**Project Plan:**

**AI-Powered Job Matching and Resume Optimization**

**BUS 361 Individual Assignment Project Plan**

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**Project Plan**

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**1. Business Case**

**Project Justification and Description**

This Project aims to develop an AI-powered platform which will assist fresh graduates and job seekers in the tech field in finding new job opportunities and optimizing their resumes. We will accomplish this by having a database of jobs, resume parsing, AI-powered job matching, customizable job search, resume optimization and a user-friendly interface.   
  
*Please see appendix for detailed description[[1]](#footnote-2)*   
  
With record numbers of layoffs and increasing difficulty for job seekers to find employment in a grueling job market, this platform offers a much-needed solution to bridge the gap between job seekers and employers (Koller, 2024)

**Benefits of the Project**:

1. **Simplified Job Search Process:**

By aggregating job postings from multiple sources into a single platform the job search process becomes significantly more efficient for users by providing more accurate jobs and opportunities that closely align with their skills and preferences

1. **Enhanced Resume Quality and Effectiveness**

The platform will provide actionable feedback to improve the quality and relevance of resumes hence tailoring them to specific job postings enhancing the likelihood of securing an interview.

1. **Time Saved:**

This platform will provide users with the ability of quickly finding jobs in one centralized platform based on their search criteria and qualifications saving countless hours browsing through different platforms and company specific websites.

1. **Increased Employment Rates:**

By accurately matching candidates with suitable job opportunities, this platform aims to helps increase employment rates among tech graduates and job seekers.

**Key Stakeholders**

Our Project has various stakeholders with varying influence and importance.  
  
*Please see Appendix for detailed description[[2]](#footnote-3)*

**Project Scope Statement:**

This Project aims to develop an AI-powered platform designed to assist fresh graduates and job seekers in the tech field in finding new job opportunities and optimizing their resumes. We will accomplish this by having a database of jobs, resume parsing, AI-powered job matching, customizable job search, resume optimization, and a user-friendly interface. We recognize that software products require significant iteration and user feedback to achieve optimal functionality and user satisfaction. Therefore, we will be employing an Agile development methodology, focusing on delivering a functional Minimum Viable Product (MVP) that incorporates the core features of the platform: job aggregation, database, basic resume parsing, profile creation, and initial AI-powered job matching. This iterative approach will allow us to incorporate user feedback and adjust throughout the development process, ensuring the platform meets the needs of its target audience effectively. The reasoning for choosing Agile for a portion of the development is because it is a much more demanding and time consuming which full-time students such as us will not be able to maintain for an extended amount of time

**Project Inclusions:**

1. **Job Aggregation and Database:**
   * Scraping, collecting, and updating job postings from various online sources.
   * Organizing and storing job postings in a searchable database categorized by job title, skills, location, company, and salary range.
   * Ensuring the platform aggregates at least **1000 job postings** at launch.
2. **Resume Parsing and Profile Creation:**
   * Using NLP (Natural Language Processing) technologies to extract relevant information from resumes.
   * Enabling users to create detailed profiles for accurate job matching.
3. **AI-Powered Job Matching:**
   * Implementing machine learning algorithms and using APIs like OpenAI's GPT to match users with suitable job listings based on their profiles.
4. **Customizable Job Search:**
   * Allowing users to set search criteria and implement filters for location, salary, company size, industry, job type, experience level, skills, and educational qualifications.
   * Enabling prioritization of factors like work-life balance or career growth.
5. **Resume Optimization and Customization:**
   * Providing AI-powered feedback and tools to tailor resumes and cover letters to specific job postings.
6. **Creating a website with friendly User Interface and Experience:**
   * Designing an intuitive, responsive website interface for uploading resumes, viewing job matches, and receiving optimization tips.
   * Creating a personalized dashboard for tracking job applications, viewing recommended jobs, and updating profiles.

**Project Exclusions:**

* The platform will not include job placement services or direct communication with employers.
* The project will not involve the development of any hardware or physical products.
* No integration with non-tech job boards or job postings outside the tech industry.
* The project will not cover manual resume reviews or human consultancy services.
* Marketing and promotional activities for the platform are not included in this project scope.

By clearly defining the scope, we aim to set clear boundaries and expectations for the project, ensuring that all activities contribute directly to the project's goals and avoiding any scope creep.

**2. Project Deliverables**

**Deliverable #1 Research and Requirement Analysis Document**

**Deliverable #2 Job Aggregation and Database Development**

**Deliverable #3: Resume Parsing and Profile Creation Document**

**Deliverable #4: AI-Powered Job Matching Algorithm Development**

**Deliverable#5 Resume Optimization and Customization**

**Deliverable #6: User Interface and Experience Development**

*See Appendix C for detailed Project Deliverables* [[3]](#footnote-4)

**3. Key Milestones**

The project involves a series of critical milestones that follow the deliverables, track its progress, and ensure timely completion. These include the development of a comprehensive Research and Requirement Analysis document, building a functional MVP with core features, successfully integrating OpenAI's GPT-4.0 API for advanced job matching, creating a user-friendly interface with a personalized dashboard, conducting thorough usability testing, and achieving a successful public launch with a minimum of 1000 job postings. These deliverables are essential to achieving the project's objectives and ensuring successful outcomes.  
  
*See Appendix D for Full Key Milestones* [[4]](#footnote-5)

**4. Resource Management**

To effectively manage the resources for our project, we have outlined the key team members, their respective roles, and the estimated hourly rates.

|  |  |  |
| --- | --- | --- |
| **Members** | **Role** | **Estimated Hourly Rate** |
| Raghav Ahuja | Back-end Developer - Databases | $65/hour |
| Ozafa Mahmood | AI Integration | $70/hour |
| Hanzala Mahmood | Front-end Developer | $55/hour |
| User Testers | Testing products | $50/hour |

**Justification for Hourly Rates**

**Back-end Developer - Databases (Raghav Ahuja) - $65/hour**  
According to talent.com, the average hourly rate for Back-end Developers specializing in Databases is $65 an hour (talent.com, 2023)

**AI Integration (Ozafa) - $70hour**  
Based on data from talent.com, AI Integration Specialists typically earn $70 per hour (talent.com, 2023)

**Front-end Developer (Hanzala Mahmood) - $55/hour**  
Data from talent.com indicates that Front-end Developers typically $ 55 per hour (talent.com, 2023)

**User Testers - $50/hour**Data from talent.com indicates that User Testers typically make $50 per hour (talent.com, 2023)

**RACI Table**

The RACI diagram complements the Predecessor table by clearly defining the roles and responsibilities of each team member for each task. It specifies who is Responsible, Accountable, Consulted, and Informed, ensuring that everyone understands their involvement and promotes effective communication throughout the project.  
*See Appendix E for RACI Table*[[5]](#footnote-6)

**Gantt Chart**:

A screenshot of a computer

Description automatically generatedThe Gantt Chart provides a visual timeline from the start of the project to its finish.

***Note: MVP portion of this project (3 weeks) will be done in 1-week sprints***

**Predecessor Table**

The predecessor table further elaborates on the Gantt defines the relationships between different tasks within your project. It indicates which tasks must be completed before others can start. Each task is listed along with its linked predecessors, indicating the tasks that must be finished before it can begin.  
  
*See Appendix F for Predecessor Table* [[6]](#footnote-7)

**Budget and Estimated Hour Rates**:

Utilizing the assigned roles, the Gantt chart, Predecessor table and our estimated hourly rates for each task we have the estimated hours we predict that specific task will take. Combining all of this we have a comprehensive budget breakdown table.

*See Appendix G for Budget and Estimated Hour Rates* [[7]](#footnote-8)

1. **Monitoring and Control**

*Note: Since a portion of our project (MVP) is going to be done in* ***Agile Sprints*** *we will have different approaches for some of the sections.*

**Communication Approach**:  
  
We will employ a communication strategy tailored to the specific needs of each project phase, ensuring effective information flow and stakeholder engagement.

**Agile (MVP Development)**

* **Daily Stand-Up Meetings:** The entire development team (Raghav Ahuja, Ozafa Mahmood, Hanzala Mahmood) will hold daily stand-up meetings to discuss:
  + **Progress:** What was accomplished yesterday?
  + **Tasks:** What will be worked on today?
  + **Impediments:** Are there any obstacles hindering progress?
* **Weekly Sprint Review Meetings:** At the end of each sprint, the team will meet with the project manager (Raghav Ahuja) to review completed tasks, identify any deviations from the sprint plan, and gather feedback from the client and professor.
* **Bi-weekly Stakeholder Updates:** weekly updates will be provided to stakeholders (including the client) via email, outlining progress, key milestones achieved, and any potential challenges.

**Waterfall (Remaining Phases)**

* **Weekly Team Meetings:** The entire team will hold weekly meetings to discuss:
  + **Progress:** Review overall project progress against the plan.
  + **Issues:** Address any issues or roadblocks encountered.
  + **Next Steps:** Outline the key tasks and milestones for the upcoming week.
* **Bi-weekly Stakeholder Meetings:** Bi-weekly meetings will be scheduled with stakeholders (client, Users) to provide more comprehensive updates, including:
  + **Detailed Progress Reports:** Sharing detailed information on the project's progress and achievements.
  + **Deliverables:** Presenting completed deliverables.
  + **Key Decisions:** Communicating important decisions made during the team meetings.
  + **Feedback:** Gathering feedback from stakeholders and addressing any concerns.
* **Email Communication:** Regular email updates will be sent to keep stakeholders informed of important announcements, project updates, and key milestones.

**Additional Considerations:**

* **Communication Tools:** Utilize project management software (e.g., Asana, Trello, Jira) to track tasks, share documents, and facilitate communication within the team.
* **Client Communication:** Establish clear communication channels and expectations with the client to ensure their involvement and feedback throughout the project.

**Decision-Making Process**:

Our project team will prioritize collaborative and transparent decision-making to ensure effective collaboration and a productive workflow. Raghav Ahuja, as the project leader, will facilitate discussions and guide the team toward consensus. We will utilize a democratic voting system to resolve conflicts or disagreements, allowing each member five minutes to explain their perspective before a vote is taken. In the event of a deadlock, we'll give the team a day to cool down and revisit the issue with a fresh perspective. Should a stalemate persist, where one member does not agree with the democratic vote, we will consult with a mentor for guidance and support. To encourage a positive and collaborative environment, we will focus on active listening, respectful communication, and a commitment to finding solutions that benefit the entire team. We will also aim to leverage each team member's unique strengths and expertise, ensuring that everyone has a voice and contributes to the decision-making process.

**Risk and Opportunity Management Approach**:

To ensure the successful completion of our project, we've implemented a comprehensive risk mitigation approach. We have identified potential risks that could impact the project's timeline, budget, and overall success. These risks are analyzed to determine their likelihood and impact, and we have developed mitigation strategies to minimize their effects. By proactively managing these risks, we aim to ensure a smooth project execution and timely completion, while mitigating potential challenges. For a detailed analysis of the identified risks and their mitigation strategies,   
  
*Please refer to Appendix H for Full Risk and opportunity management Approach Table[[8]](#footnote-9)*

**Quality Control**

We will employ a comprehensive monitoring and quality control process throughout the project, ensuring that progress is tracked, deliverables meet quality standards, and issues are identified and addressed promptly. Our approach will combine the best practices of both Agile and Waterfall methodologies.

**Checkpoints:**

At key stages of the project, designated quality control checkpoints will be implemented to ensure that deliverables meet the established standards. These checkpoints will involve peer reviews, code inspections, or other relevant quality assurance measures.

* **Code Inspection:** Before each deliverable is presented, a peer review will be conducted to ensure the code meets coding standards and best practices.
* **Usability Testing:** After each sprint during MVP development or before releasing a new feature in the Waterfall phase, the platform will be tested with users to gather feedback on its usability and identify areas for improvement.
* **Data Validation:** Daily checks will be conducted to ensure the accuracy and completeness of the data scraped and stored in the database.
* **API Testing:** The OpenAI GPT-4.0 API integration will be thoroughly tested to ensure it performs as expected and that the job matching algorithm functions correctly.
* **Security Audits:** Regular security audits will be conducted to assess the platform's vulnerability to attacks and to ensure compliance with data privacy regulations.

**Performance Metrics:**

Key performance indicators (KPIs) will be tracked to measure the project's success, including:

* **Completion Rate:** The percentage of tasks completed on time.
* **Budget Adherence:** Monitoring expenses against the allocated budget.
* **User Feedback:** Collecting and analyzing user feedback on the platform's usability and functionality.
* **Job Matching Accuracy:** Evaluating the success rate of the job matching algorithm.
* **Platform Usage:** Tracking the number of active users and their engagement with the platform.

**6. Evaluation  
  
Project Review:** At the end of the project, a comprehensive review will be conducted, including a final detailed report, to evaluate the project's success, identify lessons learned, and recommend future improvements.

**Key Performance Indicators (KPIs):**

* **User Engagement:** Monitor user engagement with the platform, including the number of active users, click-through rates on job postings, and the time spent on the platform.
* **Job Matching Accuracy:** Evaluate the accuracy of the AI-powered job matching algorithm, measuring the success rate of users finding suitable job listings.
* **User Satisfaction:** Gather feedback from users through surveys or interviews to assess their satisfaction with the platform's functionality and user experience.
* **Project Timeline Adherence:** Track the project's progress against the established timeline, identifying any delays and assessing their impact.
* **Budget Adherence:** Monitor the project's expenses to ensure they are within the allocated budget.

**7. Closure**

**Project Exit Criteria**

|  |  |
| --- | --- |
| **Criteria** | **Description** |
| **Project Deliverables** | - The Research and Requirement Analysis document is completed and approved, including user stories, use cases, feature specifications, competitive analysis, technology stack selection, and market research.  - The MVP is developed and launched, incorporating core features: job aggregation, database, basic resume parsing, profile creation, and initial AI-powered job matching. - Usability testing is completed, and any necessary improvements based on user feedback are implemented.  - The OpenAI GPT-4.0 API is successfully integrated and tested, enhancing the job matching algorithm.  - The platform is successfully launched to the public, with a minimum of 1000 job postings available in the database. |
| **Client Satisfaction** | - The client has reviewed all project deliverables and provided positive feedback. - The client confirms that their expectations and requirements have been met.  - The client agrees to move forward with the recommended strategies and implementation plan based on the project's findings. |
| **Schedule Adherence** | - All key project milestones are met according to the initial project plan, including the completion of the Research and Requirement Analysis, MVP development, API integration, user interface design, and public launch. |
| **Successful User Testing Phase** | - The User Testing phase has been successfully completed, demonstrating that the platform meets user needs, is easy to navigate, and provides a positive user experience. |

**Incomplete or Project Abandonment Criteria**:

|  |  |
| --- | --- |
| **Criteria** | **Description** |
| **Failure to Achieve Critical Milestones** | - **Research and Requirement Analysis:** If not completed within two weeks, the project will be reviewed to determine its feasibility. |
|  | - **MVP Development:** If not developed and launched within 7 weeks, the project will be reassessed. |
|  | - **OpenAI GPT-4.0 API Integration:** If not achieved within 2 weeks after starting of the integration process, the project's feasibility will be re-evaluated. |
| **Client Dissatisfaction** | -- **Formal Rejection:** If the client rejects the deliverables or refuses to move forward, the project will be considered abandoned. |
| **Insufficient Progress** | - **Schedule Delay:** If the project falls behind by more than 2 weeks in any phase, it will be reviewed for potential adjustments or termination. |
|  | - **Task Completion:** If less than 50% of tasks are completed within the first three sprints of the Agile MVP development, the project's feasibility will be reassessed. |
| **Unforeseen Circumstances** | - **Budget Reduction:** If the budget is reduced by more than 20%, the project's scope and timelines will be reassessed. |
|  | - **Scope Changes:** If major changes to the project scope significantly alter objectives, the project may be terminated. |
|  | - **Technical Difficulties:** If unforeseen technical issues hinder progress and cannot be resolved promptly, the project's feasibility will be reassessed. |
| **Lack of Team Collaboration** | - **Conflict Resolution:** If the team cannot resolve conflicts within one week or if conflicts cause a breakdown in communication and productivity, the project will be re-evaluated. |
| **Inadequate User Feedback** | - **Feedback Response:** If the user testing phase produces fewer than 20 usable responses or if feedback is overwhelmingly negative, the project may be reviewed or terminated. |

**Conclusion:**

This comprehensive project plan outlines the strategy and execution for developing a functional AI-powered job search platform designed to assist fresh graduates and job seekers in the tech field in finding new job opportunities and optimizing their resumes. It addresses the challenges faced by job seekers in today's competitive job market by providing innovative solutions to streamline the job search process and enhance candidate profiles.

The project utilizes a hybrid approach, combining Agile methodologies for the initial MVP development phase with a Waterfall approach for the subsequent phases. This strategic approach allows for flexibility and adaptability during the critical MVP development phase, enabling the team to incorporate user feedback and iterate based on real-world user experiences. This leads to a more refined and user-friendly platform, ensuring that it meets the needs of its target audience effectively.

The plan addresses key project elements, including the project scope, deliverables, milestones, resource management, risk mitigation strategies, and monitoring and quality control measures. It provides a comprehensive framework for ensuring successful project execution, delivering high-quality results, and achieving the project's objectives within the allocated budget and timeline.

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**9. Appendices**

**Appendix A:**

**Detailed Project Description:**

This project aims to develop an AI-powered platform designed to assist fresh graduates and job seekers in the tech field in finding job opportunities and optimizing their resumes. It will scrape job postings from various online sources, store them in a searchable database, and categorize them by job title, skills, location, company, and salary range. Using NLP technologies, the platform will extract relevant information from resumes to create detailed user profiles. We will be making a user profile creating and login module allowing users to store their resumes and data. Machine learning algorithms and APIs like OpenAI's GPT will be used to match users with suitable job listings. The platform will also provide AI-powered feedback to help users tailor their resumes and cover letters to specific job postings.

**Appendix B:**

**Key Stakeholder List**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Stakeholder Name** | **Stakeholder Role** | **Interests** | **Influence (Very Low to High)** | **Concerns** |
| **Project Team Members** | To carry out the project and ensure its successful execution | - Successful project completion | Very high | Project delays and miscommunication |
| - Skill development |
| - Positive team dynamics |
| **Fresh Graduates & Job Seekers** | Primary users of the platform | - Finding suitable job opportunities | High | Platform usability and data privacy |
| - Improving resume quality |
| - Easy-to-use platform |
| **Employers & Recruiters** | Secondary Users, Benefiting from qualified candidates | - Access to qualified candidates | High | Candidate quality and platform reliability |
| - Efficient candidate matching |
| - Data-driven hiring decisions |
| **Technical Support Team** | Ensure platform stability and address technical issues | - Smooth platform operation | Medium | Technical bugs and system downtime |
| - Timely issue resolution |
| - System performance |
| - Effective marketing campaigns |
| - Competitive advantage |
| **Regulatory Bodies** | Ensure compliance with industry standards | - Compliance with regulations | Medium | Non-compliance and regulatory fines |
| - Data privacy and security |
| - Regular audits |
| **Competitors** | Competing platforms in the job search market | - Market share and trends | Low | Losing market share and competitive edge |
| - User feedback and feature comparisons |
| - Competitive positioning |

**Appendix C:**

**Project Deliverables**

**Deliverable #1 Research and Requirement Analysis Document**

|  |  |  |
| --- | --- | --- |
| **Subtasks** | **Details** | **Acceptance Criteria** |
| **User Stories and Use Cases** | Develop user stories and use cases to capture the functionality and user interactions of the platform. This includes stories for job searching, resume optimization, profile management, and platform navigation. Develop at least 10 different user stories | User stories and use cases are detailed, clear, and reflect the user's needs and goals. The use cases are well-structured, covering all key interactions and scenarios. Quantity: Develop at least 10 user stories that cover the core functionalities of the platform. |
| **Feature Specification** | Define and document the features of the platform, including job aggregation, resume parsing, AI-powered matching, customizable job search, resume optimization, and user interface elements. Each feature should have a clear description, expected functionality, and acceptance criteria. | Features are clearly defined and well-documented, providing a comprehensive understanding of the platform's capabilities. Acceptance criteria are specific and measurable, enabling the development team to validate the functionality. |
| **Competitive Analysis** | Identify and analyze key competitors in the tech job search market, including their features, strengths, weaknesses, and market share. Research their user experience, pricing models, marketing strategies, and overall value proposition.  **Comparison Table:** Create a table comparing your platform to at least 3 key competitors, highlighting their key features, strengths, weaknesses, and value proposition. | The analysis is thorough and insightful, providing a clear understanding of the competitive landscape. The comparison table effectively highlights the key differences between competitors and your platform, emphasizing your competitive advantage. |
| **Technology Stack Specification** | Define and document the proposed technology stack for the platform, including programming languages, frameworks, databases, APIs, cloud services, and other relevant tools. This should include justification for the selection of each technology based on factors such as scalability, performance, security, cost | -The technology stack is well-defined and documented, including a clear justification for the selection of each technology based on project requirements and technical considerations of the team members |
| **Market Research** | - Conduct market research to understand user needs and industry trends. -Research and identify the current stage of the tech job market life cycle (e.g., growth, maturity, decline). -Define 3 Pain Points: Identify and document three major challenges or pain points faced by fresh graduates and job seekers in the tech field. Research Sources: Include references to at least 3 credible industry reports or research papers that support the findings. | The research accurately reflects the current state of the tech job market and identifies key trends, challenges, and opportunities. Three distinct pain points are identified and thoroughly described, demonstrating a comprehensive understanding of the target audience's challenges. |

**Deliverable #2 Job Aggregation and Database Development**

|  |  |  |
| --- | --- | --- |
| **Subtasks** | **Details** | **Acceptance Criteria & Evaluation by Client** |
| Job Scraping | - Develop a system that can scrape, collect, and update job postings from various online sources, including job boards, company websites, and recruitment platforms. Implement web scraping techniques using Python | System collects **at least 10,000 Job postings.** |
| The system can successfully scrape, collect, and update job postings from at least 5 major online sources. \* The data extraction logic accurately extracts relevant information from job postings, **with at least 90% accuracy** |
| Job Database Creation | Design and implement a database structure to store the collected job postings. Choose a suitable database management system (DBMS) such as PostgreSQL, MySQL, or MongoDB, considering factors like scalability, performance, and security requirements | The database is successfully designed and implemented using a chosen DBMS that meets the project requirements. The schema accurately represents the structure of job postings, with appropriate data types and relationships. The database is able to store **at least 1000 job postings** at launch. |
| Data Organization | - Implement data organization and categorization mechanisms. -Implement data cleaning procedures to handle inconsistencies, duplicates, and errors in the collected data. | - Job postings are categorized correctly and consistently. -The system is able to handle inconsistencies, duplicates, and errors in the collected data, ensuring data quality and integrity |
| Data Update Mechanism | - Develop a script which will regularly update job postings. | - Job postings are updated on a **weekly basis** to ensure relevancy. |
| Search Functionality | Implement search functionality to enable users to search and filter job postings based on various criteria | Users are able to efficiently search and filter job postings based on relevant criteria, including job title, skills, location, company, and salary range. Users should get their response in **< 100 ms** (Patrick, 1962) |

**Deliverable #3: Resume Parsing and Profile Creation Document**

|  |  |  |
| --- | --- | --- |
| **Subtasks** | **Details** | **Acceptance Criteria & Evaluation by Client** |
| Resume Parser | Implement a resume parser using Natural Language Processing (NLP) techniques to extract relevant information from user-uploaded resumes | The resume parser successfully extracts relevant information from uploaded resumes, including skills, education, experience, and keywords. The parser achieves an accuracy rate of at least 90% in identifying and extracting key information. The parser is able to handle various resume formats and structures, including PDFs, DOCX, and TXT files. The extracted information is stored in a structured format, ready for use in profile creation and job matching. |
| User Profile Creation System | Develop a system that enables users to create detailed profiles based on their resumes and additional input. Design user interface elements to facilitate profile creation, including fields for personal information, skills, experience, education, and career goals. | The user profile creation system is intuitive and easy to use, allowing users to create comprehensive profiles. Users are able to easily input and update their profiles with relevant information. |
| Profile Linking | Integrate the resume parser with the user profile creation system to automatically populate profiles with extracted information. | The profile linking process is seamless and efficient, automatically populating user profiles with extracted information. The extracted information is mapped correctly to the corresponding profile fields. |

**Deliverable #4: AI-Powered Job Matching Algorithm Development**

|  |  |  |
| --- | --- | --- |
| **Subtasks** | **Details** | **Acceptance Criteria & Evaluation by Client** |
| Algorithm Design and Implementation | Design and implement the core AI-powered job matching algorithm using machine learning models and techniques (e.g., natural language processing, collaborative filtering). Analyze job postings and user profiles, identify relevant skills, experience, and preferences, and generate personalized job recommendations. | The algorithm generates accurate and relevant job matches for users based on their profiles, preferences, and the specific requirements outlined in job postings. The algorithm considers a comprehensive set of factors, including skills, experience, location preferences, desired salary range, and company preferences, as specified by the user. The algorithm's response time is optimized to provide users with timely and efficient results. |
| OpenAI API Integration | Integrate OpenAI's GPT-4.0 API to enhance natural language understanding (NLU) capabilities. Use the API for tasks such as keyword extraction, sentiment analysis, and entity recognition from job descriptions and user profiles to gain deeper insights for more precise matching. | The OpenAI API integration successfully enhances the algorithm's NLU capabilities, resulting in improved accuracy and relevance of job matches. The API is utilized effectively to extract valuable information from job postings and user profiles, enabling a more comprehensive understanding of both job requirements and user qualifications. The integration is seamless and does not introduce significant latency or performance issues. |
| Matching Algorithm Refinement | Continuously refine and improve the job matching algorithm based on user feedback, A/B testing, performance data, and evolving market trends. Experiment with different machine learning models, adjust weighting factors, and incorporate new data sources to optimize matching accuracy. | The matching algorithm demonstrates continuous improvement over time, with regular updates and refinements based on user feedback and performance analysis. The algorithm is adaptable to changing market trends and user preferences, ensuring that it remains relevant and effective in the long term. A/B testing is conducted to evaluate the impact of different algorithm variations, allowing for data-driven decision-making in the refinement process. Key performance indicators (KPIs), such as click-through rates, application rates, and user satisfaction, are tracked and analyzed to assess the algorithm's effectiveness and identify areas for further improvement. |
| Testing and Validation | Conduct extensive testing and validation of the job matching algorithm to ensure accuracy, reliability, and optimal performance. Verify the algorithm's ability to handle various scenarios, including different resume formats, job descriptions, and user preferences. (Jain et al., 1999). | The job matching algorithm is thoroughly tested and validated using a diverse set of test cases and scenarios. The testing covers different resume formats (PDF, DOCX, TXT), variations in job descriptions, and a range of user preferences. The validation process ensures that the algorithm consistently produces accurate and relevant job matches. Performance testing is conducted to assess the algorithm's speed and efficiency in processing large volumes of data. |

**Deliverable #5 Resume Optimization and Customization**

|  |  |  |
| --- | --- | --- |
| **Subtasks** | **Details** | **Acceptance Criteria & Evaluation by Client** |
| AI-Powered Resume Feedback System | Develop and implement an AI-powered system to analyze user resumes and provide personalized feedback on areas for improvement. Utilize OpenAI's GPT-3.5 API to generate insights on keyword optimization, formatting, structure, and content suggestions (Brown et al., 2020). | - The system provides clear, concise, and actionable feedback on resumes. |
| - The feedback is tailored to the user's skills, experience, and target job roles. |
| - The system highlights specific areas for improvement, such as keyword usage, formatting inconsistencies, and weak content. |
| Resume Customization Tools | Create tools that allow users to tailor their resumes and cover letters to specific job postings. These tools should enable users to highlight relevant skills and experience, adjust keywords, and customize the content to match the specific requirements of each job application (Manning et al., 2008). | - The tools are user-friendly and intuitive, allowing for easy customization of resumes and cover letters. |
| - The tools provide suggestions and guidance on how to tailor content to specific job postings. |
| - The tools enable users to create multiple versions of their resumes and cover letters for different job applications. |

**Deliverable #6: User Interface and Experience Development**

|  |  |  |
| --- | --- | --- |
| Subtasks | Details | Acceptance Criteria & Evaluation by Client |
| User Interface Design | - Develop a visually appealing and intuitive interface for the AI-powered platform, aligned with the brand and targeting the user needs of tech graduates and job seekers.  - Design a responsive layout that adapts seamlessly to various screen sizes (desktops, laptops, tablets, smartphones). | - The interface is user-friendly and easy to navigate, with clear and intuitive visual cues.  - The interface is visually appealing, consistent with the brand, and aligns with user preferences.  - The interface is responsive across different devices (desktops, tablets, smartphones). |
| Usability Testing & Iteration | - Conduct usability testing with a representative sample of target users to gather feedback on the interface's effectiveness and user-friendliness.  - Implement iterative improvements based on user feedback, conducting A/B testing of design variations to optimize the user experience. | - Usability testing results demonstrate that users can successfully complete key tasks on the platform with minimal effort and errors.  - User feedback is positive, indicating that the interface is intuitive, easy to navigate, and meets user needs.  - The interface is continuously improved based on user feedback and data analysis, resulting in an enhanced user experience. |

**Appendix D:  
  
Key Milestones:**

|  |  |  |
| --- | --- | --- |
| Key Milestone | Due Date | Indicator |
| Research and Requirement Analysis Completion (2 weeks) | 09/12/2024 | Successful completion of a detailed Research and Requirement Analysis document, including user stories, use cases, feature specifications, competitive analysis, technology stack specification, and market research findings. |
| Team Training in Agile (3 Day) | 08/28/2024 | Successfully teaching and bringing the whole team on the same page of the Agile terminologies such as |
| MVP Development (3 weeks)  Done in Agile 1-week sprints | 10/11/2024 | Development of a functional minimum viable product (MVP) that includes the core features of the platform: job aggregation, database, basic resume parsing, profile creation, and initial AI-powered job matching. Completion of this will allow us to have continuous user feed-back on our product |
| OpenAI API Integration (1 weeks) | 10/22/2024 | Successful integration of OpenAI's GPT-4o API into the job matching algorithm, demonstrating enhanced natural language understanding capabilities for improved accuracy. |
| User Interface Design & Development (2 weeks) | 11/11/2024 | Completion of the user interface design and development, including a user-friendly dashboard, resume optimization tools, and a responsive design across various devices. |
| Usability Testing and Iteration (1 weeks) | 11/20/2024 | Completion of user testing with a representative sample of target users. Implementation of iterative improvements based on feedback, resulting in an optimized user experience. |
| Public Launch (1 week) | 11/27/2024 | Successful public launch of the AI-powered platform, with a minimum of 1000 job postings and a functional resume parser. |

**Appendix E:**

**RACI Diagram:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task** | **Responsible** | **Accountable** | **Consulted** | **Informed** |
| Project Initiation | Whole Team | Raghav Ahuja | Whole Team | Whole Team |
| Research & Development | Raghav Ahuja | Ozafa Mahmood | Hanzala Mahmood | Whole Team |
| User Stories and Use Cases | Ozafa Mahmood | Raghav Ahuja | Hanzala Mahmood | Client, Whole Team |
| Feature Specification | Raghav Ahuja | Ozafa Mahmood | Whole Team  Client | Whole Team, Client |
|  |  |  |  |  |
| Competitive Analysis | Raghav Ahuja | Ozafa Mahmood | Whole Team | Whole Team |
| Technology Stack Specification | Hanzala Mahmood | Ozafa Mahmood | Raghav Ahuja  Client | Whole Team |
| Team Training in Agile | Raghav Ahuja | Ozafa Mahmood | Hanzala Mahmood | Whole Team |
| Market Research | Raghav Ahuja | Ozafa Mahmood | Hanzala Yousuf | Whole Team |
| MVP (Done in 1 week sprints) | Whole team | Ozafa Mahmood | Whole team (Daily Standup) Client  ( Weekly at  end of each Sprint) Users (Weekly at end of each sprint) | Whole Team |
| Core UI Design and Development | Raghav Ahuja | Ozafa Mahmood | Hanzala Mahmood, Users | Whole Team |
| Database Design & Integration | Raghav Ahuja | Ozafa Mahmood | Whole Team | Whole Team |
| Resume Parsing Feature | Raghav Ahuja | Ozafa Mahmood | Whole Team | Whole Team |
| OpenAI API Integration | Raghav Ahuja | Ozafa Mahmood | Whole Team | Whole Team |
| API Setup and Configuration | Hanzala Mahmood, Raghav Ahuja | Ozafa Mahmood | Whole Team | Whole Team |
| Algorithm Integration | Ozafa Mahmood | Raghav Ahuja | Whole Team | Whole Team |
| User Interface Design and Development | Hanzala Mahmood, Raghav Ahuja | Ozafa Mahmood | Whole Team, Client | Whole Team |
| Dashboard UI Design | Hanzala Mahmood, Raghav Ahuja | Ozafa Mahmood | Whole Team, Client | Whole Team |
| Resume Optimization Tools | Ozafa Mahmood | Raghav Ahuja | Whole Team | Whole Team |
| Usability Testing and Iteration | Whole Team | Raghav Ahuja | Whole Team, Users, Client | Whole Team |
| User Testing | Hanzala Mahmood, Raghav Ahuja | Ozafa Mahmood | Users, Whole Team | Whole Team |
| Feedback Analysis & Iteration | Ozafa Mahmood | Raghav Ahuja | Whole Team | Whole Team |
| Public Launch | All | Raghav Ahuja | Whole Team, Client, Users | Whole Team |

**Appendix F:   
  
Predecessor table:**

A screenshot of a calendar

Description automatically generated

**Appendix G:   
  
Budget Breakdown:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comprehensive Budget Breakdown** | | | | |
| **Milestone** | **Role** | **Estimated Hours** | **Hourly Rate** | **Cost** |
| **Project Initiation** | Raghav Ahuja | 1 | $65 | $65 |
|  | Ozafa Mahmood | 1 | $70 | $70 |
|  | Hanzala Mahmood | 1 | $55 | $55 |
| **Research & Development** | Raghav Ahuja | 11 | $65 | $715 |
|  | Ozafa Mahmood | 13 | $70 | $910 |
|  | Hanzala Mahmood | 13 | $55 | $715 |
| **User Stories and Use Cases** | Ozafa Mahmood | 3 | $70 | $210 |
|  | Raghav Ahuja | 0.5 | $65 | $32.50 |
|  | Hanzala Mahmood | 0.5 | $55 | $27.50 |
| **Feature Specification** | Raghav Ahuja | 14 | $65 | $910 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Competitive Analysis** | Raghav Ahuja | 6 | $65 | $390 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Technology Stack Specification** | Hanzala Mahmood | 11 | $55 | $605 |
|  | Raghav Ahuja | 0 | $65 | $0 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
| **Team Training in Agile** | Raghav Ahuja | 3 | $65 | $195 |
|  | Ozafa Mahmood | 3 | $70 | $210 |
|  | Hanzala Mahmood | 3 | $55 | $165 |
| **Market Research** | Raghav Ahuja | 4 | $65 | $260 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **MVP (Done in 1 week sprints)** | Raghav Ahuja | 35 | $65 | $2,275 |
|  | Ozafa Mahmood | 35 | $70 | $2,450 |
|  | Hanzala Mahmood | 35 | $55 | $1,925 |
| **Core UI Design and Development** | Raghav Ahuja | 12 | $65 | $780 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Database Design & Integration** | Raghav Ahuja | 7 | $65 | $455 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Resume Parsing Feature** | Raghav Ahuja | 20 | $65 | $1,300 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **OpenAI API Integration** | Raghav Ahuja | 8 | $65 | $520 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 8 | $55 | $440 |
| **API Setup and Configuration** | Hanzala Mahmood | 8 | $55 | $440 |
|  | Raghav Ahuja | 0 | $65 | $0 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
| **Algorithm Integration** | Ozafa Mahmood | 20 | $70 | $1,400 |
|  | Raghav Ahuja | 0 | $65 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **User Interface Design and Development** | Raghav Ahuja | 14 | $65 | $910 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 14 | $55 | $770 |
| **Dashboard UI Design** | Raghav Ahuja | 14 | $65 | $910 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Resume Optimization Tools** | Ozafa Mahmood | 14 | $70 | $980 |
|  | Raghav Ahuja | 0 | $65 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Usability Testing and Iteration** | Raghav Ahuja | 5 | $65 | $325 |
|  | Ozafa Mahmood | 2 | $70 | $140 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **User Testing** | Raghav Ahuja | 5 | $65 | $325 |
|  | Ozafa Mahmood | 0 | $70 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
|  | Testers | 5 | $50 | $250 |
| **Feedback Analysis & Iteration** | Ozafa Mahmood | 2 | $70 | $140 |
|  | Raghav Ahuja | 0 | $65 | $0 |
|  | Hanzala Mahmood | 0 | $55 | $0 |
| **Public Launch** | Raghav Ahuja | 7 | $65 | $455 |
|  | Ozafa Mahmood | 7 | $70 | $490 |
|  | Hanzala Mahmood | 7 | $55 | $385 |
| **Total** |  | **207.5 (Hours)** | | **$11,645** |

**Appendix H:**

**Risk and Opportunity Management Approach:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Risk without Control & Response** | | | |  | | **Risk with Controls & Response** | | | |  |
| **Risk** | **Description** | | **LH** | **Impact** | **IRS** | | **Mitigation Strategy** | | **Owner** | **LH** | **Impact** | **FRS** |
| 1 | Data Scraping Errors | | High | High | High | | - Implement robust error handling and data validation processes.  - Use multiple data sources to cross-check and verify data accuracy. | | Raghav Ahuja | Medium | Medium | Medium |
| 2 | API Integration Issues | | High | High | High | | - Thorough planning and testing during the integration phase, including testing the API with various data sets and scenarios. | | Ozafa Mahmood | Medium | Medium | Medium |
| 3 | Resume Parser Accuracy Issues | | High | High | High | | - Train the resume parser using a large and diverse dataset. - Implement error handling and data validation processes to correct inconsistencies. | | Raghav Ahuja | Medium | Medium | Medium |
| 4 | User Interface Usability Issues | | High | High | Medium | | - Conduct regular user testing to gather feedback and identify usability issues. - Implement iterative improvements based on user feedback. | | Hanzala Mahmood | Medium | Medium | Low |
| 5 | Data Security Breaches | | High | Extreme | Extreme | | - Implement strong security measures, including data encryption, access controls, and regular security audits. | | Raghav Ahuja | Medium | High | High |
| 6 | Budget Overruns | | Medium | High | Medium | | - Establish a clear budget and track expenses closely. Explore alternative resources or cost-saving measures. | | Raghav Ahuja | Low | Medium | Low |
| 7 | Project Delays | | High | High | High | | - Set realistic timelines and milestones. - Proactively identify and address potential delays. - Implement a contingency plan to handle unexpected delays. | | Raghav Ahuja | Medium | High | Medium |
| 8 | Conflict Within the Team | | Medium | High | Medium | | - Establish clear communication channels and expectations. | | Raghav Ahuja | Medium | High | Medium |

|  |  |  |  |
| --- | --- | --- | --- |
| **LH: Likelihood** | **Impact** | **IRS: Initial Risk Score** | **FRS: Final Risk Score** |
| (Given) | (Given) | = LH + Impact | = LH + Impact |
| 1.0: Low | 1.0: Low | 1.0-2.0: Low | 1.0-2.0: Low |
| 2.0: Medium-Low | 2.0: Med-Low | 3.0-4.0: Med-Low | 3.0-4.0: Med-Low |
| 3.0: Medium | 3.0: Medium | 5.0-6.0: Medium | 5.0-6.0: Medium |
| 4.0: High | 4.0: High | 7.0-8.0: High | 7.0-8.0: High |
| 5.0: Extreme | 5.0: Extreme | 9.0-10.0 Extreme | 9.0-10: Extreme |

1. Appendix A: Detailed Project Description [↑](#footnote-ref-2)
2. Appendix B: Key Stake holders [↑](#footnote-ref-3)
3. Appendix C: Detailed Project Deliverables [↑](#footnote-ref-4)
4. Appendix D: Key Milestones [↑](#footnote-ref-5)
5. Appendix E: RACI Diagram [↑](#footnote-ref-6)
6. Appendix F: Predecessor Table [↑](#footnote-ref-7)
7. Appendix G: Budget and Estimated Hour Rates [↑](#footnote-ref-8)
8. Appendix H: Risk and Opportunity Management Approach [↑](#footnote-ref-9)