AI-Powered Resume Analyzer & Job Matcher

A Web-Based Intelligent Recruitment Assistant

Computer Science & Engineering Department

Introduction

The Challenge

Recruitment is increasingly competitive and time-consuming

- Manual resume screening is inefficient and error-prone
- Job seekers struggle to match CVs with requirements
- Inconsistent evaluation methods

The Solution

AI and NLP automate resume analysis and job matching

Bridging the gap between job seekers and recruiters

Problem Statement

Slow Processing

Manual resume screening is time-intensive and inconsistent

Missed Candidates

Recruiters overlook suitable candidates due to keyword mismatch

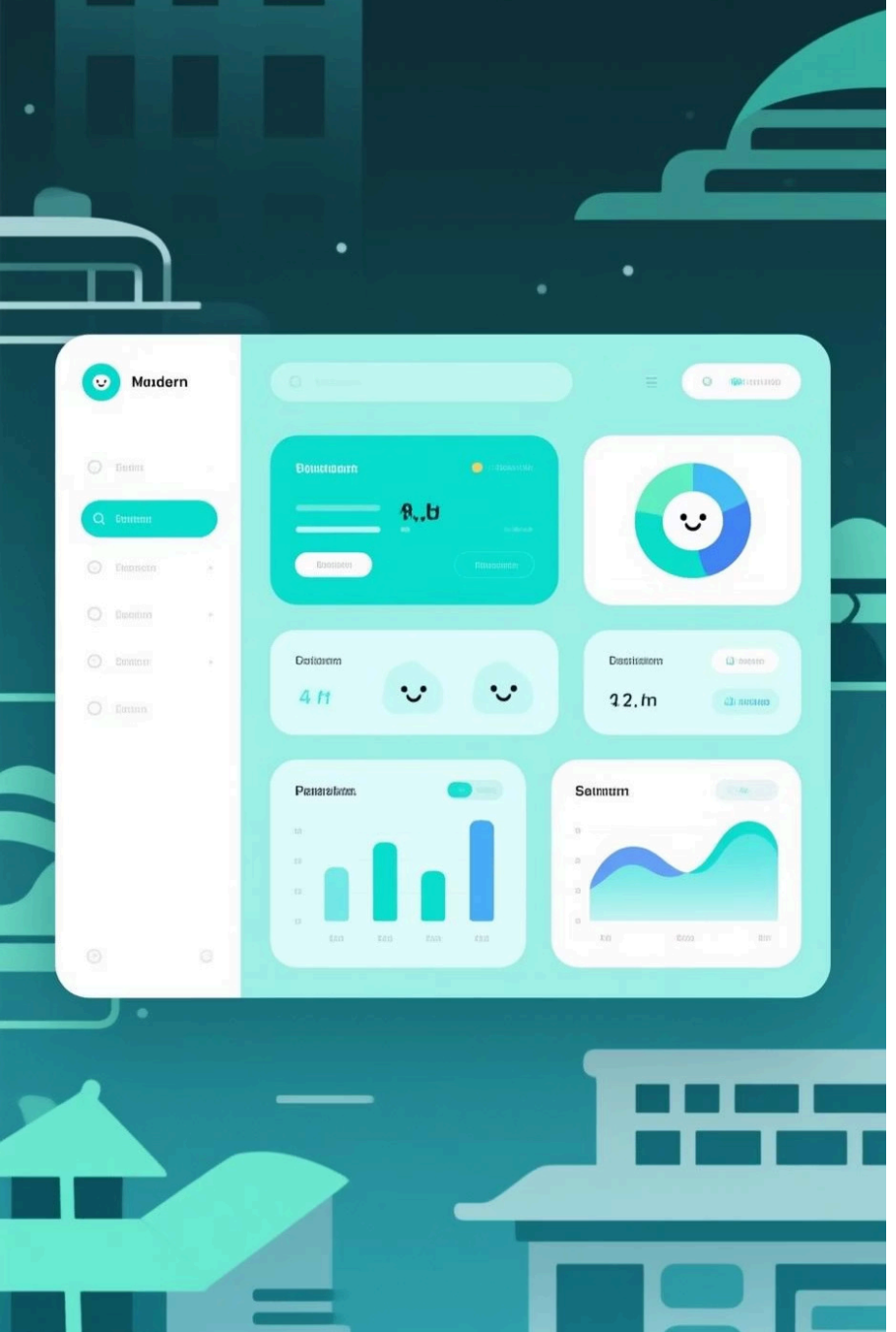
Lack of Feedback

Job seekers receive no guidance on resume quality

No Compatibility Score

Unclear resume–job alignment metrics

Our Goal: Design an intelligent web-based system that analyses resumes using AI and matches them with suitable job roles whilst providing improvement suggestions



Proposed Solution

Core Functionality

- Accepts resumes (PDF/DOC)
- Extracts skills using NLP
- Matches CVs with job descriptions
- Generates match score and recommendations

Key Benefits

- Automated resume screening
- Accurate job matching
- Skill gap identification
- Resume improvement guidance

System Architecture & Workflow

Upload Resume

User uploads CV in PDF/DOC format

Text Extraction

Parse and extract resume content

NLP Processing

Identify skills and qualifications

Job Analysis

Compare with job descriptions

Match Score

Display results and suggestions

Frontend Layer

HTML, CSS user interface

Backend Layer

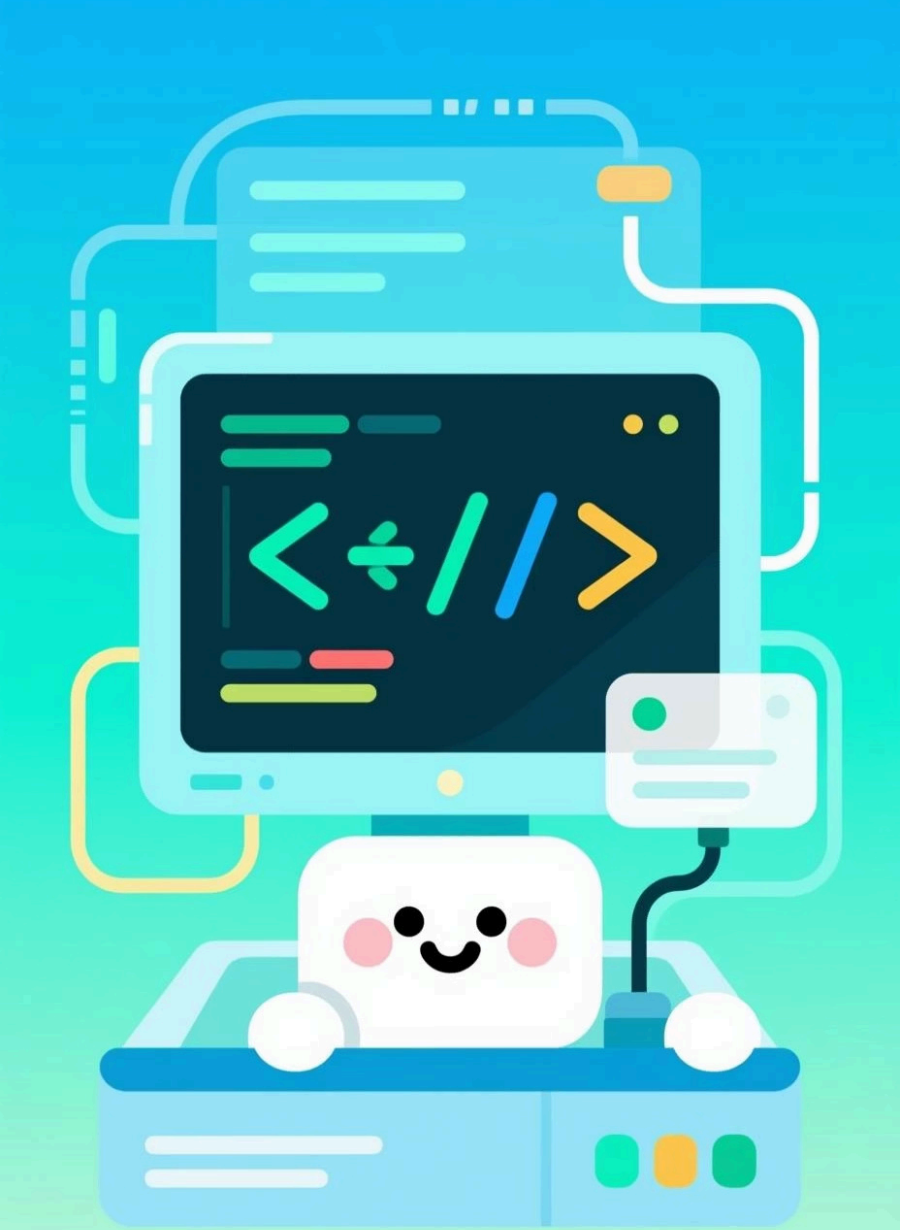
Flask application server

AI/NLP Modules

Natural language processing

ML Engine

Similarity calculations



Technologies Used

Frontend

HTML and CSS for responsive user interface design

Backend

Python with Flask framework for server-side processing

AI & Machine Learning

spaCy for NLP processing, Scikit-learn for TF-IDF and Cosine Similarity algorithms

Development Tools

VS Code, GitHub version control, local server and cloud deployment options

Market Research & Feasibility

Market Research

job market recruitment recruitment

- Companies receive thousands of CVs per job posting
- Increasing demand for AI-based HR tools
- Platforms like LinkedIn & Indeed use similar systems
- Growing adoption of automated recruitment solutions

Feasibility Analysis

Open-Source Tools

Built using freely available libraries

Low Development Cost

Minimal infrastructure investment required

Highly Scalable

Adaptable for colleges, start-ups, and HR firms

Key Features & Advantages

Resume Upload & Analysis

Automated document processing and skill extraction

Job Compatibility Score

Quantitative matching metrics for informed decisions

Skill Gap Detection

Identifies missing qualifications and improvement areas

Resume Improvement Suggestions

Actionable recommendations for candidates

Advantages for Recruiters

- Saves significant time
- Reduces human bias in screening
- Improves hiring accuracy

Advantages for Candidates

- Enhances CV preparedness
- Provides clear feedback
- Increases job match success

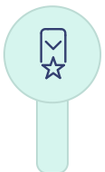
Future Enhancements

ATS Compatibility Score

Analyse resume compatibility with Applicant Tracking Systems

Multi-Job Comparison

Compare single resume against multiple job postings simultaneously



Resume Ranking

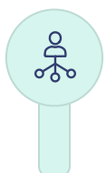
Automated candidate ranking system for recruiters

AI Interview Questions

Generate role-specific interview questions automatically

Cloud Integration

Cloud deployment with database integration



Job Portal Integration

Seamless connection with LinkedIn, Indeed, and other platforms

Conclusion

Technical Achievement

Demonstrates effective integration of AI and web development

Practical Impact

Automates resume screening and improves recruitment efficiency

Industry Relevance

Addresses real-world HR challenges with scalable solutions

Future Potential

Foundation for final-year project or start-up solution

Thank You!

Questions and Discussion