YENEPOYA (DEEMED TO BE UNIVERSITY)

AI-POWERED JOB RECOMMENDATION SYSTEM

PROJECT SYNOPSIS

TEAM TECH MATES

BACHELOR OF COMPUTER APPLICATION

BIG DATA ANALYTICS

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Chapter 1: INTRODUCTION

Job seekers often struggle to find suitable roles that align with their qualifications, skills, and preferences. Similarly, recruiters face challenges in identifying the right candidates among a sea of applicants. This project presents an AI-powered Job Recommendation System that leverages machine learning and natural language processing to provide personalized job suggestions based on user profiles, resumes, and job descriptions.

1.2 Objectives

- Build a smart job recommendation engine using machine learning.
- Personalize job suggestions based on user profiles, skills, and preferences.
- Minimize irrelevant job suggestions.
- Improve user engagement and job search outcomes.
- Enable better decision-making for job seekers and recruiters.

1.3 Methodology

- Data Collection: Gather job listings and user profiles/resumes.

- Data Preprocessing: Clean and transform data using NLP techniques.

- Modeling: Apply ML algorithms (e.g., TF-IDF, cosine similarity).

- System Development: Build a Flask-based backend and a user-friendly frontend.

- Integration: Connect the model with the interface and database.

- Evaluation: Test recommendations and refine based on feedback.

1.4 Technology Used

Python: Core language for development and ML modeling.

Flask: Backend web framework for serving ML recommendations.

Jupyter Notebook: Used for model development and experimentation.

Libraries: Scikit-learn, Pandas, Numpy, NLTK, Matplotlib, Seaborn.

Frontend: HTML, CSS, JavaScript

Database: SQLite or MySQL

1.5 Expected Outcomes

Accurate and relevant job recommendations.

Reduced job search effort for users.

Enhanced user satisfaction and system engagement.

Better alignment between job listings and candidates.

1.6 Hardware Requirements

Laptop/PC with:

- Processor: Intel i3 or above

- RAM: Minimum 4GB (8GB recommended)

- Storage: At least 500MB free for development environment