Daffodil international University

Department of Software Engineering

Batch– 40th

Section- F2

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Course Name: Software Engineering Design

Capstone Project

Course Code: SE331

Project Title: AI-Based Job Post Fraud Detection System

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Project Title

AI-Based Job Post Fraud Detection System

Introduction

With the rapid growth of online job portals and social media platforms, job seekers increasingly rely on digital sources to find employment opportunities. Fake job advertisements are often used to scam applicants by collecting personal information, charging registration fees, or offering non-existent jobs.

This project proposes an AI-based software solution to automatically detect fraudulent job posts using machine learning and data analysis techniques. The system aims to classify job postings as legitimate or fraudulent, helping job seekers and job platforms reduce the impact of online job scams.

Background Overview

This project falls under the domains of Artificial Intelligence, Cybersecurity, and Online Recruitment Systems. Currently, many job portals rely on manual moderation or basic keyword-based filtering to identify suspicious job posts. These traditional methods are often inefficient, time-consuming, and unable to adapt to new fraud patterns.

Problem Statement

Online job platforms face significant challenges in detecting fraudulent job postings effectively. Existing systems largely depend on manual review or static filtering rules, which are not scalable and fail to identify complex or evolving fraud patterns. As a result, many fake job posts are published and viewed by thousands of job seekers before being removed.

These fraudulent postings can lead to data theft, financial scams, and loss of credibility for recruitment platforms. The lack of an automated, intelligent fraud detection mechanism highlights the need for a machine learning–based solution that can analyze job post content and classify it accurately

Objectives

General Objective

The main objective of this project is to design and develop an AI-based system that can automatically detect fraudulent job postings using machine learning techniques, thereby improving the safety and reliability of online job platforms.

Specific Objectives

- To analyze job post text and related attributes using data preprocessing techniques
- To build a machine learning model for classifying job posts as real or fake
- To reduce exposure of job seekers to fraudulent job advertisements

Scope

In-Scope Features

- Collection and preprocessing of job post datasets
- Machine learning–based fraud classification model
- Web-based interface for job post analysis
- Storage of historical job post data and prediction results
- Admin dashboard for monitoring system performance

Out-of-Scope Features

- Direct integration with real-world job portals
- Legal investigation or enforcement against fraudsters
- Real-time chat or communication monitoring

The project scope is defined to ensure feasibility within academic constraints and available resources.

Stakeholders

- **Job Seekers**: Benefit from reduced exposure to fake job postings
- **Job Platform Administrators**: Use the system to detect and filter fraudulent content
- **System Administrator**: Manages datasets, models, and system maintenance

All stakeholders gain improved trust, security, and efficiency in the job recruitment process.

Proposed Solution

The proposed system is a web-based AI-driven job post fraud detection platform. The system uses machine learning algorithms to analyze job post descriptions, company information, and posting patterns. After preprocessing the data, the trained model classifies each job post as legitimate or fraudulent.

Administrators can upload job post data or input new job descriptions through the system interface. The system then provides prediction results along with confidence scores. This intelligent approach helps identify fraudulent job advertisements early, reducing risks for job seekers and improving the credibility of recruitment platforms.

System Requirements

- The system shall allow administrators to input or upload job post data
- The system shall preprocess and analyze textual job descriptions
- The system shall classify job posts as real or fraudulent using AI models
- The system shall store prediction results and historical records securely
- The system shall display results through a user-friendly dashboard

Tools and Technologies

- Programming Language: HTML, CSS
- Framework: Laravel
- Machine Learning Libraries: Scikit-learn, Pandas, NumPy
- Database: MySQL
- Development Tools: VS Code, Git

Project Timeline and Work Plan

Milestone	**Tasks**	**Responsible Member**
Week 1–2	Requirement Analysis & Dataset Collection	Team Member 1
Week 3–4	Data Preprocessing & Feature Engineering	Team Member 1,2
Week 5–7	Model Development & Training	Team Member 3, 4
Week 8–9	Web System Integration	Team Member 2,3
Week 10–11	Testing, Evaluation & Documentation	Team Member 4

Optional Sections

Existing System

Most job platforms rely on manual moderation or simple rule-based filters, which are inefficient and unable to detect sophisticated fraud patterns.

System Architecture

The system follows a client-server architecture consisting of a web interface, AI processing layer, and database management system.

Ethical, Legal, and Social Considerations

The system does not collect sensitive personal data and focuses on content analysis. Ethical AI practices and data privacy standards will be maintained.

Future Work

Future enhancements may include deep learning models, real-time job portal integration, multilingual fraud detection, and improved explainability of AI predictions.