MULTIDISCIPLINARY APPLIED RESEARCH AND INNOVATION
e-ISSN: 2773-4773

MARI

Vol. 7 No. 1 (2026) 130-138
https://publisher.uthm.edu.my/periodicals/index.php/mari

ResumeXpert: An Intelligent Platform for Ranking and Optimizing Job Applications

Nazmi Syahmi Noor Mohd[1], Muhammad Haikhal Mohd. Rapi[1], Ammar Aqasyah Abd. Jalil[1], Rafizah Mohd Hanifa[1]*

1 Information Technology Department, Centre for Diploma Studies, Hab Pendidikan Tinggi Pagoh, KM1, Jalan Panchor, 84600 Panchor, Johor, Malaysia.

*Corresponding Author: rafizah@uthm.edu.my
DOI: https://doi.org/10.30880/mari.2026.07.01.019

Article Info

Received: 1 October 2025
Accepted: 30 November 2025
Available online: 15 January 2026

Keywords

Resume optimization, job matching algorithm, career recommendation system, artificial intelligence

Abstract

In today's competitive job market, crafting a compelling resume is essential, particularly for fresh graduates and job seekers with limited experience. ResumeXpert is an AI-powered web-based platform designed to assist users in creating optimized resumes that align closely with job descriptions. The system analyzes uploaded resumes, provides personalized formatting, keyword usage, and skills alignment feedback, and recommends suitable job listings from integrated platforms such as LinkedIn, Glassdoor, and JobStreet. ResumeXpert also features a resume ranking function, enabling recruiters to assess multiple applications efficiently. Developed using the Agile methodology, the system incorporates natural language processing (NLP), machine learning techniques, and modern web technologies. User survey evaluation demonstrated high satisfaction levels in usability, functionality, and overall usefulness. ResumeXpert offers an innovative approach to bridging the gap between job seekers and employers by enhancing resume quality and improving job-matching outcomes.

1. Introduction

In today's highly competitive job market, a well-crafted resume is crucial in helping job seekers, particularly fresh graduates and the unemployed, secure employment opportunities. A well-written resume highlights a candidate's qualifications and experience and significantly influences the hiring decision by providing employers with structured and relevant information [1]. However, many job seekers struggle to create effective resumes due to a lack of guidance, experience, or knowledge of current industry standards. This often leads to poorly structured applications, making it challenging for recruiters to identify the most suitable candidates among a large pool of applicants. Integrating Artificial Intelligence (AI) into recruitment processes has shown promising results in addressing these challenges. AI technologies are increasingly being used to automate and enhance various stages of the hiring process, including resume screening, job matching, and candidate evaluation [2, 3]. Leveraging these advancements, many platforms have been developed to assist users in creating optimized resumes that align with employer expectations and industry norms.

To address the ongoing need for intelligent and accessible resume optimization tools, this research proposes ResumeXpert, an AI-powered platform designed to assist users in creating, ranking, and optimizing their job applications. ResumeXpert aims to streamline the job application process by providing automated feedback, intelligent ranking mechanisms, and personalized recommendations, thereby improving job seekers' chances of employment. By harnessing the power of AI, ResumeXpert seeks to bridge the gap between applicant capabilities and employer expectations, ultimately contributing to a more efficient and fair hiring process.

1.1 Problem Statement

In the evolving landscape of recruitment, job seekers, especially fresh graduates and the unemployed face significant challenges in crafting resumes that meet industry standards and employer expectations. Despite possessing relevant skills, many applicants fail to present themselves effectively due to poorly structured, vague, or incomplete resumes, often resulting in missed job opportunities [4]. Simultaneously, employers and recruiters face the burden of manually screening extensive resumes. This time-consuming process may still fail to identify the best-fit candidates due to inconsistencies in resume formats and content quality [5].

Although various resume-building tools exist, most are static, template-based platforms that lack intelligent features such as content analysis, keyword optimization, or application ranking. These tools do not provide personalized feedback or align resumes with specific job roles or market trends [6]. This gap highlights the need for an innovative, automated system that can assist users in crafting optimized resumes tailored to employer expectations while also aiding recruiters by ranking candidates based on relevance and quality.

1.2 Objectives and Scope

The primary objective of this research is to develop an AI-powered system that offers personalized feedback on resumes by identifying specific areas for improvement. These include formatting consistency, keyword optimization, and the alignment of listed skills with the requirements of job descriptions. By doing so, the system aims to assist users, especially fresh graduates and job seekers, in enhancing the quality and relevance of their resumes. In addition, this research seeks to integrate the proposed platform with widely used job portals such as LinkedIn, Glassdoor, and JobStreet. Through this integration, the system can recommend suitable job listings based on the content and structure of a user's resume profile. This feature is designed to streamline the job search process by matching applicants with relevant opportunities that align with their qualifications and career interests. Finally, the research aims to automate resume optimization by generating tailored resume recommendations. This includes enhancing the compatibility of resumes with Applicant Tracking Systems (ATS) [7], a standard filtering tool employers use during recruitment. The system is expected to significantly increase applicants' chances of being shortlisted for job interviews by improving ATS compatibility and providing intelligent suggestions.

This project focuses on the design and development of ResumeXpert, an AI-powered platform to enhance resume quality and increase job seekers' chances of securing interviews. The scope includes building a web-based application that provides users with personalized feedback on their resumes, particularly targeting improvements in formatting, keyword usage, and alignment with job descriptions. The platform will utilize Natural Language Processing (NLP) and Machine Learning techniques to analyze resume content and suggest actionable enhancements. The system is intended primarily for fresh graduates and job seekers who may lack experience in resume writing. It will also support integration with major job portals such as LinkedIn, Glassdoor, and JobStreet to recommend relevant job listings based on the user's resume profile. The resume optimization engine will be designed to improve compatibility with Applicant Tracking Systems (ATS), ensuring that resumes are more likely to pass automated screening processes employer's use. However, the project is limited to English-language resumes and is optimized for standard job sectors such as IT, business, marketing, and engineering. Advanced features like real-time chat with career advisors or video resume evaluation are considered out of scope for this phase. Furthermore, the platform does not guarantee employment but aims to increase the visibility and relevance of resumes in the job market.

1.3 Literature Review

In today's competitive job market, the quality of a resume plays a vital role in determining the success of a job application. A well-structured and keyword-optimized resume reflects a candidate's qualifications and significantly influences an employer's first impression. According to [8], resumes are often mismanaged due to a lack of strategic presentation, negatively affecting job seekers' opportunities. Fresh graduates and unemployed individuals commonly face challenges crafting effective resumes, primarily due to a lack of awareness about proper formatting, keyword relevance, and alignment with job descriptions.

Artificial Intelligence (AI) has recently emerged as a transformative tool in resume screening and optimization. AI systems can analyze resumes against job postings, identify missing skills, suggest improvements, and ensure compatibility with Applicant Tracking Systems (ATS). Despite such advancements, many existing platforms do not offer personalized feedback or dynamic resume customization. Moreover, these tools often lack integration with major job portals like LinkedIn, Glassdoor, or JobStreet, which could otherwise streamline the job search process. [9] emphasized the importance of automated job-matching using natural language processing (NLP) to align resume content with job listings, highlighting a growing trend toward intelligent recruitment systems. The following subsection will review existing and proposed platforms, highlighting their strengths and weaknesses.

Based on research of existing systems, several platforms are like the proposed job-searching platform. All job searching platforms are developed to help job seekers efficiently find and apply for job opportunities that match their qualifications and interests. Additionally, this research helps identify the features in existing platforms that could be implemented in the proposed system. *JobStreet* is one platform that offers comprehensive job listings, resume submission features, and job-matching tools that connect applicants to relevant positions based on their profiles [10]. The platform allows users to filter job postings by location, salary, and job type, making the job-seeking process more targeted and effective. *LinkedIn*, a professional networking platform, provides job listings and allows users to build an online professional profile, network with employers, and receive job recommendations based on their experience and skills [11]. Furthermore, *Indeed* offers a user-friendly interface for uploading resumes, browsing job listings, and setting up job alerts, which helps streamline the job application process [12]. These platforms also provide valuable insights and analytics, such as salary estimates and employer reviews, which assist users in making informed decisions. Overall, analyzing these platforms helps identify core features and areas for improvement that can be adapted into developing a new job-searching system tailored to specific user needs.

1.4 Strengths and Weaknesses of the Existing Method

Every existing platform has strengths and weaknesses, which some applicants have experienced. Table 1 outlines the strengths and weaknesses of the existing platform.

Table 1 *Strengths and weaknesses of the existing system*

Platform	Strength	Weakness
Jobstreet	• Offers specific job search filters such as industry, job level, and location, which help narrow down results efficiently.	• There's limited space for users to showcase achievements, portfolios, or long-term career goals. • Fewer High-Level positions
Linkedln	• Users can showcase their experience, skills, certifications, and achievements in a detailed and dynamic profile	• The competition for job postings can be intense, especially for popular roles. • Less localized job listings.
Indeed	• Massive job database, aggregates listings from many sources. • Simple interface and free resume uploads	• Lots of duplicate job postings. • Weak in networking or employer transparency.

Table 1 presents a comparative analysis of three major job platforms, i.e., JobStreet, LinkedIn, and Indeed, highlighting their strengths and weaknesses. Each platform has distinct capabilities that cater to different aspects of the job application process. JobStreet excels in job filtering options based on industry, level, and location, allowing users to narrow their job search efficiently. However, it falls short of allowing users to present a complete career profile, including portfolios and long-term goals, and has limited listings for high-level positions.

Conversely, LinkedIn provides a dynamic and detailed user profile, enabling users to showcase certifications, experiences, and achievements, which makes it powerful for professional branding and networking. Nevertheless, the platform is highly competitive, especially for popular roles, and may not cater well to localized job searches, posing a disadvantage for users seeking opportunities in specific regions. Indeed stands out with its massive job database and user-friendly interface, making it accessible to many job seekers. However, the platform is criticized for hosting duplicate job postings and offering minimal networking opportunities or employer transparency.

While these platforms provide useful features, they reveal several critical gaps: limited personalization, poor resume feedback mechanisms, and minimal support for optimizing job applications in line with specific employer requirements. These gaps justify the need for a system like ResumeXpert, which leverages AI to offer personalized resume enhancement, job matching, and improved ATS compatibility, addressing the current limitations and improving the hiring potential for users.

2. Materials and Methods

This section presents the materials and methodologies used in the development of ResumeXpert. It provides a comprehensive overview of the software tools, system components, and experimental procedures applied to ensure the system's effectiveness and operational efficiency.

Multidisciplinary Applied Research and Innovation Vol. 7 No. 1 (2026) p. 130-138

2.1 Materials

ResumeXpert is built using carefully selected technologies that power its main features, i.e., resume analysis, ranking, and job listing suggestions, as Tables 2 and 3 outline.

Table 2 *Development Technologies*

Category	Technology	Purpose
Backend	Flask	Python web framework for API Development
	Google Gemini API	Resume analysis and ranking
	PostgreSQL	Relational database for user/job and ranking storage
	PyMuPDF	PDF text extraction from resumes
	JSearchAPI	Job listing aggregation
Frontend	React	UI component library for building interactive interfaces
	Next.js	React framework for optimized rendering and routing
	Axios	HTTP client for frontend-backend communication

Table 2 outlines the technologies used in developing ResumeXpert, categorized into backend and frontend components. Flask is the primary web framework for the backend to build and manage API endpoints. The Google Gemini API is integrated to perform resume analysis and ranking through advanced AI models. PostgreSQL manages and stores data such as user information, job listings, and ranking scores. The PyMuPDF library extracts content from uploaded PDF resumes, while JSearchAPI enables the system to retrieve aggregated job listings from various sources. The system uses React on the front end to build a responsive and interactive user interface. Next.js, a React-based framework, enhances rendering performance and provides smooth routing between pages. Additionally, Axios is an HTTP client facilitating communication between the frontend and backend components.

Table 3 *Deployment Environment and Tools*

Component	Technology	Purpose
Frontend	Vercel	Hosting and deployment of web application to the Internet
Backend	Render	Cloud hosting for Flask API
Database		Managed PostgreSQL database service
Tool	Git	Version Control System and collaboration
	GitHub	Code repository and project management
	Postman	API testing and documentation
	Figma	User interface prototype and determine system flow

2.2 Methodology

The ResumeXpert project adopts an Agile methodology as its development approach, primarily following iterative development principles that promote adaptability [13]. Agile methodology was selected for this project due to several advantages that align with the nature of AI-powered resume analysis systems. Unlike traditional waterfall methodologies, Agile enables continuous adjustment and refinement as the project progresses, specifically helpful for developing AI-integrated systems with frequent testing and optimization [14]. Furthermore, Agile methodology focuses on customer satisfaction and a faster development cycle with low failure rates, aligning with the project's goals of delivering accurate resume analysis, ranking, and efficient job matching services. Fig. 1 shows the phases involved in Agile methodology.

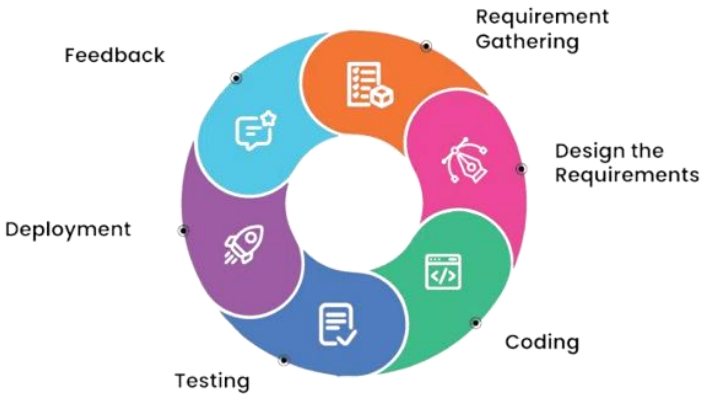


Fig. 1 *Phases in Agile Software Development Life Cycle*

2.2.1 Requirement Gathering

The requirement phase is the first step in the Agile development process, where the team works with stakeholders to understand what the system should do and assess the overall project. For ResumeXpert, this involved gathering user needs for both resume analysis and resume ranking. The team created user stories instead of long documents, focusing on real problems faced by job seekers and recruiters. Through interviews and user research, two main features were identified: analyzing individual resumes with job matching and ranking multiple resumes for recruiters. Clear goals were set for each feature, such as AI accuracy, fast response times, and secure user login. Since Agile is flexible, the requirements were updated regularly based on feedback.

2.2.2 Design the Requirements

The design phase involves creating the project's architecture, interface, and database design, which is critical to its success as it sets the foundation for the development phase. During this stage, the ResumeXpert team focused on building the system architecture and user experience design to support AI-integrated functionality. The architectural design process began with defining the modular backend structure using the Flask framework, ensuring the separation of concerns between file processing, AI integration, database management, and external API interactions. The design team created wireframes, mockups, and prototypes to help stakeholders visualize the final product and validate the user experience. This included designing intuitive interfaces for resume upload, job description input, and results presentation for the resume analyzer functionality. For the resume ranking feature, the design phase encompassed creating user flow diagrams illustrating the authentication process, job position creation workflow, and multi-resume upload and analysis procedures. Database design followed relational principles with properly normalized tables, including User, Job, Ranking, and JobSearchCache entities. The design process also involved crafting AI prompts for resume analysis and ranking functionalities, ensuring consistent JSON output formats supporting seamless integration with the frontend components. Fig. 2 shows the design of Resume Analyzer work process.

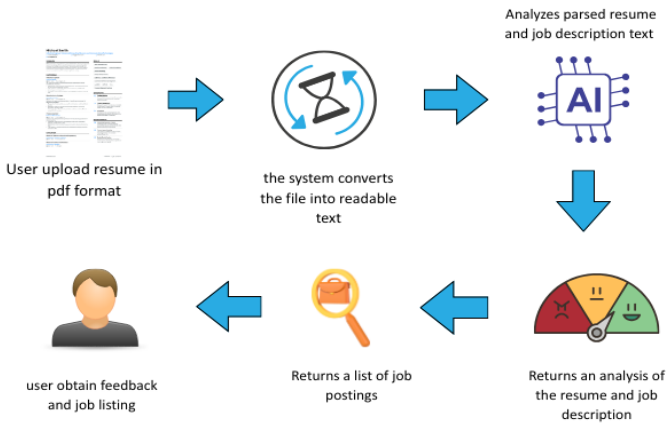


Fig. 2 *Resume Analyzer work process*

2.2.3 Coding

The implementation phase represents the core development stage, where the design specifications are translated into functional code through iterative development sprints. The ResumeXpert implementation adopted an incremental approach, breaking the product backlog into smaller, manageable user stories prioritized and estimated based on business value. The backend implementation utilized the Flask framework to create RESTful API endpoints, with modular architecture separating different functional components. PyMuPDF library was integrated for PDF text extraction, implementing a block-based parsing strategy that maintains document structure while ensuring accurate text extraction from diverse resume formats. The AI integration involved implementing Google Gemini API with carefully crafted prompts to produce consistent, structured outputs for resume analysis and ranking operations.

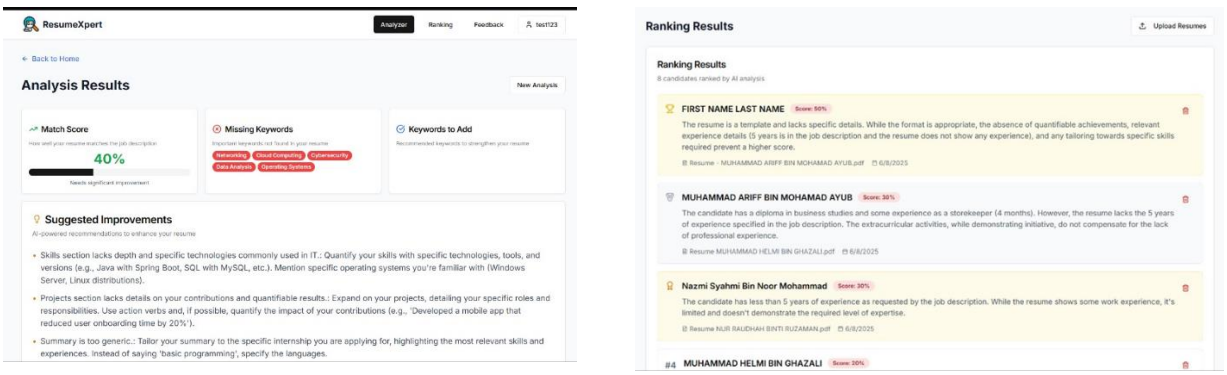
Database implementation used PostgreSQL with SQLAlchemy ORM, incorporating caching mechanisms through the JobSearchCache table to optimize API usage and improve response times. The JSearch API integration was implemented with efficient call management and error handling to provide real-time job listings based on AI-generated career recommendations. Frontend implementation leveraged React and Next.js frameworks following component-based architecture principles, with Axios as the HTTP client for seamless API communication. Security implementations included user authentication with password hashing, session management, and CORS configuration to support cross-domain operations. The implementation followed continuous integration practices, with frequent code commits and collaborative development ensuring code quality and consistency.

2.2.4 Testing

In the Agile development process, testing is not saved for the end. It happens continuously to ensure everything runs smoothly from the start. With ResumeXpert, testing was key in ensuring each part of the system worked well and met user expectations. The team began by testing individual features like reading PDFs, handling data from APIs, and storing information in the database. Each piece was tested on its own to make sure it functioned properly. Then, integration tests checked if everything connected smoothly. For example, ensuring users upload resumes, get analysis results, and search for jobs without issues. To ensure the system could handle real-world demands, performance tests were conducted to see how it copes with high traffic and large resume uploads, especially for the resume ranking feature. Lastly, real users were invited to test ResumeXpert. Their feedback during the User Acceptance Testing phase helped fine-tune the platform, making sure it was practical, useful, and easy to use.

2.2.5 Deployment

The deployment phase marks when ResumeXpert moves from development to real use, making it available to users. The system was set up using a distributed architecture, where different parts of the system are hosted on platforms best suited to them. The front, built with React and Next.js, was deployed using Vercel, which provides fast and secure hosting, global access, and automatic updates through Git integration. The backend, built with Flask, was hosted by Render, which manages the database and environment settings. The system's data, i.e., user accounts, job listings, and resume rankings, is stored in a PostgreSQL database, also hosted on Render, ensuring reliable and secure storage. Although hosted separately, special CORS settings were applied to allow smooth and safe communication between the front and back. Automatic deployment pipelines made updates fast and smooth, with little to no downtime. After launching, monitoring tools were set up to watch performance and catch any issues quickly, helping the system run efficiently for its users. Fig. 3 shows some of the interfaces of ResumeXpert.



(a) (b)

Fig. 3 *Sample of the system interface (a) Analysis Results; (b) Ranking Results*

2.2.6 Feedback

The feedback phase is an important part of the Agile process, helping teams improve their work by staying connected with user needs. ResumeXpert uses several feedback methods to gather input on user experience, system performance, and stakeholder expectations throughout development. On the technical side, the system is monitored for API speed and error rates to keep everything running smoothly. At the end of each development sprint, the team holds review sessions to discuss what went well, what did not, and how to improve. This ongoing feedback helps the team adjust quickly to changes in user needs and keeps the system evolving. Feedback also guides what features or fixes to focus on next, ensuring the most valuable updates are delivered based on real-world use and performance.

3. Result and Discussion

A survey was conducted to assess how well ResumeXpert works. This section presents the results of that survey. Table 4 shows the questions created using Google Forms to collect and display the data using charts and graphs quickly. The survey was divided into five sections.

Table 4 *Survey Questions*

Section	Critertia	Question
1	Respondent's background	1. Age 2. Gender 3. Race 4. Faculty 5. Current Status
2	System Usability	1. The platform is easy to use and navigate. 2. The interface is visually appealing and well organized. 3. It was easy to upload or rank resume using ResumeXpert. 4. The system responded quickly to my inputs.
3	System functionality and features	1. The system provided useful and relevant resume feedback. 2. The keyword optimization suggestion were helpful. 3. The system improved the overall quality of my resume. 4. The job recommendations matched my profile. 5. Intergration with job listings was beneficial.
4	Usefulness and user satisfaction	1. ResumeXpert helped me tailor my resume better. 2. I feel more confident submitting my resume. 3. I believe this system can increase my chances of getting interviews. 4. I would recommend ResumeXpert to others. 5. Overall, I am satisfied with the system.
5	Open-ended feedback	1. What features of ResumeXpert did you find most helpful? 2. What Improvements would you suggest for ResumeXpert?

The results and discussion below are based on feedback from 42 respondents who tested the ResumeXpert system. The respondents included a mix of backgrounds: 40.5% were employed, 21.4% were unemployed, 28.6% were students, and 9.5% were fresh graduates. The survey used a Likert scale to capture how strongly participants agreed or disagreed with various statements about the system. Figure 4 summarizes the average satisfaction scores for each survey section. In Section 2, which focused on system usability, most respondents gave positive feedback—70% said they were completely satisfied, 26% were satisfied, and only 4% felt neutral. In Section 3, which assessed system functionality and features, 59% of respondents were very satisfied, while 33% were satisfied. Around 6% were neutral, and just 2% expressed dissatisfaction. Specifically, a few users were unhappy with the job recommendation feature, feeling that it did not align well with their resumes. Section 4 evaluated the

usefulness and overall satisfaction with ResumeXpert. Here, 62% of respondents reported being very satisfied, 31% were satisfied, and 6% were neutral. Only 1% of users were dissatisfied—notably, with a question about their confidence in landing job interviews after using the system.

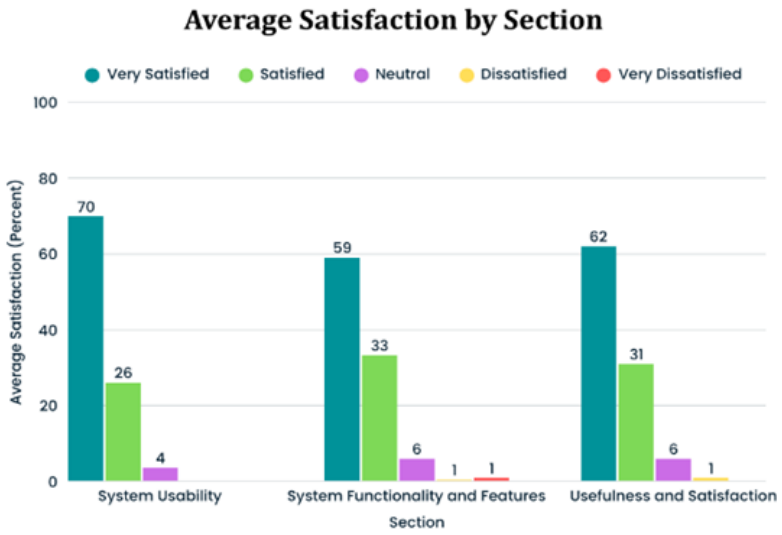


Fig. 4 *Bar Chart of average satisfaction by section*

The last section of the survey stands for open-ended feedback, where respondents give their opinions about the system feature and suggestions for improvements. Based on the answers received, most respondents find the job listing feature to be the most helpful feature that ResumeXpert provides. For the improvement suggestion, many respondents agree that the app does not need any improvements, as the system has successfully done its job. Overall, all the feedback obtained from the survey helps the development of the system run much more smoothly by identifying any gaps or bugs in the system and focusing on improving the parts of the system that the respondents find lacking.

4. Conclusion

In conclusion, ResumeXpert was developed as an innovative solution to assist job seekers in enhancing their resumes and discovering job opportunities that align with their qualifications. The system particularly benefits students and fresh graduates who may lack professional experience, offering tailored feedback to help them create more compelling and competitive resumes. Overall, ResumeXpert has demonstrated its effectiveness in improving resume quality and increasing the chances of successful job matching based on individual profiles.

Acknowledgement

The authors would like to thank Universiti Tun Hussein Onn Malaysia for providing the resources and facilities necessary for the successful completion of this project.

Conflict of Interest

Authors declare that there is no conflict of interest regarding the publication of the paper.

Author Contribution

The author is responsible for the following contributions: Nazmi conceived and designed the study; Nazmi and Haikhal conducted the data collection; Nazmi, Haikhal, and Ammar performed the analysis and interpretation of results; Rafizah was responsible for manuscript editing.

References

[1] A. Perry, B. H. Kleiner, *"How to hire employees effectively,"* Management Research News, vol. 25, no. 5, pp. 3-11, 2002.

[2] H. Wan, G. Liu, L. Zhang, "*Research on the application of artificial intelligence in computer network technology,"* In Proceedings of the 2021 5th International Conference on Electronic Information Technology and Computer Engineering, pp. 704-707, Oct 2021.

[3] Y. Feng, "*Research on the application of big data and artificial intelligence technology in computer network technology*," in Proc. Int. Conf. Intelligent Transportation, Big Data and Smart City (ICITBS), pp. 536–539, 2020.

[4] V. Ghosh, "AI hiring tools may be filtering out the best job applicants," BBC Worklife, Feb. 16, 2024. [Online]. Available: https://www.bbc.com/worklife/article/20240214-ai-recruiting-hiring-software-bias-discrimination

[5] Z. Chen, "*Collaboration among recruiters and artificial intelligence: removing human prejudices in employment,"* Cogn. Tech. Work, vol. 25, pp. 135–149, 2023.

[6] K. Shivhare, S. Shakya, and A. S. Bhadouria, "*ResumeCraft: A Machine Learning-powered Web Platform for Resume Building,"* Int. J. Res. Appl. Sci. Eng. Technol., vol. 12, no. 5, pp. 1154–1158, May 2024.

[7] S. Das, A. S. Nair, and P. Aneesh, "*AI Resume Analyzer: Smart Resume Evaluation and Enhancement*," Int. J. Sci. Res. Eng. Manag., vol. 9, no. 4, pp. 1–9, Apr 2025.

[8] P. Brown and A. Hesketh, *"The Mismanagement of Talent: Employability and Jobs in the Knowledge Economy,"* Ind. Labor Relat. Rev., vol. 50, 2005.

[9] M. Madanchian, "*From Recruitment to Retention: AI Tools for Human Resource Decision-Making*," Appl. Sci., vol. 14, pp. 11750, 2024.

[10] "Jobs in Malaysia - May 2025 | Jobstreet." Accessed: May 17, 2025. [Online]. Available: https://my.jobstreet.com/jobs

[11] "12,000+ jobs in WP. Kuala Lumpur." Accessed: May 17, 2025. [Online]. Available: https://www.linkedin.com/jobs/search?keywords=&location=WP.%20Kuala%20Lumpur%2C%20Federal%20Territory%20of%20Kuala%20Lumpur%2C%20Malaysia&geoId=105563270&trk=public_jobs_jobs-search-bar_search-submit&position=1&pageNum=0

[12] "Job Search | Jawatan Kosong dari Indeed." Accessed: May 17, 2025. [Online]. Available: https://malaysia.indeed.com/

[13] "The Phases Of Agile Software Development Life Cycle & Workflow And Project Management." Accessed: Jun. 14, 2025. [Online]. Available: https://bitbytesoft.com/phases-of-agile-software-development-life-cycle/

[14] J. J. John and S. S. Sharma, "*A Comparative Study of Agile and Waterfall Software Development Methodologies,*" Int. J. Adv. Res. Sci. Commun. Technol., pp. 54–57, Jan 2024.