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Report

Title:

Development of an AI-Powered Career Guidance and Resume Screening System

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Introduction:

In today's highly competitive job market, students and fresh graduates face significant challenges in securing suitable employment due to lack of proper career guidance and poorly structured resumes. Many candidates are unaware of industry-relevant skills and fail to align their resumes with job requirements, leading to frequent rejections by recruitment systems. Traditional career counseling methods are often expensive, generic, and inaccessible.

Advancements in Artificial Intelligence and Machine Learning provide an effective solution by enabling automated resume analysis and personalized career guidance. This report presents the development of an AI-powered career guidance and resume screening system aimed at improving employability and supporting sustainable economic growth.

Problem Statement:

The primary challenge addressed by this project is the lack of accessible, personalized, and efficient career guidance for students and job seekers. Traditional resume screening and counseling processes are time-consuming, subjective, and often unavailable to a large population. As a result, many capable candidates fail to identify skill gaps and suitable career paths.

Objective:

The main objective of this project is to design and implement an AI-based system that analyzes resumes, compares them with job role requirements, identifies missing skills, and provides personalized career improvement recommendations. The system aims to enhance employability, improve resume quality, and support informed career decision-making.

Why This Problem?

Unemployment and underemployment among graduates remain a major concern, impacting both individuals and economic growth. Early career guidance and skill alignment are crucial to improving job readiness. By addressing this problem, the project contributes to better workforce preparedness and aligns with **SDG 8 – Decent Work and Economic Growth**.

Solution:

Overview:

The proposed solution is an **AI-powered Career Guidance and Resume Screening System** that uses Natural Language Processing (NLP) and machine learning techniques to extract skills from resumes and evaluate them against job role requirements. The system generates resume scores, highlights missing skills, and provides actionable recommendations for career improvement.

Features:

- **Resume Screening:** Automatically analyzes resume content and evaluates job relevance.
- **Skill Gap Identification:** Identifies missing skills required for specific job roles.
- **Personalized Career Guidance:** Provides tailored recommendations for skill development.
- **Efficient and Accessible:** Offers quick, cost-effective, and scalable career support.

- **Scalable Solution:** Can be integrated into educational platforms, career portals, and mobile applications.

Technical Implementation:

- **Data Collection and Preprocessing:** Resume text and job role data are collected and preprocessed using NLP techniques.
- **Feature Extraction:** Relevant skills are extracted from resumes and job descriptions.
- **Model Development:** A machine learning-based comparison system evaluates skill matches and gaps.
- **Model Evaluation:** Resume scoring and recommendation accuracy are assessed using validation datasets.
- **Implementation and Validation:** A Python-based prototype is developed and tested for real-world usability.

Why IBM Resources and Tools?

- **IBM Cloud and Watson Studio:** Provide scalable infrastructure for AI model development and deployment.
- **Advanced Analytics:** Enable efficient processing of resume data and job role requirements.
- **Security and Compliance:** Ensure ethical data handling, privacy, and bias mitigation.
- **IBM SkillsBuild Platform:** Supports learning alignment and skill development recommendations.

Conclusion:

This project focuses on developing an AI-powered career guidance and resume screening system that addresses employability challenges faced by students and job seekers. By offering an efficient, scalable, and personalized solution, the system supports informed career decisions and

contributes to sustainable economic growth. Continuous improvement and integration with emerging job market trends will ensure long-term effectiveness and relevance.