



RAMAIAH
Institute of Technology

Career Recommendation System

Submitted to the
Department of Master of Computer Applications
for Project Work Phase-I (MCAP1)

by

Darshan Anil Karekar
(1MS23MC023)

Under the guidance of

Prof. Geetanjali R

Department of Master of Computer Applications
RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous Institute, Affiliated to VTU)
Accredited by National Board of Accreditation & NAAC with 'A+' Grade
MSR Nagar, MSRIT Post, Bangalore-560054

www.msrit.edu

2025

Domain:

Career Recommendation and Guidance Systems

Significance:

Career guidance systems help individuals, especially students and job seekers, make informed decisions about their careers by suggesting suitable paths based on their skills, interests, and personality. This is especially important in a fast-changing world where new jobs emerge rapidly, and career paths are less linear than before.

Aim:

To create a personalized and scalable system for career guidance by integrating machine learning, data visualization, and real-time analytics tools.

Challenges:

- **Data Limitations:** These systems rely on data about career options, skills, and user profiles. If this data is incomplete or biased, the recommendations might not be accurate.
- **One-Size-Doesn't-Fit-All:** Not everyone fits neatly into predefined categories, and some may receive advice that doesn't truly resonate with their unique context.
- **Awareness & Accessibility:** Many students, especially in rural areas, don't know about these systems or lack the technology to access them.
- **Dynamic Job Market:** The job landscape is constantly changing, requiring systems to be updated frequently.

Relevance:

- **Massive Youth Demographic:** With a large percentage of the population under 35, career guidance is critical to harness this potential.
- **Rural-Urban Divide:** Many rural students lack access to proper career counseling, leading to underemployment or unemployment.
- **Skill Mismatch:** Many graduates in India are unemployed because their skills don't match market demands. These systems can direct them towards relevant skills.
- **Emerging Careers:** With India growing in sectors like IT, renewable energy, and digital media, students need guidance to navigate these fields.
- **NEP 2020:** The National Education Policy emphasizes skill-based learning and career awareness, creating opportunities for integrating such systems in schools and colleges.

Problem Statement:

Traditional career guidance methods, like Myers-Briggs and Holland Codes, are limited by rigid pathways that don't adapt to the dynamic job market. While modern tools, such as LinkedIn's Career Explorer, leverage datasets for career predictions, they often lack advanced machine learning, scalability, and personalized insights. These systems also fail to deliver real-time, interactive features that engage users effectively. As a result, individuals struggle to access tailored, actionable guidance for navigating rapidly evolving career opportunities, highlighting the need for a more intelligent, adaptable, and user-centric solution.

Solution Provided:

The proposed solution combines full-stack development, Power BI, and machine learning to create a modern and comprehensive career guidance system. Users will provide input through detailed surveys that collect data on their personal traits, skills, and past experiences. This data will then be processed by machine learning models to predict the most suitable career paths. The predictions and insights will be displayed on dynamic Power BI dashboards, offering users clear and engaging career visualizations. Furthermore, the system will include features like real-time analytics, interactive quizzes, and personalized career tracking tools to ensure a highly tailored and user-focused experience.

Features:

- Surveys to collect data on personal traits, skills, and experiences.
- Career predictions through machine learning algorithms.
- Real-time analytics with interactive dashboards.
- Enhanced quizzes and personalized career tracking tools.
- Continuous improvement of predictions based on user feedback.

Literature Survey:

- M. Rane, S. Kalal, J. Chandegara, T. Kakkad, V. Jain and S. Jagtap, "Career Prediction Website using Machine Learning," 2023 3rd International Conference on Intelligent Technologies (CONIT), Hubli, India, 2023, pp. 1-7, doi: 10.1109/CONIT59222.2023.10205747.
- Pavliuk, Vitalii, and Volodymyr Drevetskyi. "Intelligent Employer Matching System for Young Professionals and Students Based on Multifactor Analysis." Modeling, Control and Information Technologies: Proceedings of International scientific and practical conference. No. 7. 2024.
- Padma, E., et al. "Career guidance system for students using machine learning." Challenges in Information, Communication and Computing Technology. CRC Press, 2025. 666-671
- Imankulova A, Serikbay A, Meraliyev M. A COMPREHENSIVE REVIEW OF APPROACHES, CHALLENGES IN CAREER RECOMMENDATION SYSTEMS. Natural and Technical Sciences. 2024 Oct 12;64(1):5-34.
- Shahab S. Next Level: A Course Recommender System Based On Career Interests.
- S. K. A. S, S. S, A. S. M and S. K. S, "Machine Learning based Ideal Job Role Fit and Career Recommendation System," 2023 7th International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2023, pp. 64-67, doi:10.1109/ICCMC56507.2023.10084315.
- Shah, Arya, et al. "Review Of Approaches Towards Building AI Based Career Recommender & Guidance Systems." ScienceOpen Preprints (2024).
- Dutta, Ishaan, et al. "Building a recommendation system for career advice for students from professionals." 2022 International Conference on Computer Communication and Informatics (ICCCI). IEEE, 2022.

Technologies Used:

- Full-stack development
- Machine Learning (e.g., Random Forest, Decision Tree)
- Real-time data visualization