designed to assist students in making better career decisions after completing their 12th grade. It provides a structured and user-friendly platform where users can explore different career options, analyze their resumes, and access important information related to college admissions and CET scores. By combining multiple features into a single system, it reduces the difficulty students often face while selecting a suitable career path.



The system also improves efficiency by replacing traditional manual counseling methods with a digital solution. It ensures secure data handling, easy access to information, and smooth interaction between users and administrators. The inclusion of an admin module allows proper monitoring and management of system activities, making the platform more reliable and organized.

Overall, this project highlights the importance of technology in simplifying complex decision-making processes. It not only saves time and effort but also provides a clear direction for students based on their interests and profiles. With further improvements and advanced features, the system has the potential to become a more powerful and widely useful tool for career guidance.

The Career Guidance System helps students choose the right career path in a simple and effective way. It provides features like career suggestions, resume analysis, and CET score information in one platform. The system saves time, reduces confusion, and improves decision-making. With future improvements, it can become a more powerful and useful tool for students.

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