



Knight Foundation School of Computing and Information Sciences

Summer 2025 Senior Design Project

Job Guard

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PROBLEM

In today's digital job market, job seekers are increasingly vulnerable to fraudulent job postings that can lead to financial loss, identity theft, or wasted time. These scams often mimic legitimate listings, making them difficult to identify without prior knowledge or experience. Despite growing awareness, there is no widely accessible, user-friendly tool that helps individuals verify the legitimacy of a job post in real time. Our project addresses this gap by providing a web-based platform that analyzes job listings for common indicators of fraud and delivers a credibility rating to the user, empowering them to make safer and more informed career decisions.

VERIFICATION

Test Case 1: "Remote Data Entry"

Job Title: *Work From Home Data Entry ~ \$3,000/week!*

No experience necessary

Immediate start

"Just send us your resume and bank details to get started!"

System Output:

Fraud Score: 92%

Red Flags: Excessive salary for role, urgent language, request for sensitive information

Verdict: Likely scam

Test Case 2: "Vague Recruiter Message"

Job Title: *Customer Service Representative*

Very short description

No company name listed

Contact email is a generic Gmail address

System Output:

Fraud Score: 75%

Red Flags: No company details, unprofessional contact info, vague responsibilities

Verdict: Suspicious — proceed with caution

Test Case 3: "Recruitment Through WhatsApp"

Job Title: *Online Marketing Associate*

Found via Facebook comment

Recruiter says to message on WhatsApp for job details

No mention of company name or role duties

System Output:

Fraud Score: 88%

Red Flags: Nonstandard recruitment channel, no job details, suspicious contact method

Verdict: Likely scam

SUMMARY

Our capstone project is a web-based tool designed to help users detect fraudulent job listings using AI-driven analysis. Users input a job post directly into the system, which processes the listing through a custom-built fraud detection model. The AI examines the content for red flags—such as vague descriptions, unrealistic salaries, and suspicious contact methods—and classifies the listing as **Legitimate**, **Fraudulent**, or **Uncertain**.

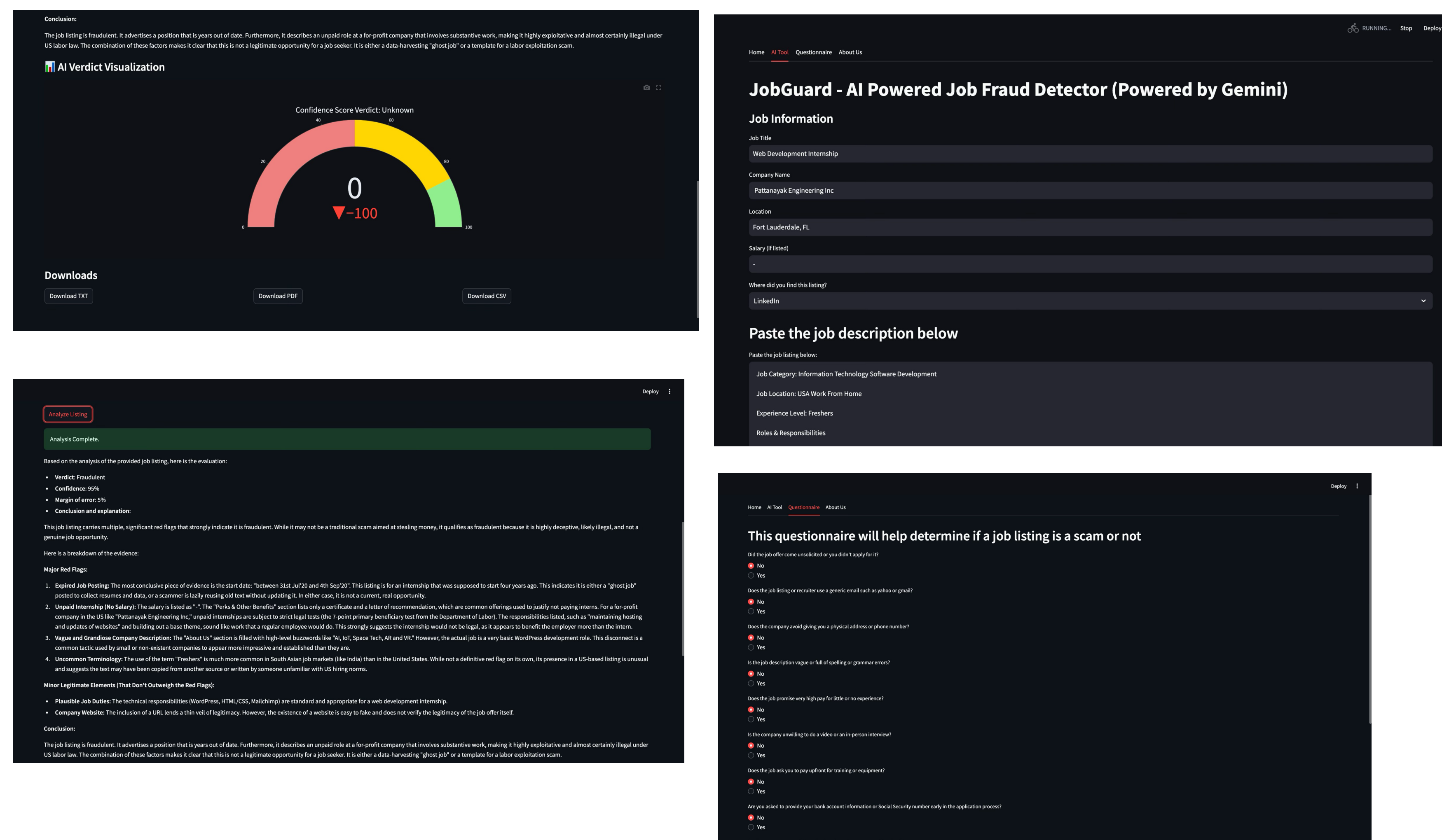
Upon completion, users receive a suite of downloadable reports:

- A **TXT file** with a plain-language explanation from the AI
- A **PDF report** summarizing the findings in a formal format
- A **CSV file** that organizes key metadata like job title, company, salary, listing source, verdict, confidence score, and margin of error

The system includes a visual **confidence meter**, which displays how certain the AI is in its classification, along with a margin of error to help users gauge the reliability of the result. While some edge cases may produce low-confidence outputs (e.g., a 0% reading), we are actively investigating and refining those scenarios.

This tool empowers job seekers to make safer decisions by providing accessible, AI-powered insights into the legitimacy of job postings.

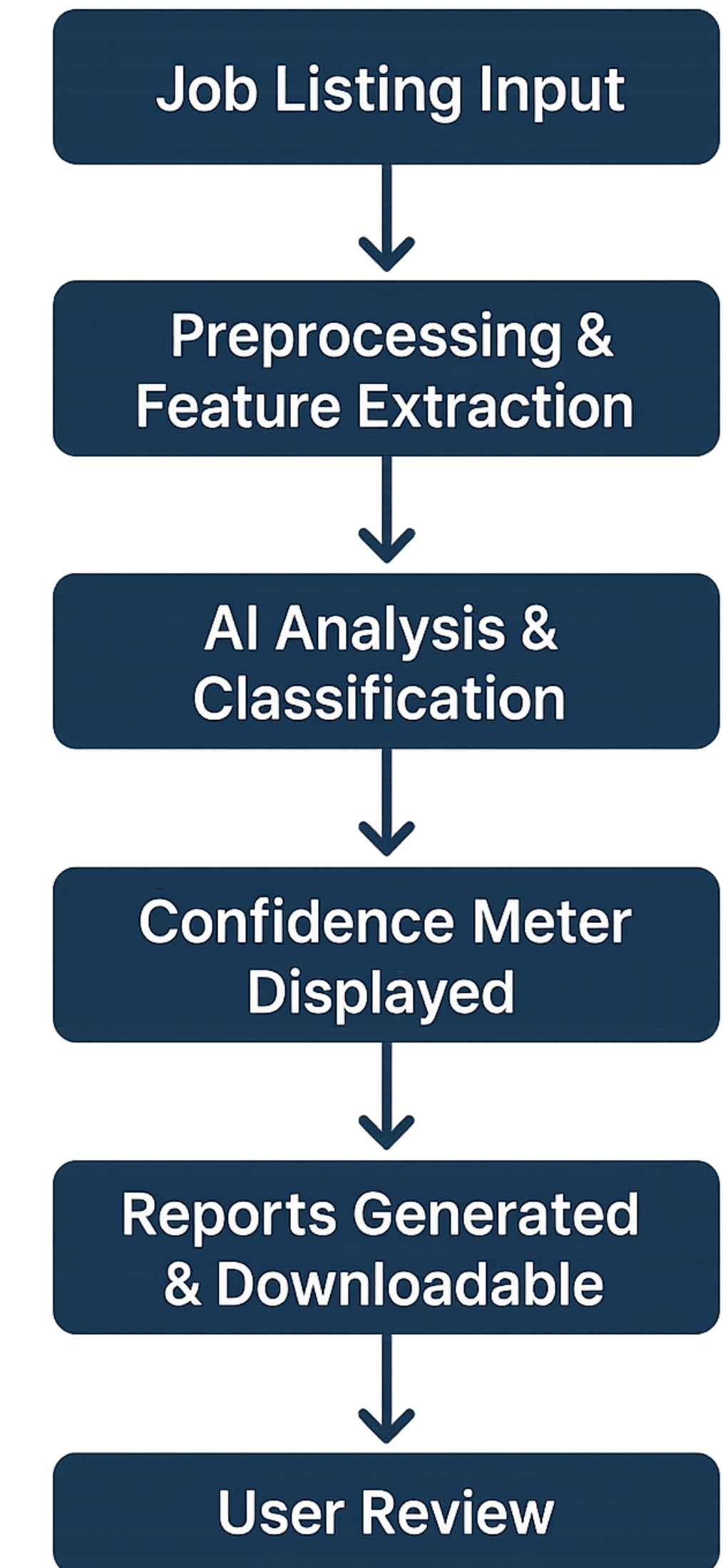
OBJECT DESIGN



IMPLEMENTATION



SYSTEM DESIGN



REQUIREMENTS

- Users must be able to input a job listing manually or via copy-paste.
- The system must analyze the listing and classify it as **Legitimate**, **Fraudulent**, or **Uncertain**.
- A confidence score and margin of error must accompany each classification.
- Users should be able to download:
- A formatted report (PDF)
- The interface must display a **confidence meter** to visually indicate result reliability.
- The application is built using **Python** and deployed with **Streamlit** to provide an interactive, user-friendly interface.
- The platform generates and allows users to download:
- A **PDF report** summarizing the AI analysis in a formal format
- A dynamic **confidence meter** is rendered within Streamlit to visually communicate the AI's confidence in its classification, along with the margin of error.
- Data is handled in-memory or via lightweight data storage tools such as **fpdf**, ensuring fast processing and export.

Performance

- Model must achieve acceptable accuracy (e.g., $\geq 85\%$) during testing
- Confidence meter must be responsive and reflect true classification probability
- Report generation should take less than 5 seconds