Infosys Springboard Virtual Internship 6.0 Completion Report

Team Details <Do not mention any personally identifiable information like email ID, institute details, mobile phone number etc.>

Batch Number: 1 SkillMatch Resume Matcher and Skill Recommender

Start date : 13-09-2025

Names:

1 SUBHASREE YENIGALLA
2 Rithvik Goud Mushkam
3 Saransh Thakran
4 B SAHITHYA

Internship Duration: 8 Weeks

1. Project Title

Pathfinder – Skill Match

2. Project Objective

The main objective of PathFinder – Skill Match is to help users understand how well their resume fits a specific job role.

It analyses the resume, shows what skills the user already has, finds the skills they're missing, and gives course suggestions to improve those gaps. The goal is to make job preparation easier by giving a clear match percentage, a missing skills list, and a complete skill report that users can save and track over time.

3. Project description in detail

PathFinder – Skill Match is a resume-based skill analysis platform that helps users check how prepared they are for a chosen job role. The system starts by letting the user upload their resume. Once uploaded, PathFinder extracts important skills mentioned in the resume—both technical and soft skills.

After collecting these skills, the system compares them with a predefined dataset of skills required for a job role. Based on this comparison, it performs three major tasks:

Match Percentage:
It calculates how many of the required job skills the user already has. This gives the user a clear match percentage, showing how suitable they currently are for the chosen role.

Missing Skills:
The system identifies the skills that are not present in the resume but are necessary for that job. This helps users understand exactly what they need to learn to improve.

Course Suggestions:
For every missing skill, the system recommends relevant online courses so the user can start learning and closing their skill gaps immediately.

To make the experience smoother, the app includes features like:

User authentication for secure login

History tracking so users can view their past analyses

PDF report generation so users can download a professional report of their match percentage, skills, and recommendations

Data visualisation charts that make results easier to understand

Overall, PathFinder gives users a complete picture of their strengths, weaknesses, and what steps they need to take to improve their employability.

4. Timeline Overview

Week	Activities Planned	Activities Completed
Week 1	Introduction to AI & ML Concepts	Understood AI/ML basics and finalised project objectives and scope.
Week 2	Data Collection & Preprocessing	Collected sample resumes and job descriptions, and performed data preprocessing.
Week 3	Resume Parsing Module Development	Developed the resume parsing module using NLP for skill extraction.
Week 4	Job Description Analysis Module	Implemented job description analysis to identify required skills.
Week 5	Skill Recommendation Model	Designed the skill recommendation engine to suggest missing skills.
Week 6	Model Evaluation & Optimisation	Optimised model performance and improved match accuracy.
Week 7	Frontend Development & Integration	Optimised model performance and improved match accuracy.

5a. Key Milestones

Milestone	Description	Date Achieved
Project Kickoff	Project kickoff defined objectives, scope, and roles.	13 – Sep - 2025
Prototype/First Draft	Developed the prototype for resume matching and skill recommendation.	28 - Sep - 2025
Mid-Term Review	Completed mid-term review to assess progress and refine project approach.	11 - Oct - 2025
Final Submission	Submitted the completed SkillMatch project with full functionality and documentation.	26 - Oct - 2025
Presentation	Prepared and delivered the project presentation showcasing features and outcomes.	10 - Nov - 2025

5b. Project execution details

The project started by deciding what problems PathFinder would solve, mainly helping users understand their skill match for jobs. We identified the key features we wanted: skill extraction, match percentage calculation, missing skills detection, course suggestions, login system, PDF reports, and history tracking.

We collected sample resumes and job role descriptions to understand different skill patterns.

After that, the resume text was cleaned and processed using NLP techniques like tokenisation and keyword extraction. A skill extraction module was created to identify the user's existing skills.

Next, a job description analyser was built to pick out the required skills for a particular job role. Once both skill sets were ready, we created a matching mechanism that compared them and calculated the match percentage.

We then developed a missing-skills finder to highlight the skills the user does not have. Based on those gaps, the system suggests relevant courses to help users improve.

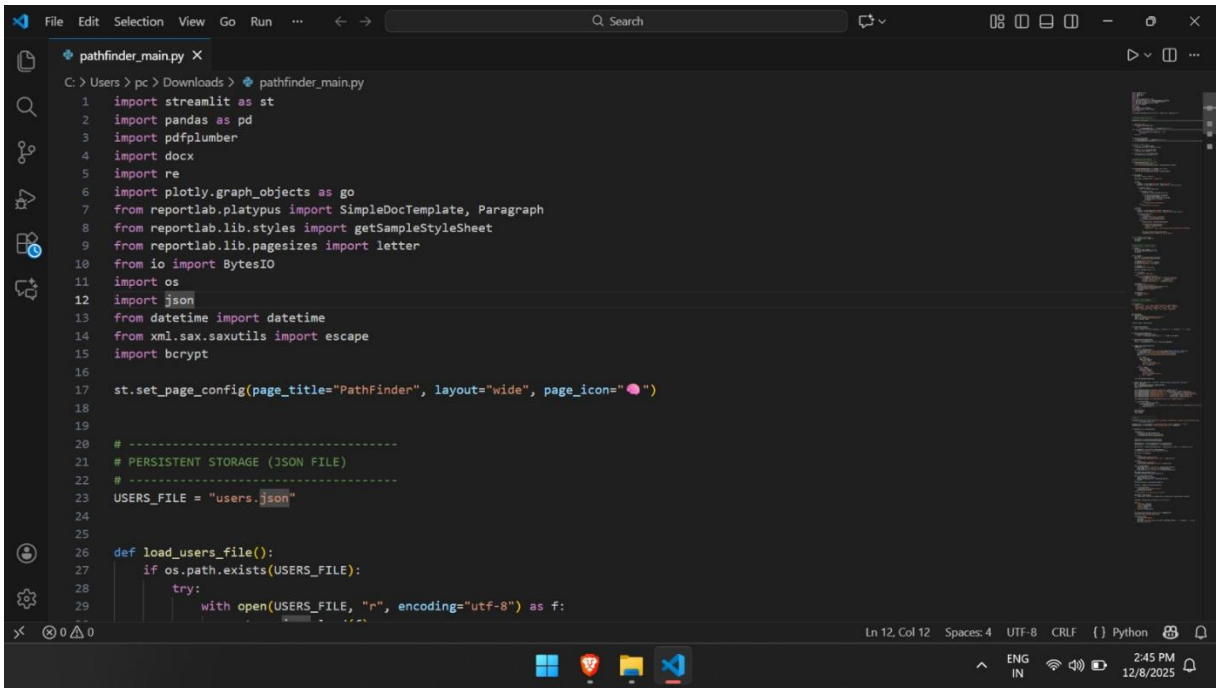
After the backend logic was completed, the web interface was built to show skills, match percentage, course suggestions, and other details in a clean way. Login authentication and history tracking were added so users can save past reports. A PDF report generator was also implemented for easy export.

Finally, the system was tested with multiple resumes and job roles to ensure accuracy.

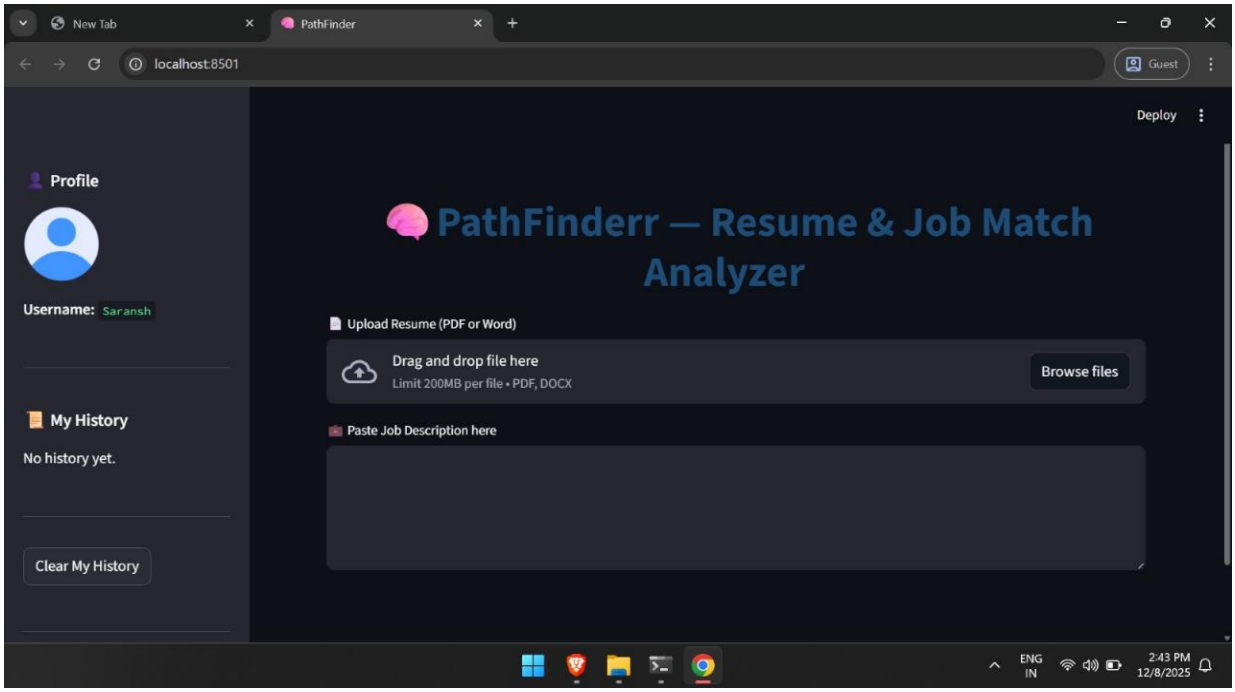
After testing, the full documentation and presentation were created to complete the project.

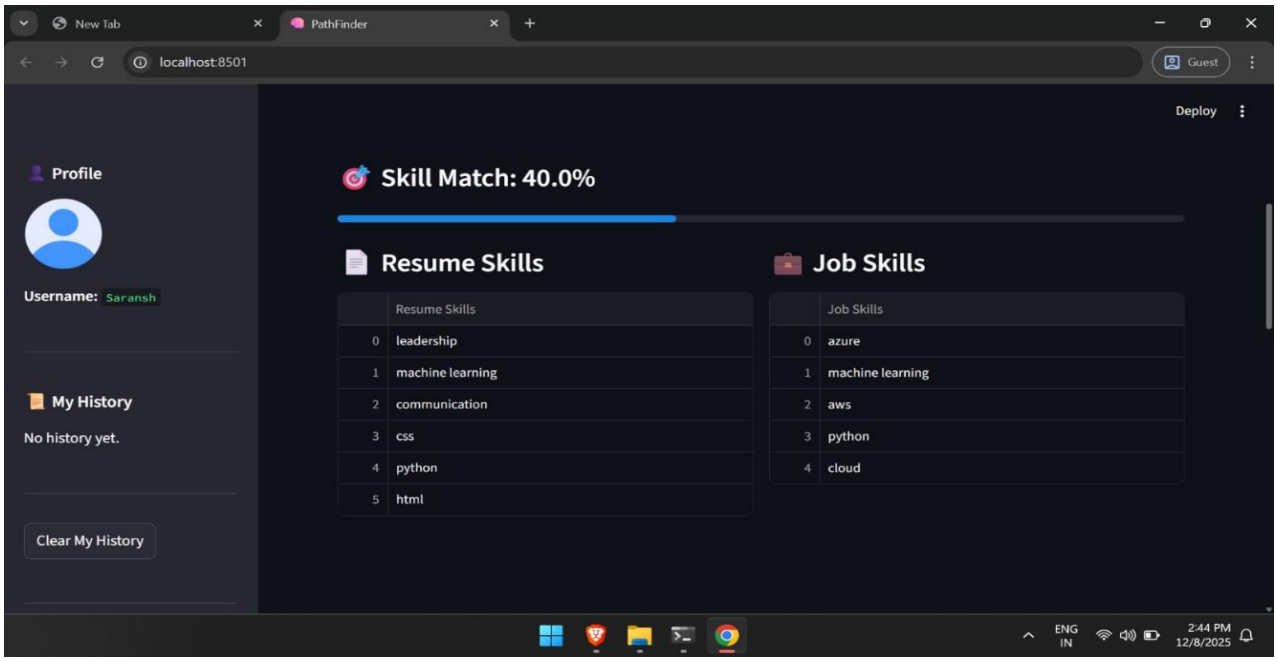
6. Snapshots / Screenshots

Opening the *pathfinder_main.py* file in VS Code.



The home page of the PathFinder Resume web application appears in the browser.





7. Challenges Faced

1. **Extracting skills from different resume formats**
   Since resumes are not standardized, identifying skills accurately was a challenge.
2. **Handling inconsistent job descriptions**
   Job roles use different words for similar skills, so normalizing them was difficult.
3. **Building a fair matching system**
   Making sure the match percentage feels realistic and not biased was tricky.
4. **Choosing the right NLP techniques**
   Some resumes had complex wording, requiring multiple rounds of preprocessing.
5. **Skill dataset limitations**
   Creating a proper list of skills for matching took extra time.
6. **Integrating course recommendations**
   Mapping missing skills to the correct course list required careful filtering.
7. **Frontend clarity**
   Presenting all details (skills, missing skills, match %, recommendations) in a clean UI was challenging.
8. **System testing**
   Different resumes gave unexpected results initially, so fine-tuning was needed.

8. Learnings & Skills Acquired

Technical Learnings

- **Streamlit App Development**
  - building interactive UI
  - working with sidebars, tabs, file uploaders, dataframes, charts
- **NLP Basics**
  - text extraction from PDFs and DOCX
  - tokenization and regex skill matching
  - lowercasing, cleaning, pattern searching
- **Resume Parsing**
  - using pdfplumber
  - reading word files with python-docx
- **Data Handling**
  - loading and filtering datasets using pandas
  - searching skills inside datasets
  - merging results in dataframes
- **User Authentication**
  - building a JSON-based login and history system
  - error handling for corrupted JSON files
- **Backend Logic**
  - storing user activity logs
  - maintaining a per-user history
- **Data Visualization**
  - creating bar charts and pie charts using Plotly
  - updating visual elements dynamically
- **PDF Generation**
  - using ReportLab to create structured downloadable reports

Soft Skills

- problem-solving
- debugging and testing
- organizing project code
- UI/UX thinking
- documentation and project presentation

9. Testimonials from the team

Team Member 1:

"Working on PathFinder helped me understand real-world NLP applications. I learned how to extract skills from messy resume text and compare them with job descriptions in a meaningful way. It really improved my confidence in text-processing and AI-based matching systems."

Team Member 2:
"This project taught me how to build practical features like course recommendations, match percentage calculations, and interactive visual charts. I also improved my Python and Streamlit skills while converting raw data into a clean user experience."

Team Member 3:
"PathFinder gave me hands-on experience in designing user authentication, saving user history, and structuring a complete end-to-end web application. Working as a team also helped me improve coordination, planning, and feature integration skills."

Team Member 4:
"I learned how to handle different file types like PDFs and DOCXs, extract information using libraries, and create useful reports in PDF format. The project also strengthened my understanding of data handling, UI design, and deploying AI tools in a use-friendly way."

10. Conclusion

- The PathFinder project has been an extremely valuable learning experience. It allowed me to apply concepts from AI, NLP, and data science to solve a real-world problem, matching resumes with job requirements.
- Through tasks like skill extraction, matching logic, course recommendations, and building a complete web interface, I strengthened both my technical and practical skills.
- Working on this project also improved my teamwork, documentation, and presentation abilities. This experience aligns directly with my interest in AI-driven applications and gives me confidence to build more advanced solutions in the future.

11. Acknowledgements

I want to express my sincere gratitude to my mentor, team members, and everyone who supported me throughout the PathFinder project. Their guidance helped me understand new concepts, fix problems faster, and complete the system successfully.
This experience played a crucial role in enhancing my skills and providing me with hands-on exposure to real-world AI and NLP applications.
I am especially thankful to my mentor, Sangeetha, for her constant guidance, support, and valuable insights throughout the internship. Her mentorship helped me overcome challenges and grow both technically and professionally.