PARSHWANATH CHARITABLE TRUST'S
A.P. SHAH INSTITUTE OF TECHNOLOGY
Department of Computer Science and Engineering
Data Science

# Resume Radar – NLP based Streamlined Recruitment Process

**Mohammad Anas Chougle – 23207006**
**Asma Rajguru – 23207005**
**Arju Salmani – 22107003**

**Project Guide**
**Ms.Ashwini Rahude**

# Outline

- Introduction
- Literature Survey of the existing systems
- Limitations of the existing systems
- Problem statement
- System Design
- Technologies and methodologies
- Implementation
- Conclusion
- References

# Introduction

In today's competitive job market, managing a large volume of resumes can be challenging, and traditional recruitment methods are often slow and error-prone. Resume Radar tackles these issues by leveraging NLP technology to automate resume screening, enhancing efficiency, accuracy, and overall hiring effectiveness.

**Motivation:-**

The growing complexity of the job market and the high volume of applications overwhelm recruiters, leading to delays and potential biases in hiring.

Resume Radar uses NLP technology to automate and improve resume screening, reducing errors and biases, and making the recruitment process faster and more effective.

This innovation aims to enhance candidate selection and overall hiring outcomes

# Objectives:-

- Implement a streamlined system where candidate resumes are assessed by qualifying staff and a dedicated committee.
- Employ resume screening and matching technology to quickly identify candidates meeting our specific criteria.
- Establish a qualifying and approval process to thoroughly review candidates before interviews, saving time and ensuring only the best are considered.
- Involve a dedicated committee of experts to provide diverse perspectives and comprehensive evaluations.

# Literature Survey of the existing system

| SR. NO | TITLE | AUTHOR | YEAR | OUTCOMES | METHODOLOGY | RESULT |
|---|---|---|---|---|---|---|
| 1. | Resume Shortlisting Using NLP[1] | Nikhil Kumar Thakur | 2024 | The recruitment process was automated, reducing manual effort and improving candidate selection efficiency. | The system parses resumes, applies NLP techniques (tokenization, lemmatization, NER), and uses a trained NER model with cosine similarity to match resumes with job descriptions. | The system effectively shortlisted resumes with high precision and recall scores. |

# Literature Survey of the existing system

| SR. NO | TITLE | AUTHOR | YEAR | OUTCOMES | METHODOLOGY | RESULT |
|---|---|---|---|---|---|---|
| 2. | Enhancing Recruitment Processes Using Machine Learning Algorithms [2] | A. Smith | 2022 | The study showcased how machine learning algorithms streamline recruitment by automating resume screening, resulting in faster hiring and better talent matching. | Machine learning models, including classification algorithms and NLP, were used to match resumes with job descriptions and prioritize candidates based on skill relevance. | Implementing these algorithms reduced manual screening time, improved candidate matching accuracy, and minimized biases in hiring decisions. |

# Literature Survey of the existing system

| SR. NO | TITLE | AUTHOR | YEAR | OUTCOMES | METHODOLOGY | RESULT |
|---|---|---|---|---|---|---|
| 3. | Web Application for Screening Resume[3] | Nikita Jayakar | 2019 | The system automates resume screening by ranking candidates based on relevance to job descriptions, reducing recruiter effort. | It uses NLP and machine learning for text extraction and comparison, scoring resumes against job requirements. | The model, trained on 220 resumes, achieved expected accuracy, improving efficiency in candidate selection.. |

# Limitations of existing systems

- Limited Dataset: The model is trained on only 354 resumes, limiting its ability to handle diverse resume formats and job profiles across industries.

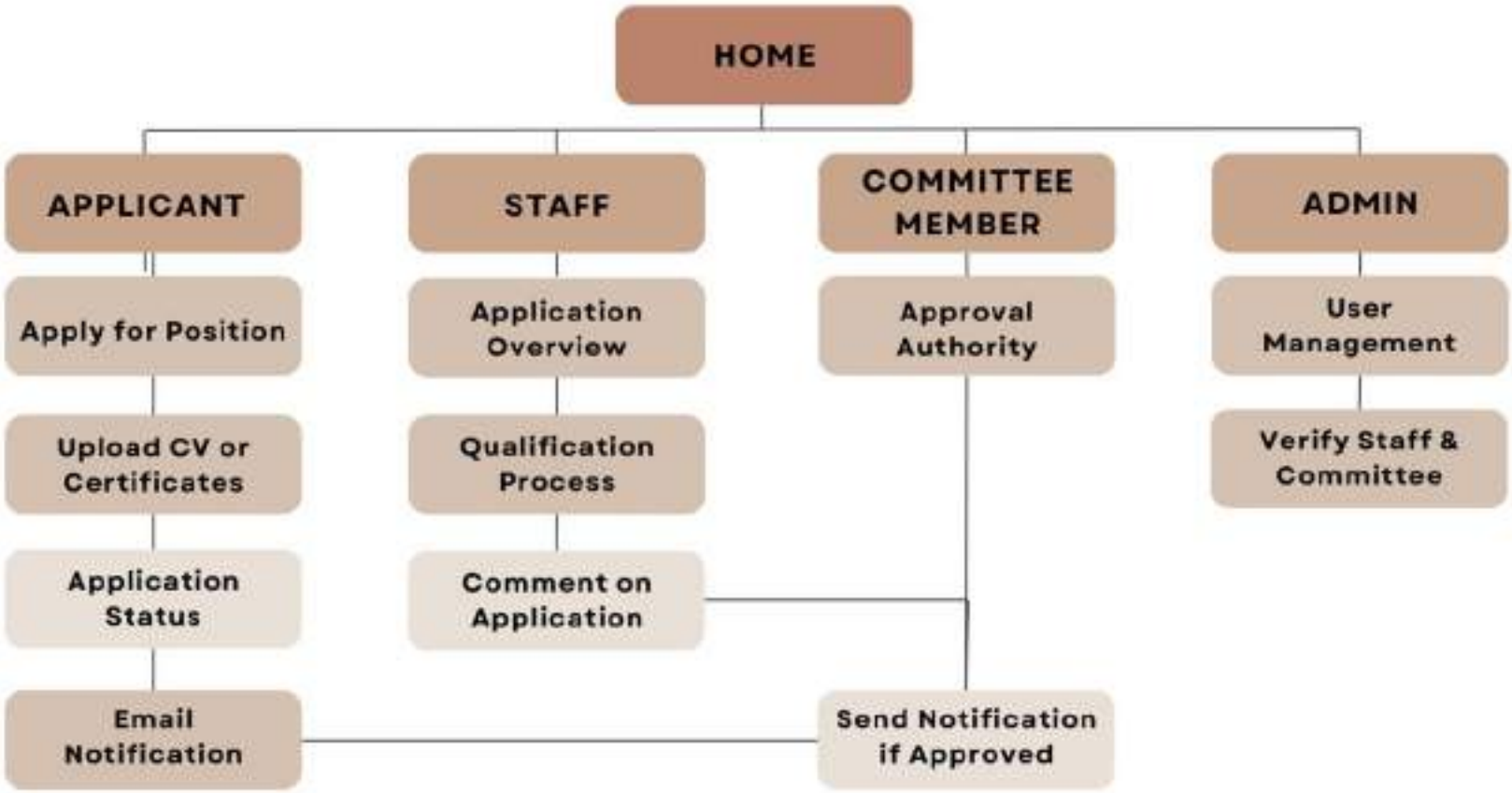
- Manual Re-training Requirement: The need to retrain the model with more relevant data if the F1 score is low introduces manual effort, reducing automation efficiency.

- Bias in Training Data: A biased or non-diverse training dataset may lead to the model reinforcing existing biases, affecting fairness in resume shortlisting.

# Problem statement

- Organizations are struggling to efficiently manage and screen a high volume of resumes, often leading to delays and suboptimal hiring decisions.
- Traditional manual methods are time-consuming, labor-intensive, and prone to biases, which can result in overlooked talent and reduced hiring quality.
- There is a need for a solution that can automate and streamline the resume screening process to improve efficiency, accuracy, and fairness in recruitment.

# System Design



# Technologies and methodologies

- **Front-End:**
  - HTML
  - CSS

- **Back-End:**
  - Python
  - Django
  - Sqlite DataBase

- **Dataset:**
  - Resume Dataset from Kaggle
  - Updated Resume Dataset from Kaggle

- **Algorithm:**
  - Named Entity Recognition (NER) using SpaCy
  - Stochastic Gradient Descent (SGD)

# Implementation

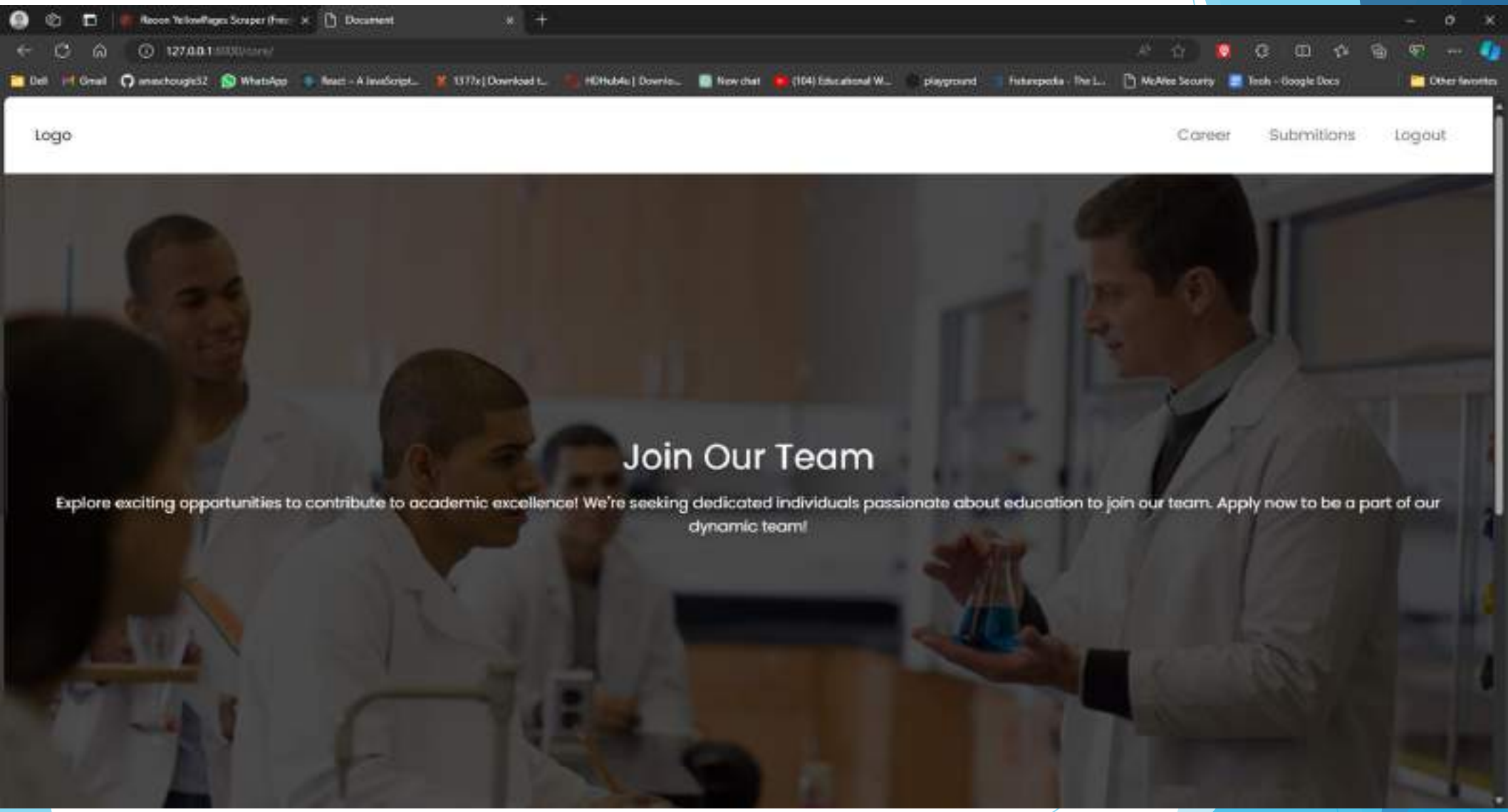



Fig.1:Homepage

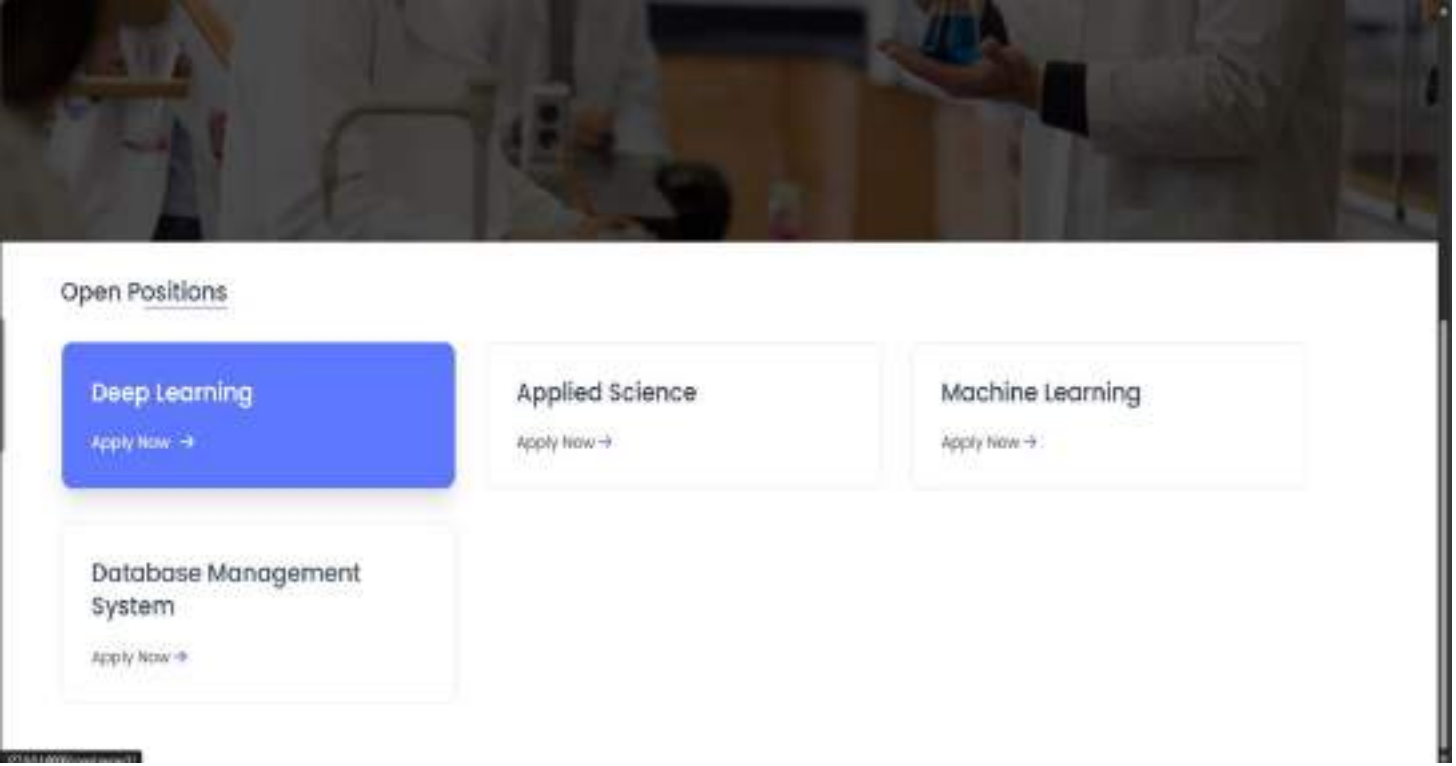
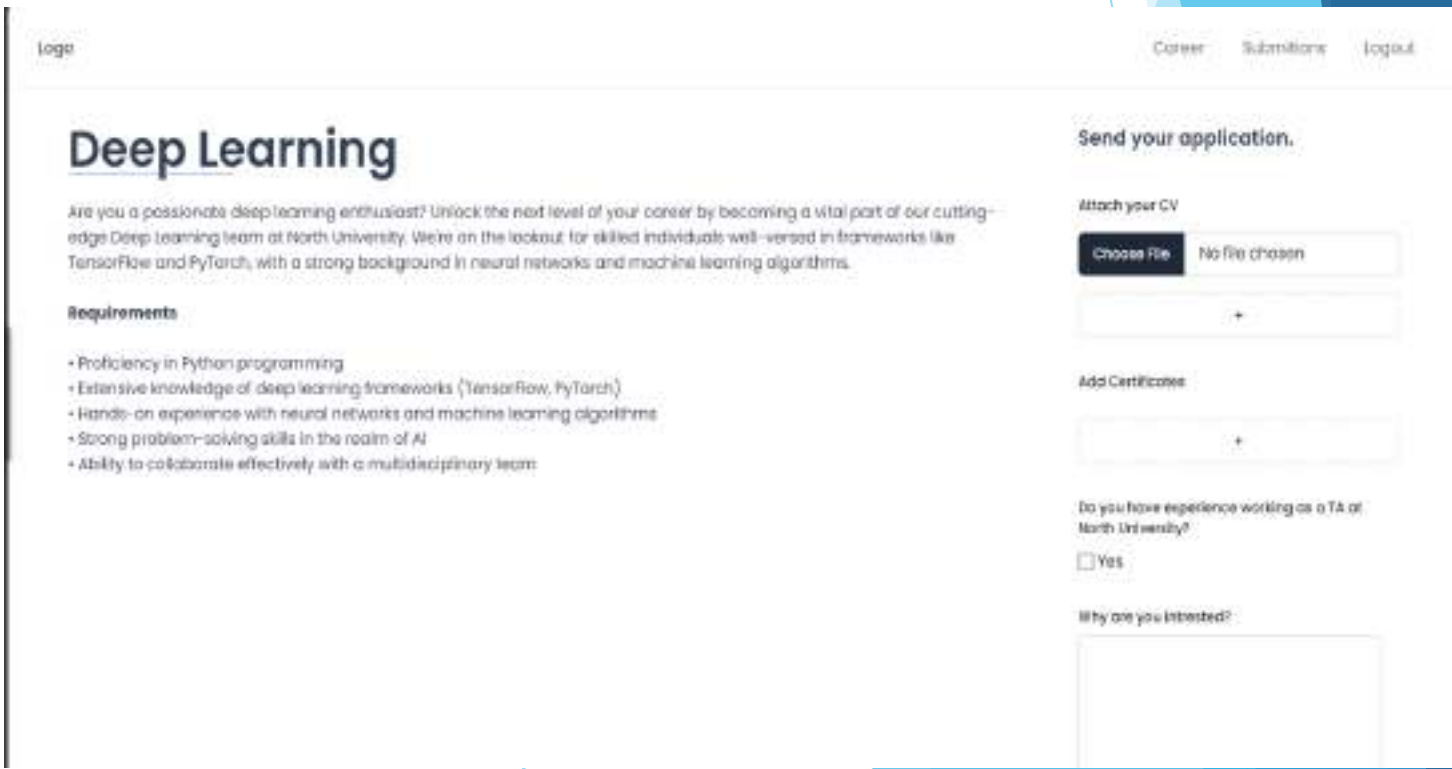



Fig.2.Dashboard

Fig.3.Job Description



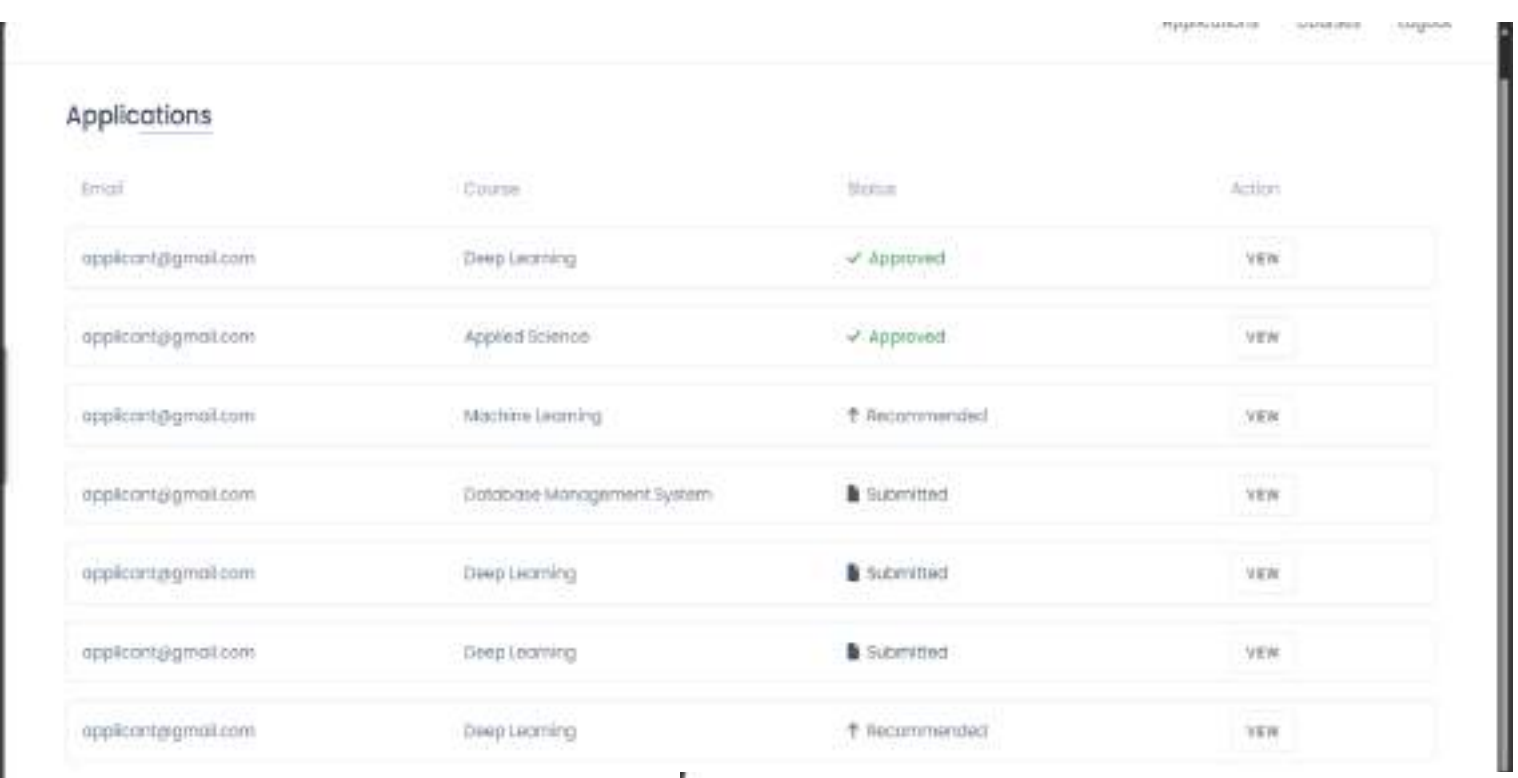



Fig.4.Application Status

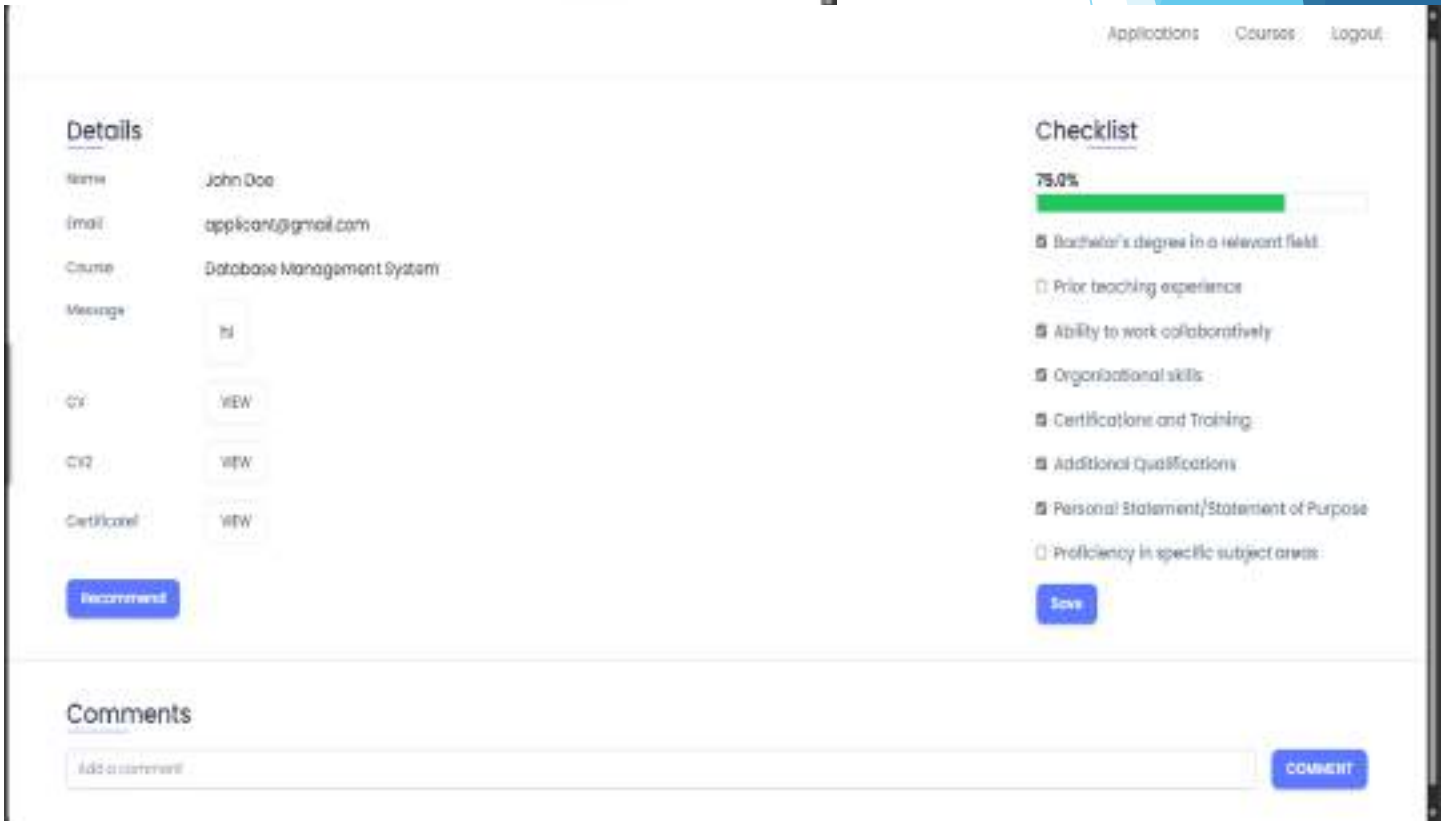



Fig.5.Admin Page

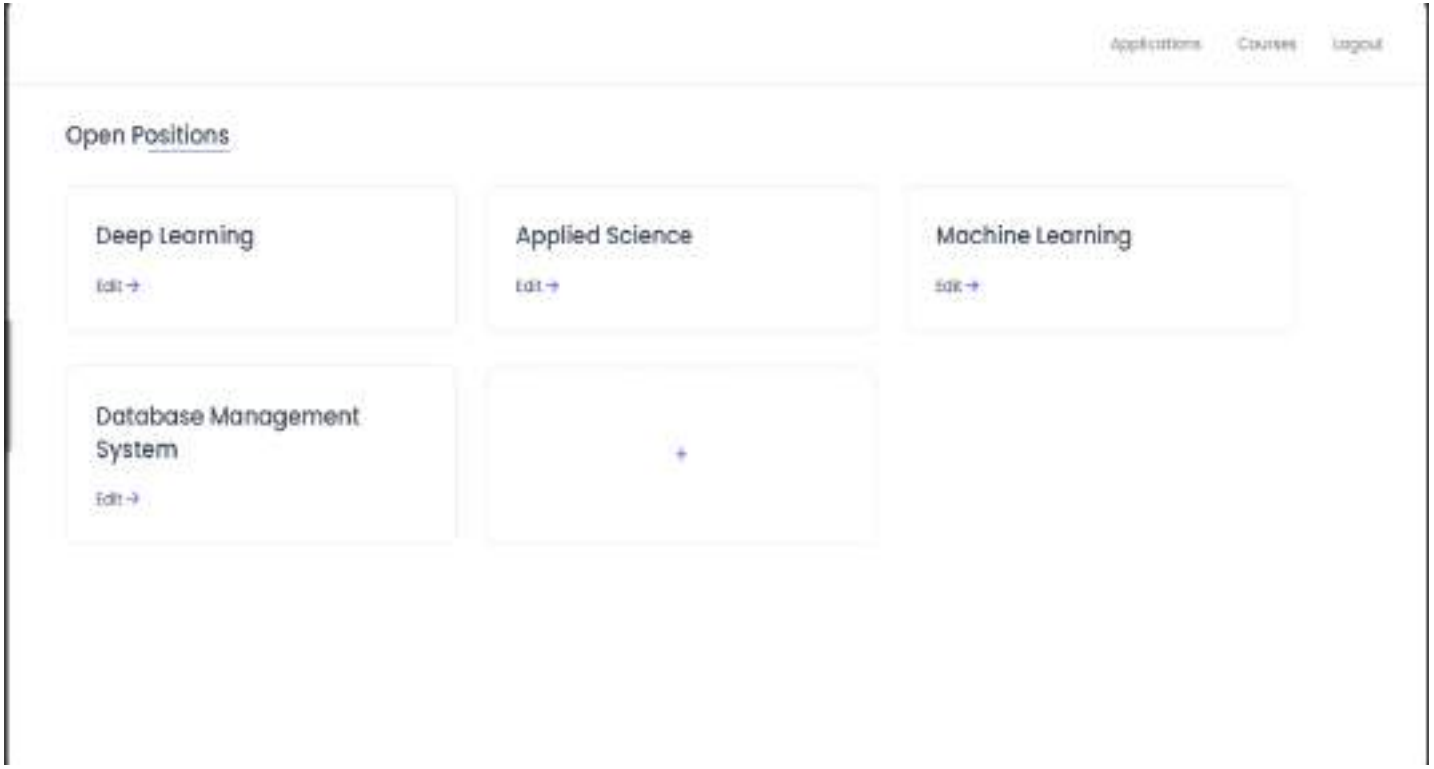



Fig.6.Job Opening

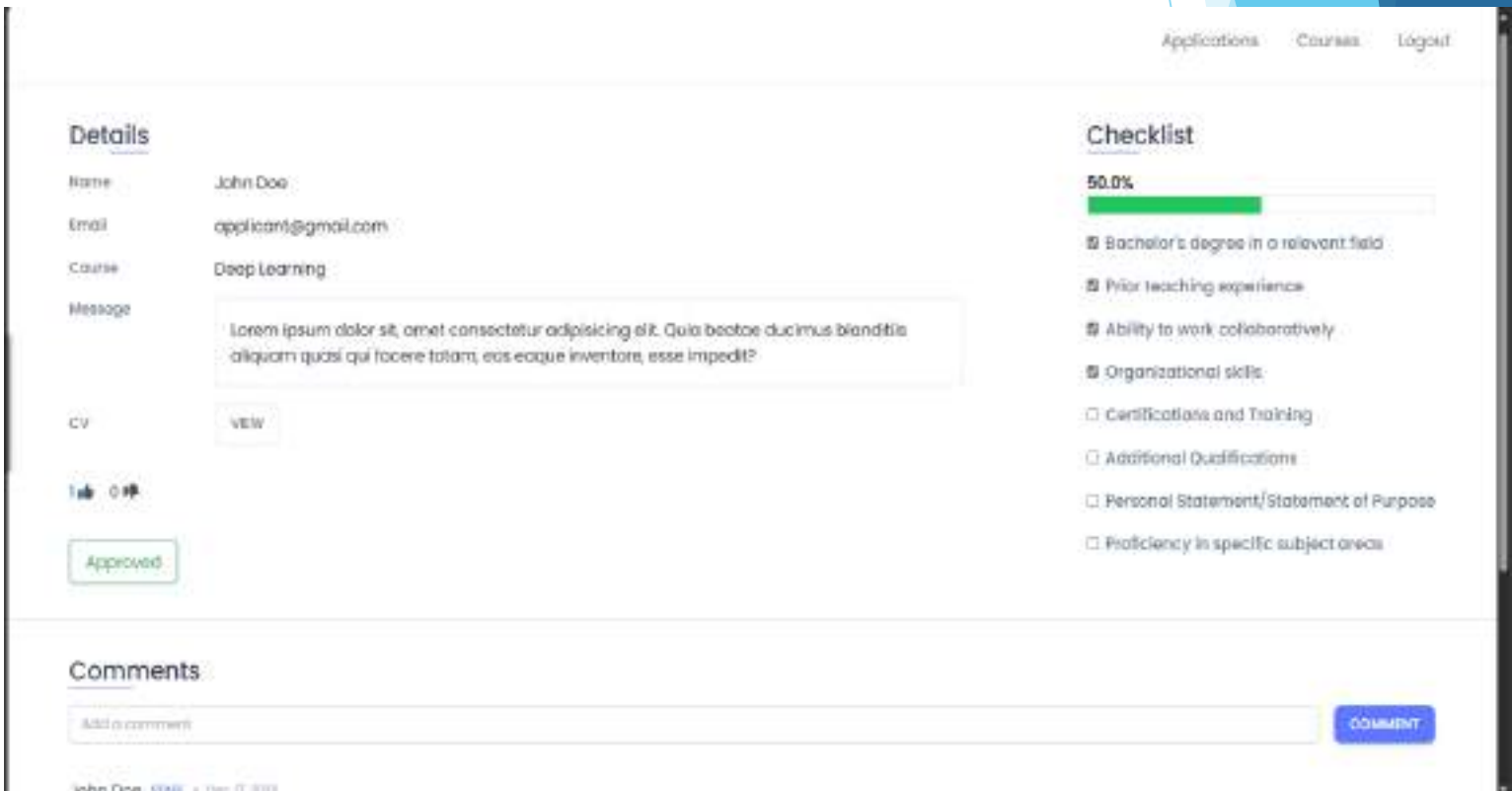



Fig.7.Cv Check

# Conclusion

Implementing NLP (Natural Language Processing) in Resume Radar enhances the efficiency and accuracy of resume screening and candidate matching. By analyzing language patterns and extracting relevant skills, NLP helps match candidates more effectively with job requirements. This streamlines the recruitment process, reduces manual effort, and improves alignment between candidates and roles. The data-driven approach optimizes hiring decisions, contributing to better talent acquisition and overall organizational success.

# References


[1] Dr. Ambareesh S., Nikhil Kumar Thakur, Ujjwal Bhattarai, Saurav Kumar Yadav, Jay Nath Thakur, Amrit Kumar Mahato,Resume Shortlisting Using NLP, 4th IEEE International Conference on Data Engineering and Communication System (ICDECS 2024).

https://ieeexplore.ieee.org/document/10502580

2] M. Kowalski, L. Zhang, and A. Smith, "Enhancing Recruitment Processes Using Machine Learning Algorithms," 2022 IEEE International Conference on Artificial Intelligence and Machine Learning (AIML2022).

https://ieeexplore.ieee.org/document/9634567

[3] Sujit Amin,Nikita Jayakar,Sonia Sunny,Pheba,Babu.M.Krruthika, Ambarish Gurjar, Web Application for Screening Resume, 2019 International Conference on Nascent Technologies in Engineering (ICNTE 2019).

https://ieeexplore.ieee.org/document/8945869

# Thank You...!!