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REAL-TIME FAKE JOBS AND INTERNSHIPS SCAM DETECTION AND PREVENTION SYSTEM WITH INTEGRATED PLACEMENT ASSISTANCE

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Abstract: *The increasing prevalence of fake job and internship scams has become a significant concern for job seekers, leading to financial losses and misuse of personal information. This project presents a Real-Time Fake Jobs and Internships Scam Detection and Prevention System with Integrated Placement Assistance, designed to enhance user safety and support informed career decisions. The system employs a hybrid approach combining machine learning and rule-based techniques to identify fraudulent job postings. A Logistic Regression model is used to analyze job descriptions, recruiter details, and related textual data. Natural Language Processing (NLP) techniques, including text preprocessing and TF-IDF (Term Frequency–Inverse Document Frequency) feature extraction, are applied to detect patterns associated with scam postings. Based on prediction probabilities, the system generates a risk score and classifies job opportunities as genuine, suspicious, or fake. The application is developed using Python and the Flask framework, providing a user-friendly and interactive web interface for real-time analysis.*

In addition, the system includes a Placement Assistance Module that evaluates user profiles based on skills, academic performance, and experience. It provides relevant job suggestions and personalized recommendations to help users improve their employability and make safer career decisions. By integrating scam detection with placement support, the system offers a comprehensive solution that ensures both secure job applications and effective career guidance.

Keywords: Machine Learning, Fake Job Detection, Natural Language Processing (NLP), TF-IDF, Logistic Regression, Rule-Based System, Scam Detection, Flask, Placement Assistance, Text Classification.

1. INTRODUCTION

The increasing use of online platforms for job and internship searches has made it easier for individuals to find opportunities, but it has also led to a rise in fraudulent job postings. Many job seekers fall victim to fake offers that involve misleading information, financial scams, or misuse of personal data. Identifying such scams manually is challenging, as they often appear similar to genuine postings. To address this issue, there is a need for an automated system that can assist users in detecting suspicious job opportunities and making safer decisions. This project focuses on developing a system that analyzes job-related information and identifies potential risks using intelligent techniques. In addition to improving user safety, the system also aims to support career development by providing guidance based on user skills and qualifications. By combining scam awareness with placement assistance, the solution helps users not only avoid fraudulent opportunities but also improve their chances of securing genuine jobs.

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2. LITERATURE SURVEY

The increasing number of online job postings has led to a rise in fake job and internship scams, creating serious challenges for job seekers. Recent studies highlight the use of Machine Learning and Natural Language Processing (NLP) techniques to identify fraudulent content in online platforms. Methods such as TF-IDF and text classification algorithms have been widely used to analyze textual patterns and detect suspicious job descriptions. Research shows that supervised learning models like Logistic Regression and Naïve Bayes can effectively classify content as genuine or fake based on linguistic features. In addition to machine learning approaches, rule-based techniques are also used to identify common scam indicators such as payment requests, unrealistic salary offers, and suspicious contact details. While machine learning models provide better generalization, rule-based systems help in detecting explicit fraud patterns.

Furthermore, recent works emphasize the importance of integrating user-support features such as career guidance and skill evaluation to enhance overall system usability. Combining scam detection with placement assistance can improve user trust and provide a more comprehensive solution. Overall, automated detection systems help reduce risks, improve reliability, and support safer job searching experiences.

3. PROPOSED SYSTEM

The proposed system is a real-time, web-based Fake Jobs and Internships Scam Detection and Prevention platform with integrated placement assistance, designed to enhance user safety and support informed career decisions. The system analyzes job descriptions, recruiter details, and uploaded documents to identify fraudulent patterns and classify job postings as genuine, suspicious, or fake.

The architecture of the system is built using a Flask-based backend combined with Machine Learning and rule-based detection modules. The machine learning component utilizes TF-IDF vectorization to convert textual data into numerical features, which are then processed using a Logistic Regression model for classification. This enables the system to detect hidden patterns and predict the authenticity of job postings. In parallel, a rule-based engine identifies explicit scam indicators such as payment requests, unrealistic salary offers, and suspicious communication patterns, improving detection accuracy.

Job-related inputs can be provided in multiple forms, including text descriptions, recruiter emails, and PDF documents. The system performs text extraction, preprocessing, and normalization before passing the data to the detection modules. Based on prediction probabilities and detected patterns, a risk score is generated and displayed to the user for better understanding of potential threats.

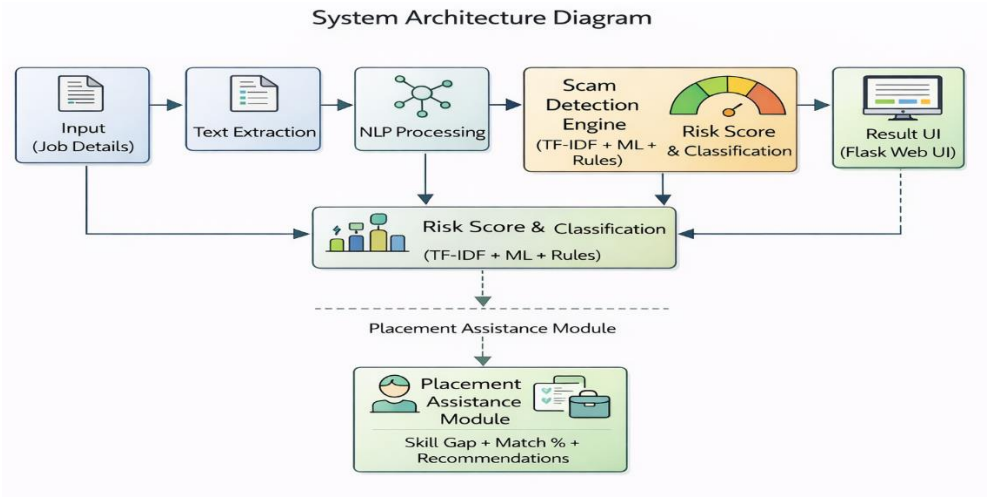

Fig 1: Proposed System

In addition to scam detection, the system includes a Placement Assistance Module that evaluates user profiles based on skills, academic performance, and experience. It provides relevant job suggestions and personalized recommendations to help users improve their employability. This module assists users in identifying skill gaps and guides them toward better career opportunities.

The user interface is developed as a Flask web application that provides an interactive and user-friendly experience. Users can input job details, upload documents, and view analysis results in real time. The system is designed to be lightweight, scalable, and efficient, making it suitable for practical deployment.

Overall, the proposed system offers a comprehensive solution by combining scam detection with placement support, ensuring both secure job searching and effective career development.

4. METHODOLOGY

The methodology of the system is organized into the following steps:

1. Job Input

Users provide job or internship details such as job description, company name, salary, and requirements. The system accepts this input for real-time scam analysis.

2. Text Extraction & Preprocessing

The input text is cleaned by removing stop words, special characters, and irrelevant symbols. The content is normalized to ensure consistency for further analysis.

3. Feature Extraction (TF-IDF)

The processed text is converted into numerical feature vectors using TF-IDF (Term Frequency–Inverse Document Frequency), enabling the system to analyze important keywords in the job posting.

4. Machine Learning-Based Detection

A Logistic Regression model is applied to classify the job posting based on learned patterns from training data. It predicts whether the job is genuine or potentially fraudulent.

5. Rule-Based Detection & Behavior Analysis

In addition to machine learning, rule-based techniques are used to detect suspicious patterns such as unrealistic salaries, missing company details, and scam-related keywords. This enhances detection accuracy.

6. Risk Score & Classification

The system combines results from both ML and rule-based analysis to generate a risk score. Based on this score, the job is classified as **Genuine, Suspicious, or Fake**.

7. Result Presentation

The results are displayed through a Flask-based web interface, showing risk score, classification status, risk factors, company trust score, behavior analysis, and prevention tips for the user.

8. Placement Assistance Module

Users can additionally provide their skills and profile details. The system analyzes this information to perform skill gap analysis, calculate match percentage, generate a placement score, and provide AI-based recommendations along with a learning roadmap.

5. PROPOSED SYSTEM RESULTS

The proposed Real-Time Fake Jobs and Internships Scam Detection and Prevention System with Integrated Placement Assistance was successfully developed and tested using various job postings and user profile inputs. The system effectively analyzed job data, identified fraudulent patterns, and provided meaningful placement guidance.

- The scam detection module accurately classified job postings as genuine, suspicious, or fake using a combination of machine learning and rule-based techniques.
- The TF-IDF-based feature extraction and Logistic Regression model generated reliable predictions, enabling effective identification of scam-related patterns in job descriptions.
- The rule-based detection system successfully identified risk factors such as unrealistic salaries, missing company details, and suspicious keywords, improving overall detection accuracy.
- The system generated a risk score**,** company trust score, and behavior analysis, providing users with clear insights into the authenticity of job postings.
- The result interface effectively displayed classification status, risk factors, and prevention tips, making it easy for users to understand and take appropriate action.
- The placement assistance module provided skill gap analysis, match percentage, placement score, and AI-based recommendation**,** helping users to improve their employability.
- The system consistently produced meaningful suggestions and learning road maps, ensuring that users receive both secure job verification and career guidance in a single platform.

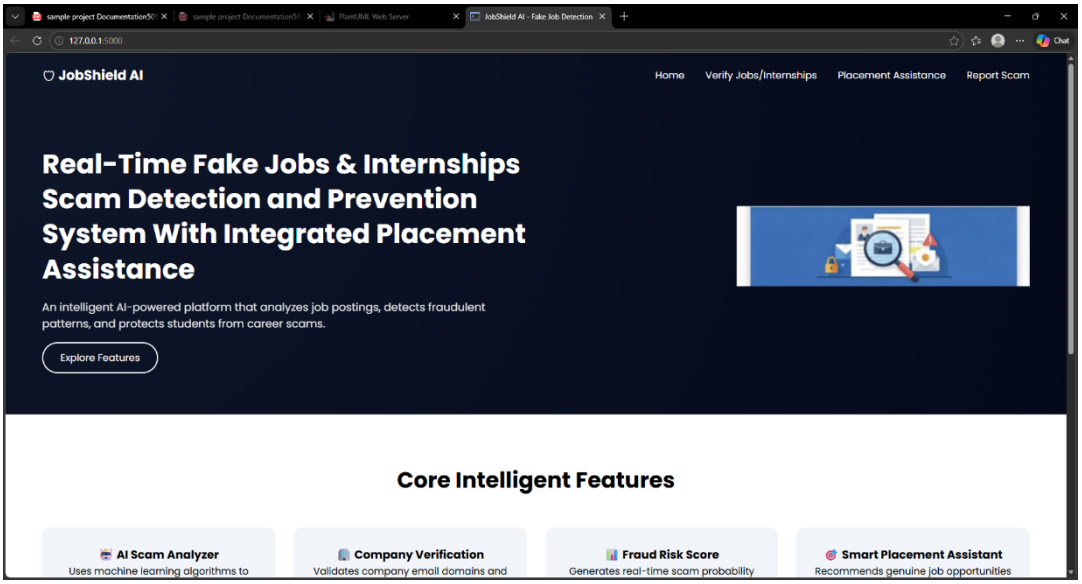

Fig 2: User Interface

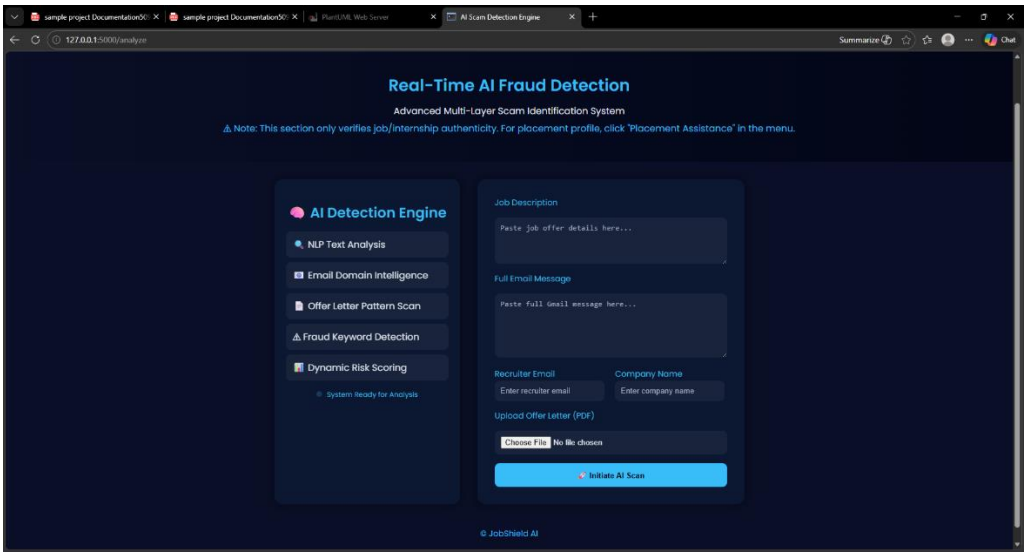

Fig 3: Input Form Page

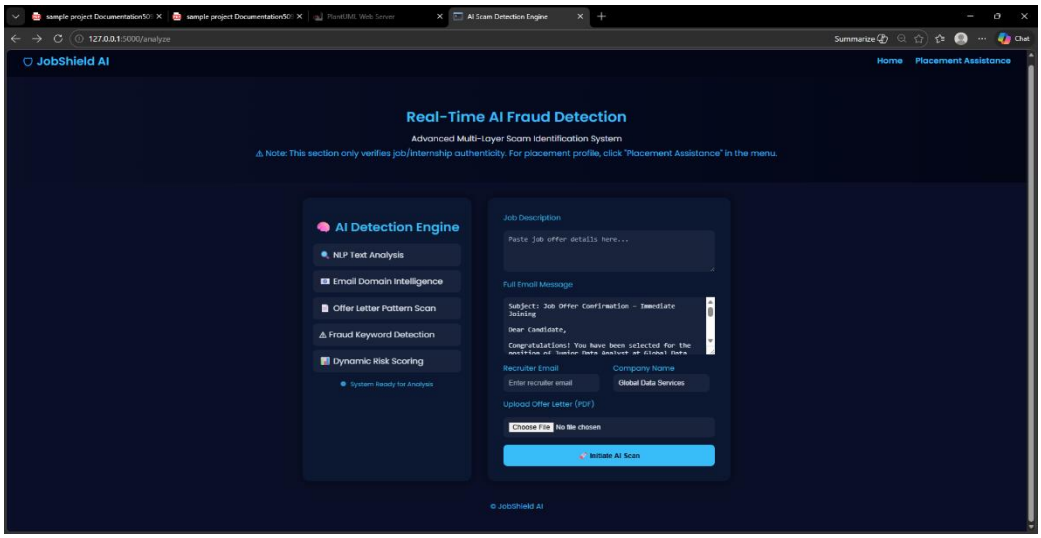

Fig 4: User Input Details

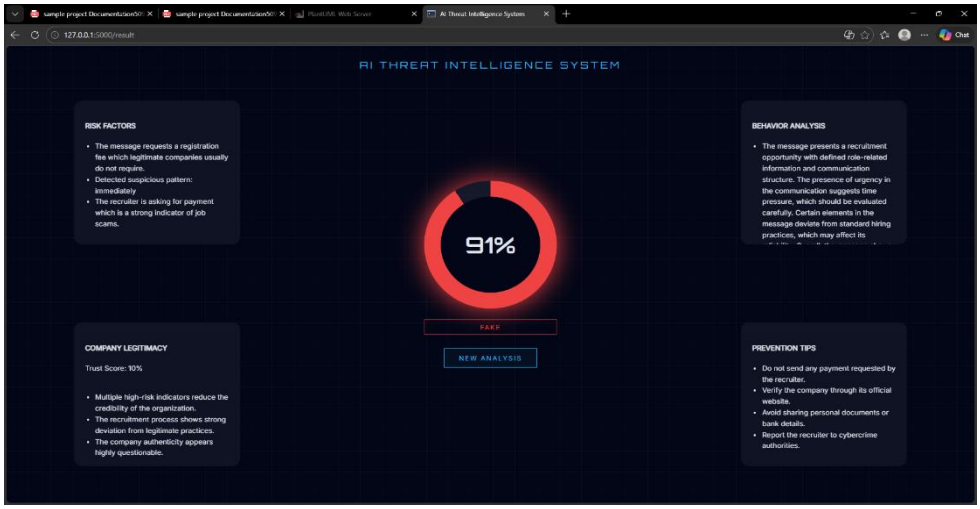

Fig 5: Fake input Results

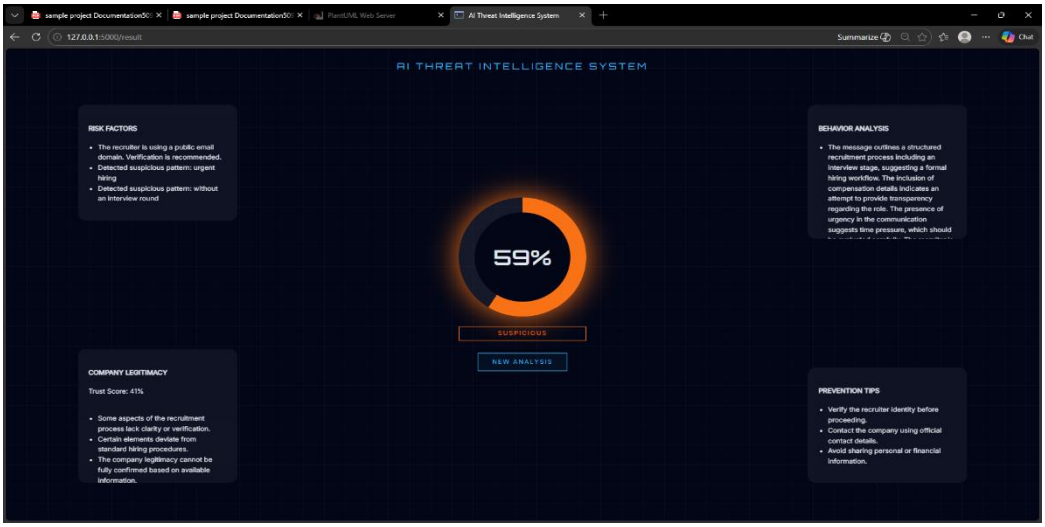

Fig 5.1: Suspicious Input Results

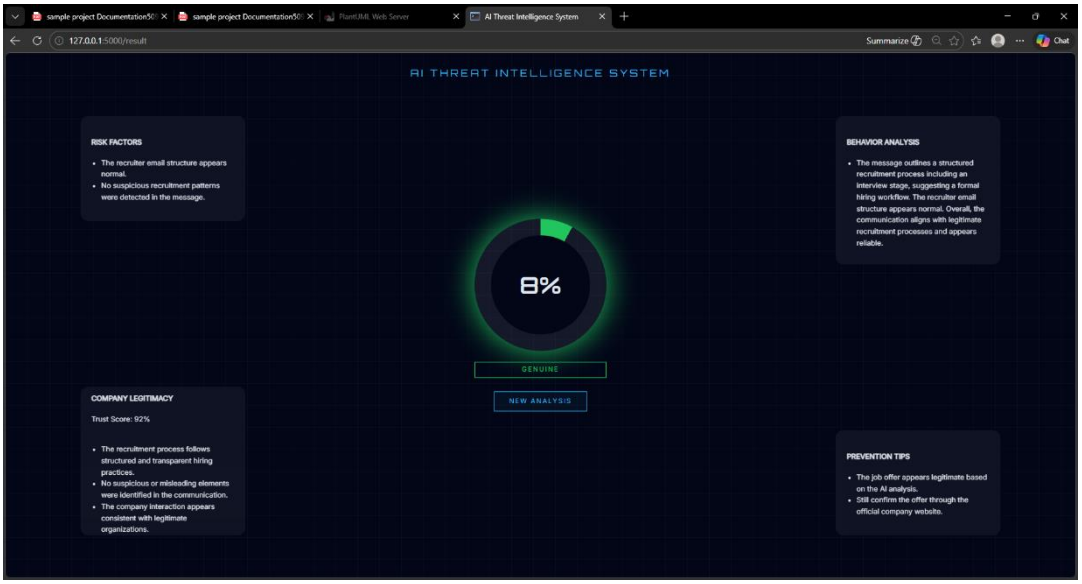

Fig 5.2 Genuine Input Results

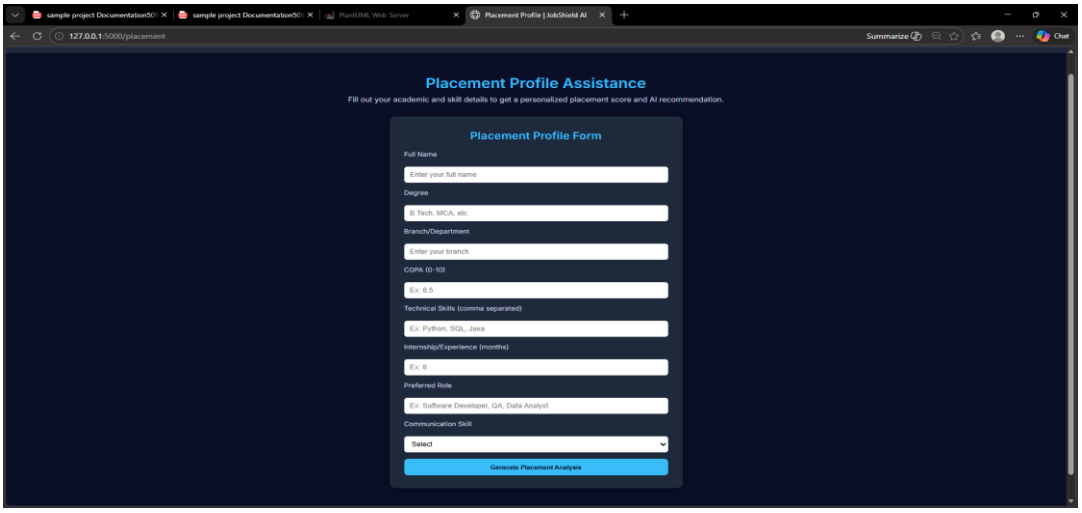

Fig 6: Placement Assistance Form page

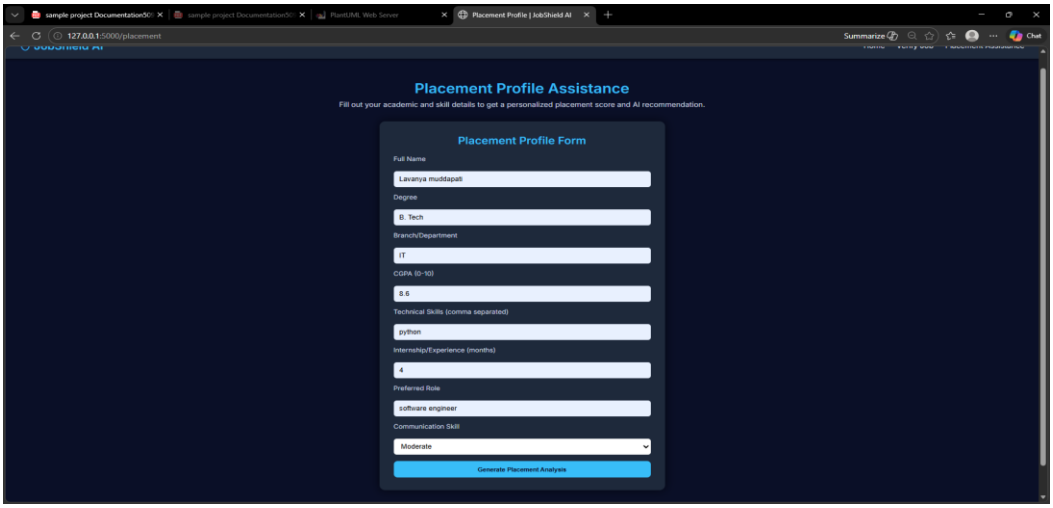

Fig 6.1: User Profile Details

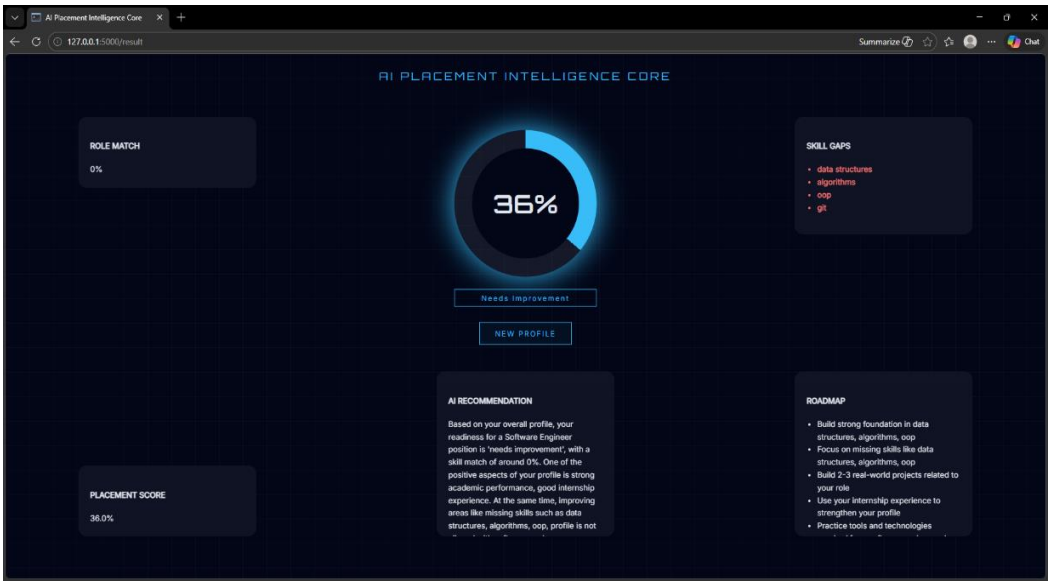

Fig 7: Placement Assistance Results

Overall, the system demonstrated strong performance in real-time scam detection and analysis of job postings, effectively identifying fraudulent patterns and providing reliable risk assessment. The integration of placement assistance further enhances its usefulness by offering personalized recommendations, thereby ensuring both secure job application and improved career guidance.

6. CONCLUSION

This work presents a real-time fake job and internship scam detection system integrated with placement assistance. The system effectively identifies fraudulent job postings using machine learning and rule-based techniques, generating accurate risk scores and classifications. The user interface provides clear insights such as risk factors and prevention tips for safer decision-making. Additionally, the placement module offers skill analysis and personalized recommendations to improve employability. Overall, the system provides a secure, efficient, and practical solution for safe job searching and career guidance.

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