



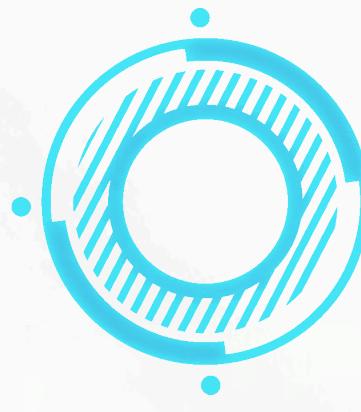
End-to-End AI-Driven Recruitment Pipeline with Real-Time Interview Insights and Cultural Fit Scoring

By

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Under the guidance of Mr. Rahman Alam



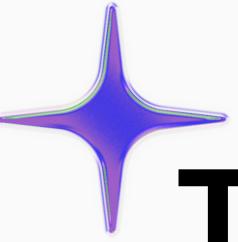
Introduction

Objective

- Automate the hiring process using Artificial Intelligence.
- Reduce manual effort in resume screening and interview scheduling.
- Ensure fair, unbiased, and efficient candidate selection.

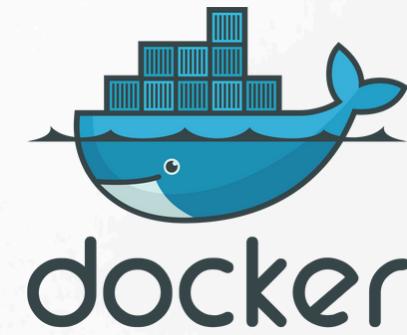
How It Works?

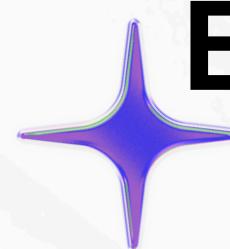
- **Resume Screening** – AI extracts relevant skills and experience.
- **Interview Question Generation** – AI creates job-specific questions.
- **Interview Process** – AI-assisted interviews or human-conducted ones.
- **Decision Making** – AI analyzes performance & selects/rejects candidates.
- **Email Notification** – HR receives an automated email with the decision.
- **Impact** – Saves time, improves efficiency, and reduces hiring bias.



Tech Stack

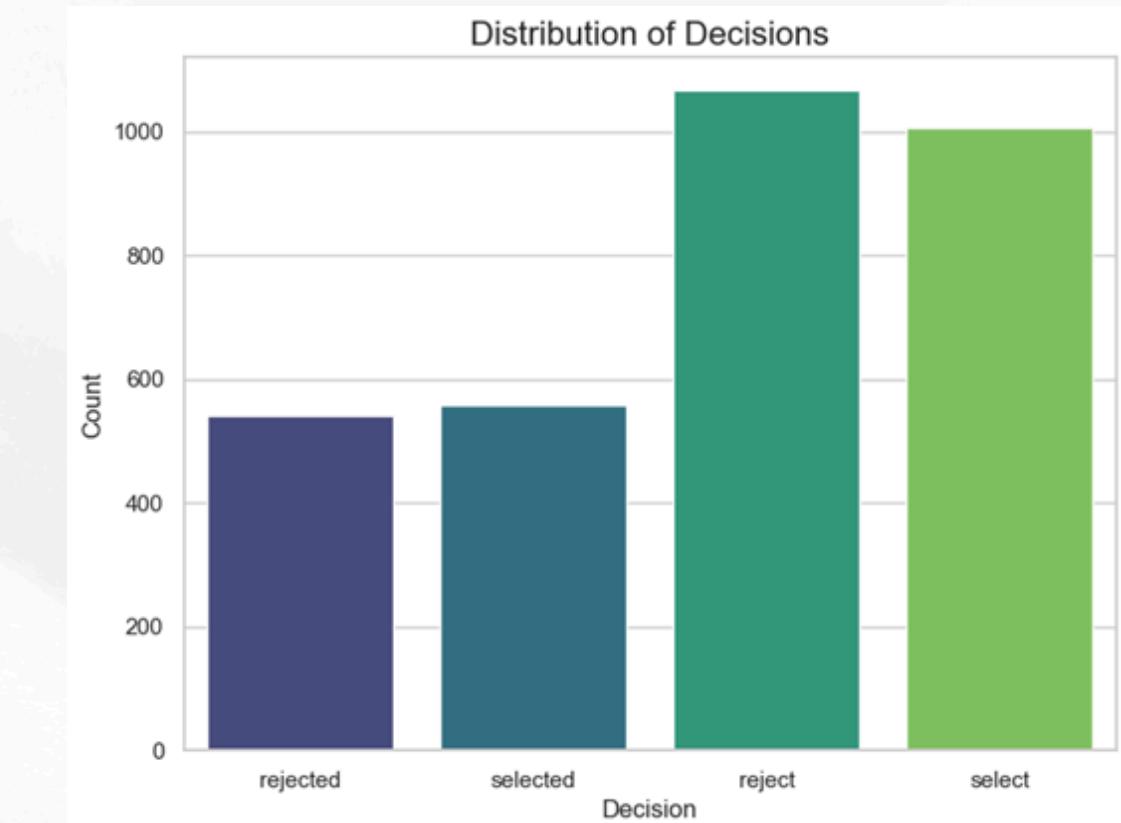
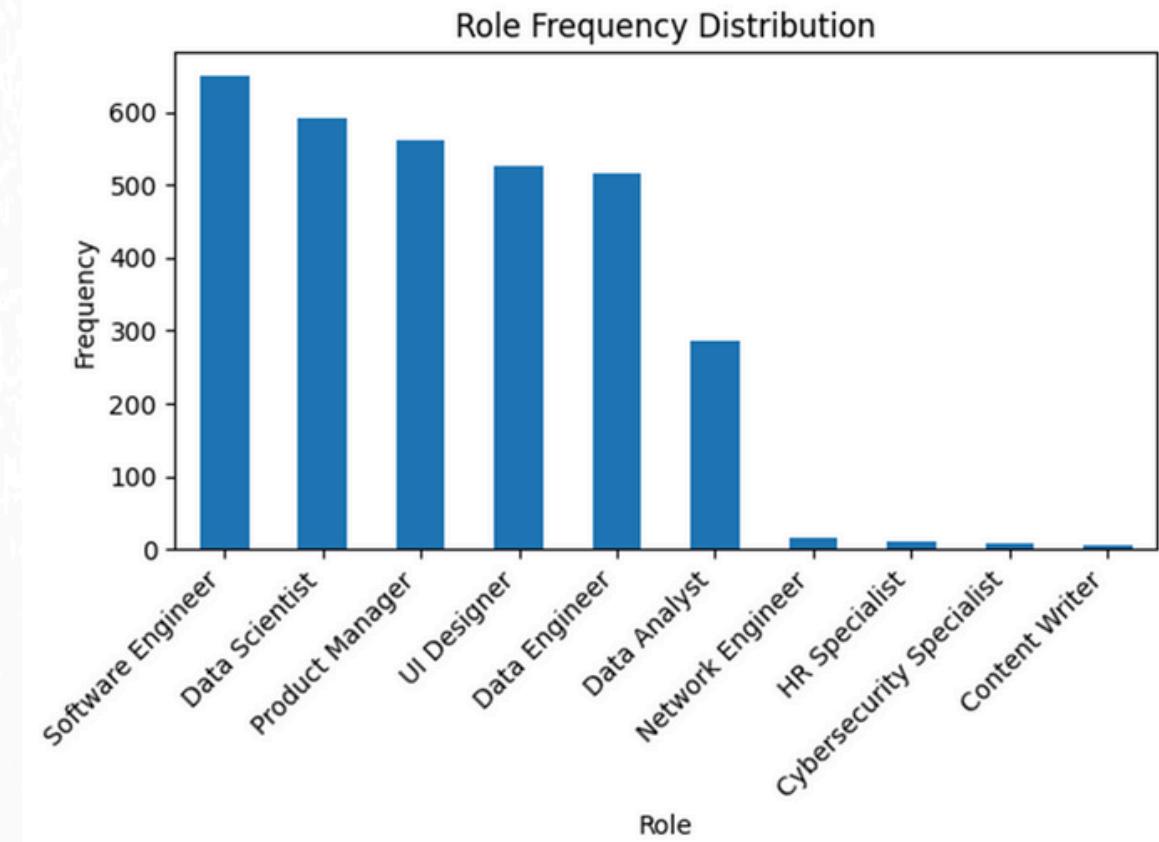
- **Large Language Model:** GPT-4, Llama, Together ai
- **Deployment Platform:** Streamlit, GitHub
- **Vector Database:** PostgreSQL
- **Container:** Docker
- **Programming Language:** Python 3
- **Embedding:** Large text embeddings
- **Version Control:** Git, GitHub
- **IDE:** Visual Studio Code





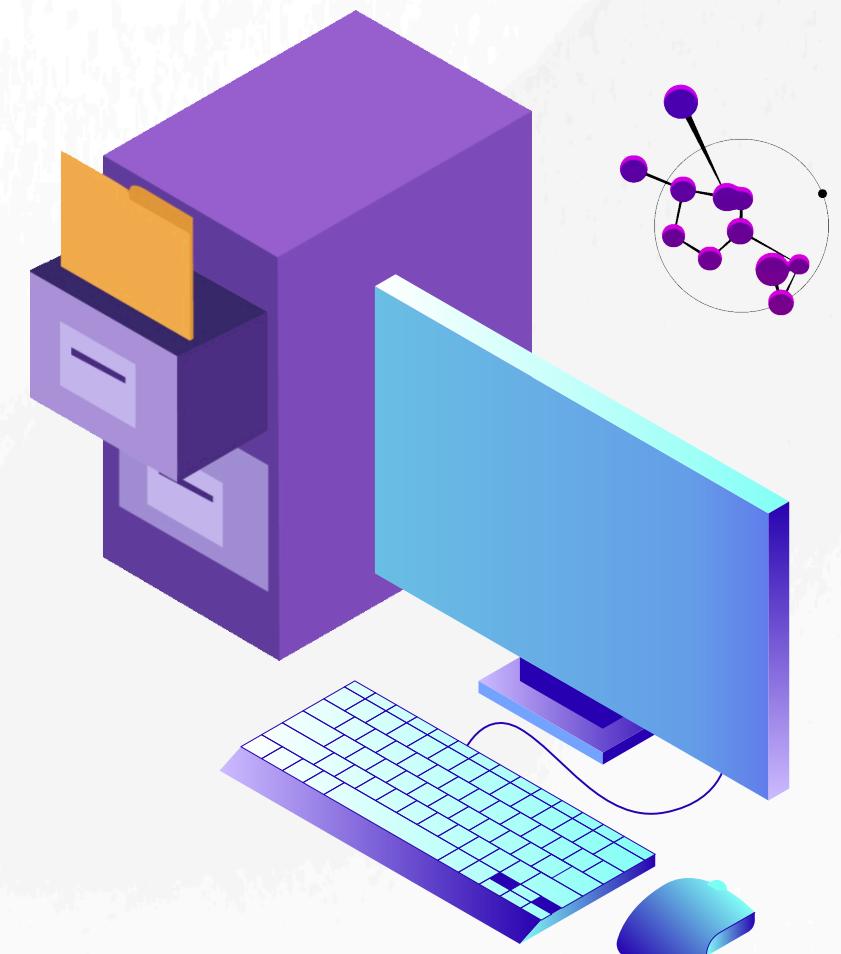
Exploratory Data Analysis (EDA)

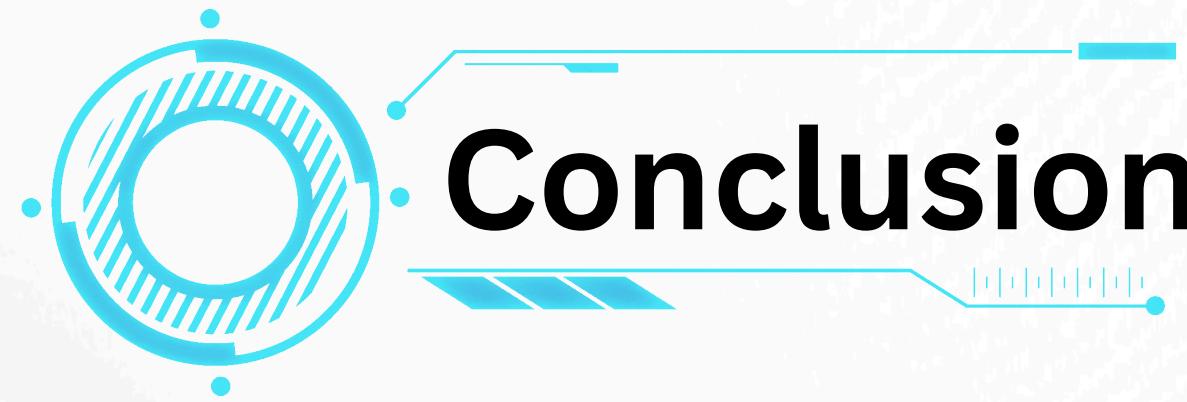
- To understand the dataset, detect patterns, and identify potential data quality issues EDA was performed.
- It helped in selecting the right features for training machine learning models.
- Allowed us to visualize key insights such as decision distribution and resume characteristics.
- **Selection vs Rejection Count:** Bar chart illustrates the overall number of selected and rejected candidates, providing a quick view of hiring trends.



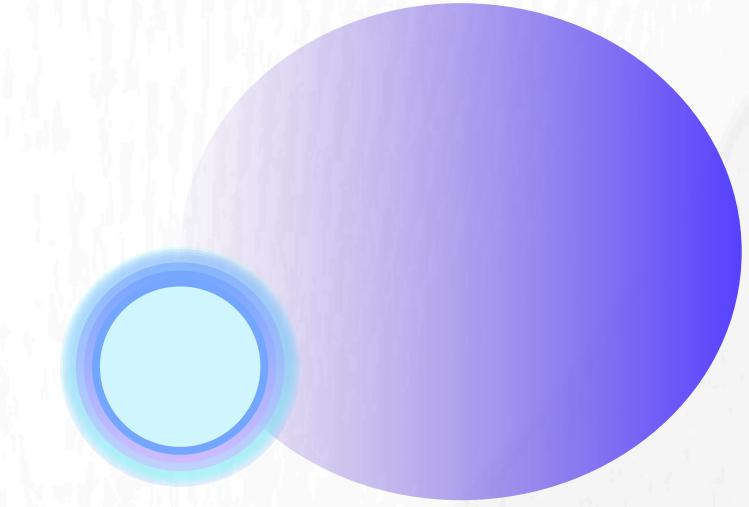
CODE WALKTHROUGH

- **`similarly_search.py`**: Searches for similar candidates and jobs based on vector embeddings.
- **`insert_vectors.py`**: Inserts candidate and job vectors into the database.
- **`update_vectors.py`**: Updates candidate and job vectors in the database.
- **Code Highlights:** Uses PostgreSQL database for vector storage.
- **Chunking:** The data will be converted into batches [0,1] until it loads entire dataset.
- **Deployment:** While completion of analysis of data collected from user the output will be encoded and uploaded as pdf/zip file.





Conclusion



What it does:

-  Collect resumes →  Screen resumes (AI) →  AI/HR interviews
-  AI decision making →  Automated email notification to HR.

Impact:

- Shortlists candidates efficiently.
- Filters out irrelevant resumes automatically.

Future Scope:

- AI-driven Talent Search: Find candidates from LinkedIn & job portals.
- Enhanced Model Features: Include social media presence, project portfolio evaluation.
- Fraud Detection: AI video monitoring during interviews to prevent cheating.

THANK YOU!

Reference



https://github.com/abdulateeb/Infosys_Springboard_Internship