

AI-Driven Student Placement Preparation Platform

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Abstract- Navigating campus placements is often difficult for students due to the diverse skill sets demanded by recruiters. Traditional preparation is frequently disorganized, as critical tasks-such as resume building, aptitude practice, interview coaching and career mapping-are scattered across multiple platforms, leaving students struggling to identify skill gaps and track their progress. To address this, we propose an AI-Driven Student Placement Preparation Platform that consolidates these fragmented processes into a unified ecosystem. Leveraging Artificial Intelligence and Natural Language Processing (NLP), the platform evaluates resumes, conducts technical and aptitude assessments, facilitates peer mock interviews and delivers personalized study recommendations. By providing actionable feedback and robust performance analytics, the system empowers students to monitor their growth, target their weaknesses and approach recruitment with increased competence and confidence.

Keywords- Artificial Intelligence, Placement Preparation, Resume Analysis, Natural Language Processing, Career Guidance, Aptitude Assessment, Mock Interview, Learning Recommendations, Skill Development, Performance Analytics.

I. INTRODUCTION

The contemporary campus recruitment landscape has evolved into a highly competitive ecosystem. Modern organizations evaluate candidates using multi-dimensional criteria that extend far beyond traditional academic metrics; recruiters prioritize holistic employability, which encompasses technical expertise, cognitive problem-solving agility and interpersonal communication skills. To successfully navigate this environment, students must engage in continuous Self-Regulated Learning (SRL)—a pedagogical framework wherein learners proactively assess their capabilities, set strategic goals and systematically track their preparation progress.

However, a significant employability gap exists

between formal academic curricula and the fluid expectations of the technology industry. While online learning resources are abundant, the current preparation paradigm is fundamentally fragmented. Students are forced to manage isolated recruitment tasks-such as resume optimization, aptitude training, technical upskilling, and interview simulation-across disparate, disconnected web platforms. This digital silos prevent the accumulation of centralized data, leaving students unable to receive formative feedback. Consequently, candidates struggle to diagnose their skill deficits or objectively determine if their competencies align with industry benchmarks.

Recent breakthroughs in Artificial Intelligence (AI) and Natural Language Processing (NLP) offer a transformative solution to this fragmentation. By leveraging techniques such as Semantic Similarity Modeling and Content-Based Recommendation Systems, computing environments can now parse unstructured textual data from resumes, map candidate profiles to industry taxonomies and dynamically identify hidden skill gaps.

To capitalize on these technological advancements, this paper proposes an integrated, AI-Driven Student Placement Preparation Platform. Designed as a centralized, web-based ecosystem, the platform unifies automated resume auditing, adaptive technical assessments, peer-to-peer mock interviews and data-driven career roadmaps into a singular interface. By transforming scattered performance metrics into centralized, actionable predictive analytics, the system fosters continuous self-improvement. Ultimately, this platform operationalizes pedagogical and computational theories to enhance student self-efficacy, bridge the industry-academia divide and optimize overall institutional employability outcomes.

II. LITERATURE SURVEY

II.1 Predictive Analytics in Student Placement Management System Leveraging Machine Learning

Mondal et al. (2025) proposed a placement prediction system using machine learning algorithms such as Gradient Boosting, Random Forest, Decision Tree and Support Vector Machine. The system analyses academic records, aptitude scores and skill-related data to predict placement opportunities for students. The model helps institutions identify students who require additional training and preparation support. Experimental results showed improved prediction accuracy when multiple machine learning algorithms were combined.

However, the system requires large historical datasets and focuses mainly on prediction rather than actual placement preparation activities. It does not include resume analysis, mock interview support, or personalized learning guidance.

This work helps in understanding AI-based placement prediction techniques useful for the proposed platform.[1]

II.2 Job Screen AI – Automated Resume Screening System

Tarun B et al. (2025) developed an automated resume screening system using Natural Language Processing and Machine Learning techniques. The platform analyses resumes by extracting skills, education details, certifications and project information. The system automatically filters resumes according to predefined recruitment criteria and reduces manual screening effort. The study demonstrates how NLP techniques improve recruitment efficiency and candidate shortlisting. However, the platform mainly focuses on resume filtering and does not support aptitude preparation, interview practice, or long-term progress tracking. This paper supports the implementation of AI-based resume analysis and recommendation features in the proposed system.[2]

II.3 PrepVision: AI Career Path Advisor

Wadkar et al. (2025) proposed an AI-based career guidance system using NLP, recommender systems and resume analysis techniques. The platform analyses student skills, interests and career goals to generate personalized career recommendations. It also

recommends learning resources and skill development paths according to the student profile. The system improves awareness about career opportunities and helps students make better career decisions. However, it depends heavily on external learning resources and lacks integrated quiz evaluation, interview simulation and performance analytics modules. This work supports the career roadmap and recommendation functionality of the proposed platform.[3]

II.4 CareerPulse AI: Next-Gen AI Resume Optimizer and Career Guidance System

Akash (2024) introduced an AI-driven resume optimization and career guidance system using Retrieval-Augmented Generation (RAG), Large Language Models and resume parsing techniques. The system analyses resume quality and generates intelligent suggestions to improve formatting, keyword usage and technical content. The platform also provides career recommendations and skill enhancement guidance based on industry trends. Experimental results showed improved resume quality and better alignment with job requirements. However, the implementation complexity of the system is high due to advanced AI model integration. This paper helps in designing resume improvement and career guidance features for the proposed platform.[4]

II.5 Developing an Intelligent Resume Screening Tool with AI-Driven Analysis

Abhishek et al. (2025) proposed an intelligent resume screening tool using NLP, Pyresparser and NLTK techniques. The system extracts information such as skills, qualifications, certifications and project experience from resumes. It compares extracted information with job requirements and generates recommendations. The platform improves automated candidate analysis and reduces recruitment processing time. However, the performance of the system depends highly on resume structure and formatting consistency. This work contributes to the development of the automated resume evaluation module in the proposed platform.[5]

II.6 Smart Placement Kit: An AI-Powered Learning Management System

Dongare et al. (2025) developed an AI-powered placement preparation system integrating aptitude

tests, mock inter-views and learning support using NLP, CNN and Generative AI techniques. The platform provides students with practice tests, interview preparation materials and performance evaluation features. The study demonstrates how AI techniques can improve placement preparation efficiency and student engagement. However, the system has limited resume-job matching functionality and lacks advanced recommendation mechanisms. This work provides useful ideas for implementing assessment and interview preparation modules in the proposed platform.[6]

II.7 AI-Driven Placement Prediction and Recommendation System for College Students

Khodaskar et al. (2025) proposed a placement prediction and recommendation system using Logistic Regression, Random Forest and Gradient Boosting algorithms. The platform predicts student placement probability and recommends suitable preparation strategies according to skill levels and academic performance.

The system helps students identify weak areas and improve preparation through targeted recommendations. Although the prediction accuracy is high, the system provides limited explainability for prediction results. This work supports predictive analytics and recommendation features in the proposed system.[7]

II.8 AI-Driven Employability Prediction

Bhujade et al. (2026) developed an employability prediction system using Support Vector Machine, Random Forest and XGBoost algorithms. The platform analyses academic, behavioral and technical skill data to estimate employability levels among students. The system helps institutions identify students requiring additional training and guidance. Experimental results demonstrated improved prediction performance using ensemble learning models. However, the use of black-box AI models reduces interpretability and transparency. This paper helps in understanding employability prediction methods useful for placement analytics.[8]

II.9 AI Driven Placement Preparation Platform

Ravi Kumar et al. (2025) proposed an AI-based placement preparation platform integrating aptitude

tests, communication training, AI mock interviews and facial expression analysis. The platform evaluates technical knowledge, communication skills and interview confidence using AI techniques. The system improves placement readiness through continuous assessment and personalized feedback. However, the platform has limited voice analysis support and faces scalability challenges for large-scale deployment. This work is closely related to the proposed system and provides ideas for integrating multiple preparation modules into a single platform.[9]

II.10 AI-Powered Resume Screening: Traditional vs AI-Based Recruitment

Babu V (2025) compared traditional recruitment methods with AI-based recruitment systems using NLP techniques such as TF-IDF, BERT and Cosine Similarity. The study analysed how AI improves resume screening speed, recruitment efficiency and candidate filtering accuracy. The results showed that AI-based recruitment systems reduce manual effort and improve consistency in candidate selection. However, the system cannot effectively evaluate soft skills, communication ability, or emotional intelligence.

This paper supports the implementation of AI-powered resume screening functionality in the proposed platform.[10]

II.11 Personalized Career Roadmap Generation

Priskilla Angel Rani J et al. (2025) proposed a personalized career roadmap generation system using Machine Learning, NLP, resume analysis and job matching techniques. The platform analyses user skills and career interests to generate customized learning paths and career recommendations. The system helps students plan skill development activities systematically according to career goals. However, the platform depends heavily on dataset quality and faces scalability challenges during large-scale implementation. This paper supports the personalized recommendation and roadmap generation features of the proposed system.[11]

II.12 AI in Education: ML Approaches in Career Prediction

Trujillo et al. (2025) reviewed different machine learning techniques such as SVM, Random Forest and

Neural Net-works used in career prediction systems for education. The study analysed the effectiveness of AI models in predicting student career outcomes and employability. The paper also discussed challenges such as limited datasets, ethical concerns and fairness issues in AI systems. The review provides useful insights into selecting suitable algorithms for career guidance and prediction applications. This paper helps in understanding AI challenges and selecting appropriate ML models for the proposed platform.[12]

II.13 Impact of AI on Recruitment and Selection

Rathore (2023) analysed the impact of Artificial Intelligence on recruitment and selection processes using bibliometric analysis and Artificial Neural Networks. The study explained how AI improves recruitment efficiency, candidate screening and decision-making accuracy. The paper also discussed automation benefits, reduced hiring time and improved recruitment quality through AI integration. However, adoption barriers, implementation cost and AI bias remain major challenges. This work supports AI integration in re-cruitment-related functionalities of the proposed platform.[13]

II.14 AI Applications in Recruitment: Opportunities and Challenges

Abdelhay et al. (2023) explored the opportunities and challenges of AI applications in recruitment processes using interviews, observations and thematic analysis. The study focused on NLP-based screening systems, automated candidate analysis and recruitment optimization techniques. The paper highlighted benefits such as reduced recruitment workload, improved screening efficiency and faster candidate evaluation. However, the study also emphasized challenges related to data dependency, privacy concerns and inability to completely replace human judgment. This work helps in designing a balanced AI-supported placement preparation system with practical implementation considerations.[14]

Technologies Used and Limitations of Existing Studies

Ref	Technologies / Methods Used	Limitation
[1]	Gradient Boosting, Random Forest, De-	Requires large historical datasets

	cision Tree, SVM	
[2]	NLP, Machine Learning	Focuses only on resume screening
[3]	NLP, Recommender System, Resume Analysis	Depends on external learning resources
[4]	RAG, Large Language Models, Resume Parsing	High implementation complexity
[5]	NLP, Pyresparser, NLTK	Depends on resume formatting
[6]	NLP, CNN, Generative AI	Limited resume-job matching
[7]	Logistic Regression, Random Forest, Gradient Boosting	Limited explainability
[8]	SVM, Random Forest, XGBoost	Reduced transparency due to black-box models
[9]	ML, NLP, Gemini AI, Facial Expression Analysis	Scalability and voice analysis limitations
[10]	TF-IDF, BERT, Co-Similarity	Cannot evaluate soft skills effectively
[11]	ML, NLP, Resume Analysis, Job Matching	Dataset dependency and scalability issues
[12]	SVM, Random Forest, Neural Networks	Dataset and ethical issues
[13]	ANN, Bibliometric Analysis	AI bias and implementation cost
[14]	NLP Screening, Interviews, Thematic Analysis	High data dependency

III. RESEARCH GAP

A critical review of contemporary literature reveals a surge in automated recruitment architectures, primarily focusing on isolated tasks such as Applicant Tracking System (ATS) resume parsing, predictive placement modeling, algorithmic career pathing and foundational aptitude testing. While these machine learning solutions effectively target discrete phases of the recruitment cycle, they operate almost exclusively as standalone modules rather than holistic ecosystems. Present systems typically force a trade-off: platforms excel either at structural text parsing or at executing classification regressions to predict hireability scores based on historical data.

Furthermore, a significant limitation of existing frameworks is their operational reliance on monolithic,

static datasets and complex deep-learning architectures that lack real-time adaptability for continuous learner development. Vital components of student readiness—including diagnostic skill-gap analysis, dynamic content-based filtering for learning resources, semantic interview simulations and longitudinal performance tracking—remain technologically fragmented. Consequently, students suffer a high cognitive load, forced to navigate an inconsistent matrix of disconnected tools. This underscores an urgent research gap for a centralized, student-centric architecture. The proposed AI-Driven Student Placement Preparation Platform explicitly mitigates this structural fragmentation, integrating multi-modal evaluation and personalized adaptive guidance within a unified web environment.

IV. PROBLEM STATEMENT

The contemporary recruitment landscape requires candidates to master a multi-disciplinary skill set encompassing technical literacy, cognitive aptitude, interpersonal communication and domain-specific industry insights. Despite these high benchmarks, a significant portion of the student demographic fails to navigate the preparation cycle effectively due to a lack of structured pedagogical frameworks and transparency regarding shifting corporate expectations. The current preparation paradigm is highly decentralized; students are forced to compartmentalize critical workflows—including resume compilation, quantitative aptitude training, interview simulations and career mapping—across disconnected, independent digital applications. This structural fragmentation imposes a heavy cognitive load and disrupts the learning continuity.

Furthermore, state-of-the-art software solutions operate in functional silos, optimizing isolated milestones such as automated resume screening, predictive hiring classifications, or general career pathing. These tools fail to cultivate a continuous, iterative cycle of self-assessment and long-term skill development. Consequently, students remain unaware of their precise skill gaps, cannot measure incremental progress longitudinally and lack an objective metric to quantify their overall recruitment readiness. To mitigate these deficiencies, an intelligent, centralized architecture is highly imperative. The proposed AI-Driven Student Placement Preparation Platform

satisfies this systemic requirement by synthesizing resume intelligence, adaptive testing, collaborative mock interviews, algorithmic career roadmaps and unified progress analytics into a cohesive web-based ecosystem, thereby transforming a chaotic preparation process into an optimized, data-driven strategy.

V. OBJECTIVES

The main objective of the proposed AI-Driven Student Placement Preparation Platform is to support students in preparing for placement opportunities in a more organized, effective and personalized manner. The platform is designed to help students identify their strengths, improve weak areas and build the skills required for successful career growth.

The specific objectives are:

- To create a single platform that brings together different placement preparation activities in one place.
- To analyze student resumes and provide useful suggestions for improvement using AI-based techniques.
- To identify missing or underdeveloped skills that may affect placement opportunities.
- To help students assess their knowledge through aptitude, reasoning and technical quizzes.
- To recommend suitable learning resources based on individual performance and career interests.
- To encourage interview practice through mock interview sessions and preparation activities.
- To provide career guidance and learning roadmaps for various technical domains.
- To monitor student progress and generate performance reports for continuous improvement.
- To increase student confidence and readiness for recruitment processes.
- To support systematic and self-paced learning throughout the placement preparation journey.

These objectives aim to make placement preparation more structured, accessible and student-focused while helping learners improve their overall employability.

VI. PROPOSED SYSTEM

The proposed AI-Driven Student Placement Preparation Platform is a web-based application

developed to support students during placement preparation. The platform combines resume analysis, skill assessment, learning recommendations, interview practice and performance tracking in a single system. It helps students identify skill gaps, improve weak areas and prepare systematically for recruitment opportunities.

VI.1 User Management Module

This module handles student registration, login and profile management. Students can create accounts, update their profiles and access different platform features through a secure authentication system.

VI.2 Resume Analysis Module

Students can upload their resumes in PDF format. The system extracts relevant information such as skills, education details, certifications and projects. AI and NLP techniques are used to analyze the resume and provide suggestions for improvement.

VI.3 Job Role Matching Module

Students can select their target job role. The system compares the skills extracted from the resume with the skills required for the selected role and determines how well the student's profile matches industry requirements.

VI.4 Skill Gap Analysis Module

Based on the comparison results, the platform identifies missing or weak skills that may affect placement opportunities. Students receive clear feedback on the areas that require improvement.

VI.5 Learning Resource Recommendation Module

The platform recommends relevant courses, tutorials, coding practice websites and learning materials according to the student's skill gaps and career interests. This helps students focus on learning the most important topics.

VI.6 Quiz and Assessment Module

This module provides aptitude, reasoning and technical quizzes. Student responses are evaluated automatically and scores are stored for future analysis.

VI.7 Mock Interview Module

The platform supports mock interview practice to help students improve communication skills and interview confidence. Students can participate in interview sessions and receive feedback on their performance.

VI.8 Career Roadmap Module

This module provides structured learning paths for different domains such as Web Development, Data Science, Artificial Intelligence and Cybersecurity. Students can follow the roadmap to develop the skills required for their chosen career.

VI.9 Performance Analytics Module

The system continuously tracks quiz scores, resume analysis results and interview performance. Based on this data, it generates readiness scores, progress reports and analytics dashboards to help students monitor their improvement.

VII. SYSTEM ARCHITECTURE

The proposed AI-Driven Student Placement Preparation Platform is designed using a layered architecture that enables smooth interaction between users, system components and stored data. The architecture integrates resume analysis, skill evaluation, assessments, learning recommendations and performance monitoring within a single platform. Each component performs a specific function and works together to support students throughout their placement preparation journey.

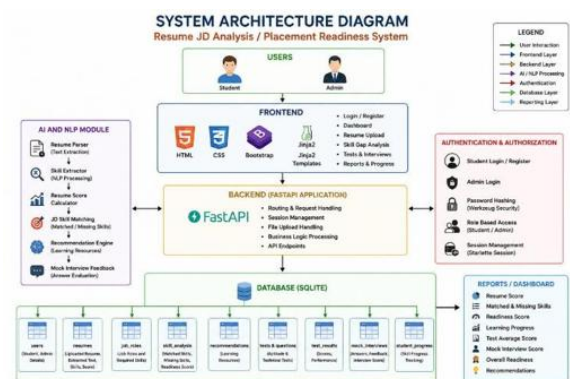


Fig. 1. Overall System Architecture of AI-Driven Student Placement Preparation Platform

A. Users

The platform is accessed by two types of users:

Students and Administrators. Students use the system to upload resumes, take assessments, participate in mock interviews and track their preparation progress. Administrators manage platform activities, monitor user data and maintain system resources.

B. Frontend Layer

The Frontend Layer provides the interface through which users interact with the system. It allows students to register, log in, upload resumes, view skill-gap reports, attend assessments, access learning resources and monitor their progress. The interface is designed to make navigation simple and provide easy access to all platform features.

C. Backend Layer

The Backend Layer handles the main processing activities of the platform. It receives requests from users, manages application logic, processes uploaded files, handles sessions and coordinates communication between different modules. This layer acts as the central component that connects the frontend, AI modules and database.

D. AI and NLP Module

The AI and NLP Module is responsible for analyzing resumes and generating personalized feedback. It extracts information from uploaded resumes, identifies important skills and compares them with job-role requirements. Based on the analysis, the system detects skill gaps, evaluates resume quality and provides recommendations for improvement. This module also supports learning recommendations and interview feedback generation.

E. Authentication and Authorization Module

This module manages user authentication and access control. It verifies user credentials during login, protects user information and ensures that students and administrators can only access features relevant to their roles. Secure password storage and session management mechanisms are used to maintain system security.

F. Database Layer

The Database Layer stores all information required by the platform, including user details, resumes, job-role requirements, assessment results, interview records,

recommendations and progress reports. The stored data is used for analysis, reporting and continuous performance tracking.

G. Reports and Dashboard Module

The Reports and Dashboard Module presents important in-sights about student performance. It displays resume evaluation results, skill-gap analysis, assessment scores, interview performance, learning progress and readiness scores. These reports help students understand their current preparation level and identify areas that require further improvement.

VIII. SYSTEM WORKFLOW

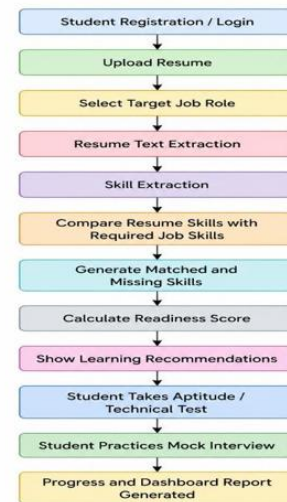


Fig. 2. Workflow of AI-Driven Student Placement Preparation Platform

The workflow of the proposed AI-Driven Student Placement Preparation Platform begins when a student registers and logs into the system. After authentication, the student uploads a resume and selects a target job role based on career interests.

The uploaded resume is processed by the system, where the text content is extracted and analyzed. Important skills and relevant information are identified using AI and NLP techniques. The extracted skills are then compared with the skills required for the selected job role.

Based on the comparison, the system generates a list of matched skills and missing skills. These results are used to evaluate the student's current preparedness level. A readiness score is then calculated to indicate

how closely the student's profile aligns with the selected role.

After the analysis, the platform recommends suitable learning resources to help students improve the identified skill gaps. Students can further strengthen their preparation by taking aptitude and technical assessments available on the platform.

The system also provides mock interview sessions that allow students to practice interview scenarios and improve their communication and problem-solving abilities. Performance data from resume analysis, assessments and mock interviews are continuously recorded and evaluated.

Finally, the platform generates a dashboard report that pre-sents readiness scores, assessment results, skill-gap analysis, learning progress and personalized recommendations. This enables students to monitor their improvement and prepare more effectively for placement opportunities.

This workflow ensures continuous assessment, personalized guidance and systematic placement preparation through a single integrated platform.

IX. SYSTEM DEVELOPMENT PLAN

The proposed AI-Driven Student Placement Preparation Platform is proposed to be developed as a web-based application that combines resume analysis, skill assessment, learning recommendations and progress tracking within a single platform. The system is designed in a modular manner, allowing different components to work together efficiently while providing a smooth experience for users.

A. Frontend Implementation

The user interface was developed using HTML, CSS, Bootstrap and Jinja2 templates. It provides screens for registration, login, resume upload, assessments, mock interviews, recommendations and dashboard reports. The interface is designed to be simple and easy to use, enabling students to access all platform features without difficulty.

B. Backend Implementation

The backend of the system is proposed to be developed using FastAPI. It manages user requests, processes uploaded resumes, handles assessments, generates

recommendations and communicates with the database. The backend acts as the central component that connects all modules and ensures smooth data flow throughout the system.

C. Resume Analysis and Skill Matching

When a student uploads a resume, the system extracts the text and identifies important details such as skills, projects, certifications and educational qualifications. The extracted skills are then compared with the skills required for the selected job role. This comparison helps determine the student's strengths as well as the areas that need improvement.

D. AI and NLP Implementation

Artificial Intelligence and Natural Language Processing techniques are used to analyze resume content and generate meaningful insights. These techniques help in identifying skills, evaluating resume quality, calculating readiness scores and generating personalized recommendations based on the student's profile.

E. Learning Recommendation Implementation

After identifying skill gaps, the platform recommends suitable learning resources that can help students improve their knowledge and abilities. These recommendations are tailored according to the student's current skill set and target job role, making the learning process more focused and effective.

F. Assessment and Mock Interview Implementation

The system includes aptitude and technical assessments that allow students to evaluate their preparation level. Students can also participate in mock interview sessions to improve communication skills and interview confidence. The results obtained from these activities are stored and used for performance evaluation.

G. Database Implementation

SQLite is used as the database management system for storing and managing platform data. The database maintains information related to users, resumes, skill analysis results, assessments, recommendations, interview records and progress reports. This centralized storage helps in efficient data retrieval and management.

H. Dashboard and Progress Tracking

The platform provides a dashboard that displays important information such as resume scores, skill-gap analysis, assessment performance, interview feedback and readiness scores. These insights allow students to monitor their progress and understand the areas where additional preparation is required.

I. System Integration

All modules are integrated into a unified platform through the FastAPI backend. This integration enables seamless communication between the user interface, AI processing components, and database. As a result, students receive timely feedback, personalized guidance and continuous progress monitoring throughout their placement preparation journey.

X. TECHNOLOGY STACK

Component	Technology Used
Programming Language	Python 3.x
Backend Framework	FastAPI
Frontend Technologies	HTML, CSS, Bootstrap
Template Engine	Jinja2
Database	SQLite
AI/NLP Components	Resume Parser, Skill Extraction, Resume Scoring, Recommendation Engine
Security	Password Hashing, Session Middleware
Server	Uvicorn
File Handling	Secure File Upload, Resume Processing
Development Environment	Visual Studio Code / PyCharm
Version Control	Git, GitHub
Supported Browsers	Google Chrome, Microsoft Edge
Platform Type	Web-Based Application

The proposed system is developed using Python as the primary programming language and FastAPI as the backend framework. The user interface is built using HTML, CSS, Bootstrap and Jinja2 templates, providing a responsive and interactive web experience. The system uses SQLite for storing user information,

resumes, assessment results, recommendations and progress data. AI and NLP functionalities are used for resume analysis, skill extraction, readiness evaluation and recommendation generation. Uvicorn is used as the application server, while Git and GitHub support version control and project management. This combination of technologies provides a lightweight, efficient and scalable platform for placement preparation.

XI. COMPARATIVE ANALYSIS

The proposed AI-Driven Student Placement Preparation Platform offers several improvements over conventional placement preparation methods. Traditional approaches often depend on manual resume reviews, self-assessment and scattered learning resources, making the preparation process less structured and time-consuming.

Feature	Conventional Approach	Proposed System
Resume Evaluation	Manual review and feedback	Automated resume analysis
Skill Identification	Student self-assessment	AI-based skill extraction
Skill Gap Detection	Difficult to identify	Automatic gap analysis
Learning Resources	Generic materials	Personalized recommendations
Placement Preparation	Multiple separate platforms	Single integrated platform
Progress Monitoring	Manual tracking	Real-time dashboard tracking
Mock Interviews	Limited availability	Integrated interview practice
Readiness Evaluation	Subjective assessment	Readiness score generation
Performance Analytics	Minimal insights	Detailed analytical reports

XII. EXPECTED RESULTS AND DISCUSSION

The proposed AI-Driven Student Placement Preparation Platform was developed and evaluated to support students in improving their placement readiness through resume analysis, skill-gap identification, assessments, learning recommendations and progress tracking. The proposed system is expected to integrate these functionalities into a single platform, providing students with a structured approach to placement preparation.

The resume analysis module is expected to extract relevant information from uploaded resumes and identify important technical and professional skills. By comparing the extracted skills with the requirements of selected job roles, the system is expected to identify matched skills and highlighted areas that required improvement. This enabled students to gain a better understanding of their current skill levels and preparation status.

The skill-gap analysis feature helped students recognize missing competencies that could affect their placement opportunities. Based on these results, the recommendation module provided relevant learning resources, allowing students to focus on specific areas for improvement rather than following a general preparation approach.

The assessment and mock interview modules contributed to continuous performance evaluation. Students will be able to measure their aptitude, technical knowledge and interview readiness through regular practice sessions. The scores and feedback generated by these modules helped users monitor their progress and identify strengths as well as weaknesses.

The dashboard and reporting module provided a comprehensive view of student performance by presenting resume scores, assessment results, readiness scores and learning progress in an organized manner. This allowed students to track their improvement over time and make informed decisions regarding their preparation strategies.

Overall, the results indicate that the proposed platform provides a more organized, personalized, and efficient approach to placement preparation. By combining resume evaluation, skill-gap detection, learning recommendations, assessments and progress

monitoring within a single system, the platform assists students in preparing more effectively for recruitment processes and career opportunities.

Key Outcomes

- Successful extraction and analysis of resume information.
- Accurate identification of matched and missing skills.
- Personalized learning recommendations based on skill gaps.
- Continuous assessment through aptitude and technical tests.
- Improved interview preparation through mock interview practice.
- Real-time progress tracking using dashboards and reports.
- Enhanced placement readiness through data-driven feedback and guidance.

XIII. ADVANTAGES AND LIMITATIONS

13.1. Advantages

The proposed AI-Driven Student Placement Preparation Platform offers several advantages that help students prepare more effectively for placement opportunities.

- Provides a single platform for various placement preparation activities.
- Automatically analyzes resumes and identifies important skills.
- Detects skill gaps by comparing student skills with job-role requirements.
- Generates personalized learning recommendations based on individual needs.
- Supports aptitude and technical assessments for continuous evaluation.
- Includes mock interview practice to improve communication and confidence.
- Tracks student progress through dashboards and performance reports.
- Provides readiness scores that help students understand their preparation level.
- Reduces the effort required for manual resume evaluation and skill assessment.
- Encourages focused learning by recommending resources for identified weak areas.

13.2. Limitations

Although the system provides several useful features, certain limitations still exist.

- The accuracy of skill extraction depends on the quality and format of the uploaded resume.
- Learning recommendations are limited to the re-sources available in the system database.
- The effectiveness of readiness scores depends on the assessment criteria used.
- Mock interview evaluation may not fully replicate real-world interview experiences.
- The system mainly focuses on placement preparation and may not cover all career development aspects.
- Frequent updates are required to keep job-role requirements aligned with industry trends.
- Performance may be affected when handling a large number of users simultaneously.
- Some recommendations may require further customization to suit individual learning preferences.

XIV. CONCLUSION AND FUTURE WORK

14.1. Conclusion

The AI-Driven Student Placement Preparation Platform is designed to help students prepare for placement opportunities in a more organized and effective manner. The platform brings together important placement preparation activities such as resume analysis, skill-gap identification, learning recommendations, assessments, mock interviews and progress tracking within a single system.

By analyzing resumes and comparing student skills with job-role requirements, the platform helps users understand their strengths and identify areas that need improvement. The personalized recommendations and continuous assessment features enable students to focus on relevant skills and pre-prepare in a more targeted way. The dashboard and reporting features further assist students in monitoring their progress and evaluating their readiness for recruitment processes.

The proposed system demonstrates how AI-based technologies can be used to support student learning and career preparation. Overall, the platform provides a practical and student-centered solution that

simplifies placement preparation while encouraging continuous skill development and self-improvement.

14.2. Future work

Although the current system provides useful support for placement preparation, there are several opportunities for further enhancement.

In future, the platform can be improved by incorporating more advanced AI models to provide deeper resume analysis and more accurate skill-gap detection. Real-time integration with job portals can be added to help students explore relevant job and internship opportunities directly through the platform.

The mock interview module can be enhanced by providing intelligent feedback on communication skills, confidence, and response quality. Additional career domains and specialized learning paths can also be introduced to support students with different professional interests.

Future versions may include adaptive learning features that automatically adjust recommendations based on student performance and learning patterns. A mobile application can also be developed to allow students to access platform ser-vices anytime and anywhere.

Furthermore, predictive analytics can be incorporated to provide insights into placement readiness and help students make informed decisions about their preparation strategies. These enhancements will make the platform more intelligent, personalized and capable of meeting the evolving needs of students and recruiters.

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