VERSION 1.0.1

PROJECT PROPOSAL

VERSION HISTORY				
VERSION	**APPROVED BY**	**REVISION DATE**	**DESCRIPTION OF CHANGE**	**AUTHOR**
1.0.1	**Harris Mazhar**	**04/02/2024**	• **New features added and older ones, expanded upon features about advanced analytics and elimination of biases** • **More specificity on the types of ML models that will be used.** • **Expanded on the security of the HR data in assumptions**	**Hamna Shafqat**

Software Requirements Specification

for

KEYA

Prepared by group 12

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Date 04-02-24

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1 Introduction

1.1 Proposal

1.1.1 Purpose

In the realm of evolving organizational management practices, our web application project endeavors to address critical deficiencies within existing Succession Planning systems by integrating advanced Performance Tracking and Machine Learning (ML) capabilities including Language Model APIs (LLM APIs), specifically OpenAI APIs. The primary goal of this initiative is to revolutionize how organizations approach succession planning, placing emphasis on automation, improved performance insights, and the identification of high-potential candidates. Through the utilization of ML algorithms, the project aims to furnish predictive analytics for more insightful decision-making, providing personalized development plans and ensuring seamless integration with existing HR systems.

The anticipated outcomes and advantages of the project are diverse. Firstly, the refinement of succession strategies ensures a consistent pool of adept leaders, fostering organizational stability. The integration of ML facilitates decision-making based on data, empowering leaders with insights for talent development and succession planning. Additionally, the incorporation of self-assessment tools and personalized development plans cultivates heightened employee engagement, encouraging active involvement in career growth. Furthermore, the project aligns with organizational objectives by addressing diversity and inclusion within leadership pipelines.

To achieve the project's goals, a robust hardware and software infrastructure is essential. The proposed hardware includes a cloud-based server, leveraging services like Amazon Web Services (AWS). For efficient data management, MongoDB is chosen as the NoSQL database server. On

the software side, React.js is selected as the frontend framework, providing a dynamic user interface, while the backend is built on Node.js with Express.js for scalable server-side logic. Machine learning capabilities, including OpenAI APIs, are integrated using popular libraries such as TensorFlow. MongoDB serves as the database management system, handling unstructured data common in machine learning applications. Apache functions as the web server, ensuring efficient handling of HTTP requests. Data visualization tools such as D3.js and Tableau can be used to enhance the presentation of insights. By aligning this technology stack with the project's purpose and organizational objectives, the aim is to deliver a comprehensive solution that transforms succession planning into a strategic asset for organizational growth.

1.1.2. Project Scope

1.1.2.1. In Scope

In delineating the project's scope, we carefully define a set of functionalities that collectively aim to reeshape Succession Planning. The major objective is to seamlessly integrate advanced Performance Tracking and Machine Learning features. The project ambitiously strives for the automation of succession planning processes, utilizing machine learning analytics to elevate performance tracking. This includes the identification of high-potential candidates through in-depth analysis of performance metrics and skills. Additionally, the project incorporates the generation of personalized development plans and ensures seamless integration with existing HR systems, fostering data consistency and collaborative decision-making. The inclusion of scenario planning tools and the development of an intuitive, user-friendly interface further contribute to the project's comprehensive scope. This carefully defined scope is designed to be realistic and manageable within the given resources and constraints, aligning with the project's overarching goals.

1.1.2.2. Out of Scope

In order to establish precise boundaries and set realistic expectations, the project deliberately excludes specific functionalities. Firstly, a holistic overhaul of the entire HR management system is beyond the project's scope, which specifically aims at enhancing Succession Planning processes. Moreover, functionalities associated with external employee recruitment are omitted, as the project's primary focus is on internal talent development and succession planning, rather than external hiring initiatives. The project refrains from creating intricate employee evaluation models, opting instead for practical and insightful metrics directly relevant to succession planning goals. Lastly, integrations with non-HR systems are excluded to maintain a clear focus within the HR domain. These deliberate exclusions are critical for preventing misunderstandings and ensuring the project's concentration on feasible and targeted enhancements to Succession Planning and Performance Tracking.

1.1.3. Project description

1.1.3.1. Project Goals and Objectives

This software development project aims to revolutionize Succession Planning by combining advanced Performance Tracking and Machine Learning features. It's designed for Human Resources professionals, managers, and organizational leaders to optimize talent management and foster diversity in leadership. The software is envisioned to be widely used across different departments and levels, helping HR professionals streamline Succession Planning, assisting managers in making informed talent decisions, and supporting organizational leaders in driving strategic initiatives. What sets this software apart is its innovative approach—it uses sophisticated analytics and machine learning to accurately identify and nurture high-potential candidates, improving performance tracking and enabling data-driven talent development decisions. The

software's unique value lies in its ability to bridge gaps, promote inclusivity, and provide insights that empower users to make strategic talent management decisions, making it a pioneering solution in the field of Succession Planning.

The software will also include functionality to cater to different user roles promoting inclusivity and transparency. Through a robust signup and login system, users gain access to personalized views tailored to their roles. Employees, for instance, can track their individual progress, creating a more engaging and empowering user experience.

The project's overarching purpose is to revolutionize Succession Planning through advanced Performance Tracking and Machine Learning. To align with this vision, key objectives have been clearly delineated. These objectives include the implementation of advanced performance analytics, integration of machine learning algorithms for identifying high-potential candidates, ensuring seamless integration with existing HR systems, providing scenario planning tools, prioritizing data privacy and security, and promoting user training and adoption. Each of these objectives directly contributes to achieving the broader goal of transforming Succession Planning. For instance, advanced performance analytics and machine learning integration enhance the accuracy of talent identification, seamless system integration ensures a cohesive approach to HR processes, and scenario planning tools empower users to make strategic decisions. Furthermore, addressing employee engagement through self-assessment tools and promoting diversity and inclusion align with the project's overarching purpose by creating a holistic solution that not only enhances Succession Planning but also fosters a positive and inclusive work environment.

Business Drivers

Business Driver #1: Enhanced Succession Planning Efficiency Issue

Issue: Cumbersome manual processes currently impede the organization's agility in identifying and nurturing potential leaders. This results in delays, inefficiencies, and a lack of scalability in succession planning.

Solution: The proposed solution involves incorporating an automated succession planning workflow into the software. By automating talent identification, assessment, and development processes, the organization can streamline operations, reduce manual workload, and enhance overall efficiency in succession planning.

Business Driver #2: Improved Performance Tracking with Advanced Analytics

Issue: The current performance tracking system relies on conventional metrics, limiting the depth of insights and hindering informed talent development decisions.

Solution: Develop and integrate a performance tracking system with advanced analytics, utilizing machine learning algorithms. This solution empowers the organization to move beyond traditional metrics, providing a more comprehensive view of employee performance and enabling data-driven decisions in talent development and succession planning.

Business Driver #3: Accurate Identification of High-Potential Candidates

Issue: The organization faces challenges in accurately identifying high-potential candidates due to subjective evaluations and lack of objective criteria.

Solution: Integrate machine learning algorithms into the succession planning workflow. By leveraging data-driven insights, the organization can ensure a more objective and strategic

approach to identifying and nurturing high-potential candidates, reducing biases and improving the accuracy of talent assessments.

Business Driver #4: Seamless Integration with Existing HR Systems

Issue: Data silos and inconsistencies exist in the current HR systems, impeding real-time collaboration and data consistency among HR professionals and organizational leaders.

Solution: The proposed solution emphasizes seamless integration with existing HR systems. By ensuring real-time collaboration and data consistency, the organization can overcome data silos, leading to more effective communication and decision-making in succession planning.

Business Driver #5: Enhanced Employee Engagement through Self-Assessment Tools

Issue: Employee engagement in career growth is limited, leading to decreased commitment and motivation.

Solution: Introduce self-assessment tools and personalized development plans within the software. This proactive strategy aims to actively engage employees in their career growth, fostering increased commitment, and enhancing overall employee engagement.

Business Driver #6: Addressing Diversity and Inclusion in Succession Planning

Issue: Traditional succession planning practices may perpetuate biases, hindering diversity and inclusion within leadership pipelines.

Solution: Implement unbiased machine learning algorithms and features within the succession planning workflow. This ensures fair and data-driven succession planning practices, promoting diversity and inclusion within leadership pipelines and aligning with the organization's commitment to a diverse and equitable workplace.

Collectively, these business drivers and proposed solutions contribute to the overarching goal of establishing a more efficient, data-driven, and inclusive approach to succession planning within the organization.

1.1.3.3. Features

Feature #1: Automated Succession Planning Workflow

Description: Implement an automated workflow for succession planning, facilitating the seamless identification and development of potential leaders within the organization.

This feature aligns with the goal of optimizing succession planning processes, reducing manual efforts, and enhancing efficiency. Custom programs will be developed to support this feature.

Feature #2: Employee-Facing Analytics Description

Description: Develop a user-friendly interface for employees to access personalized performance analytics. Utilize machine learning algorithms, graphs, and charts to provide insightful and nuanced performance analysis. This feature empowers employees to track their individual progress and performance, fostering a more engaging and proactive approach to career development. Custom programs will be developed to support this feature. The following analytics will help the employees perform better.

- Employee Performance Trends: Graphical representation of individual performance trends over time, enabling employees to visualize their growth and areas for improvement.
- Skill Proficiency Charts: Visual breakdown of skill proficiency levels, helping employees understand their strengths and areas where skill development is needed.
- Task Completion Rates: Graphical depiction of task completion rates, allowing employees to assess their efficiency and productivity.

Feature #3: Employer-Facing Analytics

Description: Implement a comprehensive analytics dashboard for employers and employers to access advanced performance tracking. Leverage machine learning algorithms, graphs, and charts to offer predictive insights into employee performance. This feature aids organizational leaders in making informed talent decisions and strategic workforce planning. Custom programs will be written to support this feature, providing a robust tool for managerial decision-making. The following analytics will streamline this process:

- Team Performance Overview: Visual representation of team performance metrics, allowing employers to identify high-performing teams and areas for improvement.
- Individual Contribution Metrics: Graphical breakdown of individual employee contributions, helping employers recognize top performers and allocate resources effectively.
- Predictive Performance Analytics: Charts predicting future performance trends based on historical data, assisting employers in proactive talent management and succession planning.

Feature #4: Machine Learning-Based Candidate Identification of high-potential employees

Description: Implement machine learning algorithms, including but not limited to K-Nearest Neighbors (KNN), to accurately identify high-potential employees based on a thorough analysis of performance data, skills, and potential for growth.

The diverse set of machine learning models ensures a comprehensive approach, leveraging the strengths of each model for nuanced talent assessments. This approach reduces biases and enhances the accuracy of talent assessments.

Feature #5: Streamlined Incorporation with existing HR frameworks

Description: Ensure seamless integration with existing HR systems to maintain data consistency and facilitate collaborative decision-making.

Addressing the need for seamless integration, this feature minimizes data silos and enhances organizational collaboration. Custom programs will be developed to support this feature.

Feature #6: Self-Assessment Tools and Personalized Development Plans

Description: Introduce self-assessment tools and personalized development plans within the software to actively engage employees in their career growth. Graphs will illustrate employee engagement metrics, fostering a proactive approach to career development and improving employee engagement. Custom programs will be developed to support this feature. The software will establish a repository of development resources and allow HR personnel to tailor development plans. These tools will enable employees to access and track their plans for a more engaging and empowering user experience.

Feature #7: Unbiased Machine Learning Algorithms for Diversity and Inclusion

Implement unbiased machine learning algorithms, specifically K-Nearest Neighbors (KNN), within the succession planning workflow. These algorithms ensure fair and data-driven succession planning practices, promoting diversity and inclusion within leadership pipelines. The KNN model will consider a comprehensive set of parameters to identify and nurture high-potential candidates, mitigating biases associated with traditional succession planning practices. The system will provide transparency into the decision-making process, fostering a culture of inclusivity by recognizing and leveraging diverse talents within the organization. Regular audits and updates to the algorithms will be conducted to ensure ongoing fairness and alignment with organizational diversity goals.

Feature #8: Separate portals for Employees, Admins etc.

Description: Implement a separate portal for different user roles such as employees, admins and employers. Each portal will provide role-specific functionalities and access levels, ensuring a tailored user experience and enhancing security. Customized user interfaces will be developed to support this feature.

Feature #9: Form for employers/admins to submit employee statistics

Description: Create a user-friendly form within the system that allows employers and administrators to easily submit and update employee statistics, performance metrics, and other relevant data. A dynamic form will be provided with built-in validation checks to support streamlined data entry.

Feature #10: Customizable Promotion Criteria for Position-Specific Advancement

Description: Enable employers to customize and tune parameters that are used for promoting employees based on the position, allowing for flexibility in aligning promotion criteria according to specific job roles. This will allow for adaptable succession planning by the organization.

Feature #11: User friendly interface

Description: Develop a user-friendly interface that is intuitive, visually appealing, and accessible to all users. Prioritize ease of navigation and interaction to enhance the overall user experience. Responsive designs and layouts will be added to support efficient utilization of succession planning tools.

Feature #12: Periodic leaderboards

Description: Implement periodic leaderboards that showcase high-performing employees, potential successors, and other relevant metrics. These leaderboards provide visibility and recognition for

individuals excelling in various aspects. Periodic leaderboards motivate employees and employers by recognizing and highlighting outstanding performance and potential successors. The feature fosters a positive competitive spirit and encourages continuous improvement. Custom algorithms for leaderboard calculations will be developed to support this feature.

Feature #13: Skill-Based Task Allotment with Search Functionality

Description: During the onboarding process, employees have the option to add tags that highlight their skill sets and contribute to their job description. These tags serve as identifiers for their expertise and areas of competence. employers, utilizing a user-friendly search bar, can seamlessly filter and narrow down their preferences based on specific skills or task requirements. This streamlined approach allows employers to efficiently match tasks with employees possessing the relevant skills, ensuring optimal task allocation and maximizing team efficiency. The search bar functionality provides a quick and intuitive method for employers to identify the most suitable candidates for specific assignments, promoting a targeted and efficient workflow within the organization.

Feature #14: Automated Notifications for Data Submission

Description: Periodic notifications for employers and employers to submit forms regarding employee statistics. This will ensure consistent flow of information for the organization and enhance user engagement. It will include support to allow users to customize notification preferences, including frequency and timing, to align with their workflow and preferences.

Feature #15: Readiness Assessment Framework Description

Implement a framework for assessing employees' readiness for critical positions based on predefined criteria. Provide HR administrators with a customizable dashboard to define and

manage assessment criteria. The readiness assessment process will involve a combination of performance metrics, skills evaluations, and behavioral assessments.

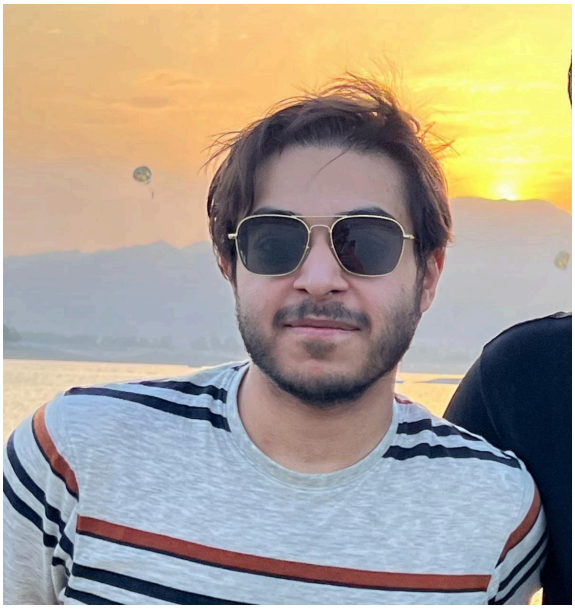
1.1.4. Team profile

Name: Abdullah Arshad	
ID: 25100281	
Email: 25100281@lums.edu.pk	
Interests and strengths: Web Development and Machine Learning.	

<table>
<tr><td>Name: Hamna Shafqat</td><td rowspan="4">  </td></tr>
<tr><td>ID: 25100176</td></tr>
<tr><td>Email: 25100176@lums.edu.pk</td></tr>
<tr><td>Interests and strengths:

Web development using the MERN stack</td></tr>
</table>

Name: Muhammad Adil	
ID: 25100226	
Email:25100226@lums.edu.pk	
Interests and strengths: Frontend Development with React Backend Development, Express, REST API Machine Learning CS-2	

<table>
<tr><td>Name: Sheikh Hamza Elahi Sodana</td><td rowspan="4">  </td></tr>
<tr><td>ID: 25100006</td></tr>
<tr><td>Email: 25100006@lums.edu.pk</td></tr>
<tr><td>Interests and strengths: Front End Development with HTML, CSS, React

Back End Development with JavaScript and MongoDB</td></tr>
</table>

Name: Maryam Usman	
ID: 25100153	
Email: 25100153@lums.edu.pk	
Interests and strengths: Machine Learning, tensorflow, MERN stack	

1.1.4.1 Expertise in a specific tool

Our group would like to give the presentation of VS Code, which is a widely used open-source IDE. It is the industry standard and widely adopted by software developers and organizations globally. Therefore, understanding the features of VS Code is crucial and of much practical relevance.

1.1.5. Assumptions and Constraints

The project is built upon certain foundational assumptions that guide its development and execution. It presupposes the availability of essential data, such as employee performance metrics and skills, for seamless integration into the system. Additionally, the assumption is made that comprehensive user training programs will be implemented to ensure effective adoption by HR professionals, managers, and organizational leaders. Throughout the project's lifecycle, continuous

engagement with key stakeholders is expected to gather feedback and align the system with evolving organizational needs. The project also assumes a commitment to strict adherence to data privacy and security regulations, with proactive measures taken to address legal considerations. The availability of essential development resources, including skilled personnel, is presumed to remain consistent throughout the project timeline.

However, the project operates within certain constraints. Budgetary limitations impose restrictions on financial resource allocation, affecting development, testing, and implementation. A predefined project timeline and milestones introduce schedule constraints, requiring adherence for timely completion. Resource constraints, particularly in terms of specialized hardware or software tools, may pose challenges to the project's development capabilities. Ensuring compatibility with existing HR software systems is a crucial constraint, demanding meticulous integration and testing processes. Language and platform specifications serve as binding constraints, mandating adherence to predefined organizational preferences. The project may integrate reusable components from existing software, subject to licensing and compatibility considerations. Furthermore, interfaces with other organizational products and systems must conform to predefined standards to ensure seamless integration. Lastly, performance expectations, covering system responsiveness and data processing speed, must align with predefined organizational standards.

The implementation of various machine learning algorithms within our web application, including models like K-Nearest Neighbors (KNN), ensures robust and secure candidate identification processes. Additionally, for certain aspects such as natural language processing and understanding, we will leverage Language Model APIs (LLM APIs), specifically OpenAI APIs. While the use of OpenAI APIs offers valuable language understanding capabilities, it is essential to acknowledge that, by nature, these APIs involve data sharing with the external service provider,

OpenAI. As such, we cannot guarantee 100 percent data privacy. However, to mitigate potential privacy concerns, we commit to implementing robust encryption layers on top of the LLM APIs. These encryption layers are designed to safeguard sensitive information during data transit between our web application and OpenAI's servers. By incorporating encryption measures, we aim to bolster data privacy and confidentiality. Additionally, we will stay informed about updates from OpenAI and promptly adopt any enhanced security features or guidelines provided by the service.

Together, these assumptions and constraints collectively shape the project's trajectory, influencing decisions related to resource allocation, timeline adherence, and compatibility with existing systems. Regular monitoring and adjustments will be integral to ensuring that the project remains within defined constraints while effectively meeting its objectives.

1.1.6. Project Deliverables

Deliverables include

- Software Project Proposal
- Requirement Specifications
- Design Specifications
- Development Plan
- Test plan
- Demo + source code
- Final document
- Final presentations (showcase)

1.1.7 Project Organization

DevSinc:
Relationship: Supervisor

Dr. Maryam Abdul Ghafoor:
Relationship: Advisor

Harris Mazhar:
Relationship: Technical Advisor

Abdullah Arshad:
Designation: Group Member

Sheikh Hamza Elahi Sodana:
Designation: Group Member

Hamna Shafqat:
Designation: Group Member

Maryam Usman:
Designation: Group Member

Muhammad Adil:
Designation: Group Member

1.1.8 References

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https://www.performyard.com/?utm_source=pplmngngppl&utm_campaign=sucplanning.

Accessed 21 January 2024.

1.1.9 Definitions

React	JavaScript library for building interactive user interfaces
MERN	Abbreviation for MongoDB, Express, React and Node. A tech stack to build full stack applications.
ML	Abbreviation for machine learning
NoSQL	Flexible and schema-less database
REST API	Application programming interface, is a set of rules that define how applications can connect to and communicate with each other
TensorFlow	A prominent machine learning library used for facilitating model development and predictive analytics
D3.js	JavaScript library that facilitates the creation of dynamic and interactive data visualizations in web browsers
Tableau	Data visualization and business intelligence tool that enables users to create interactive and shareable dashboards
Apache Web Server	Open-source web server software that efficiently handles HTTP requests, used in web hosting
AWS (Amazon Web Services)	Cloud computing platform provided by Amazon, offering a wide array of on-demand computing resources, storage

1.2 GitHub Setup

GitHub Repository Link: https://github.com/Abdullah2409/Succession-Planning

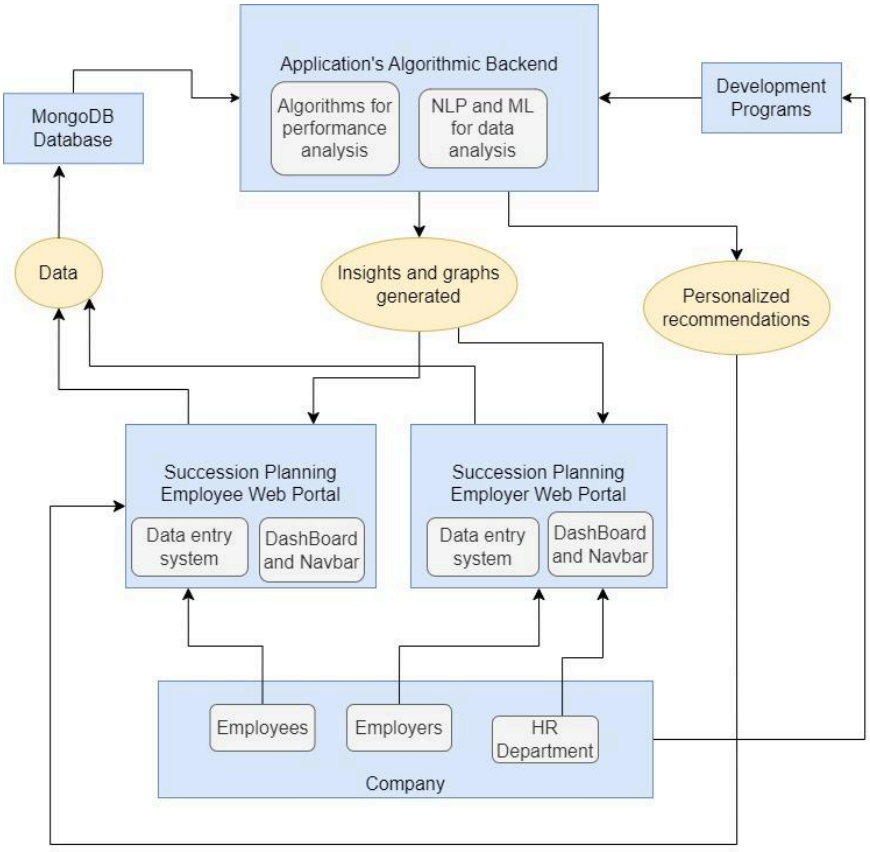
GitHub Board Link: https://github.com/users/Abdullah2409/projects/1/views/1

2 Overall Description

2.1 Product Perspective

The Succession Planning System represents a revolutionary step forward in talent management, introducing a new, self-contained product into the organizational landscape. In the evolving landscape of talent management, the Succession Planning System emerges as a pivotal solution, harnessing the power of AI and ML to revolutionize the identification and nurturing of high-potential candidates within an organization. The context of this product is deeply rooted in addressing the challenges posed by traditional succession planning methodologies. As organizations increasingly recognize the value of harnessing data-driven insights for strategic decision-making, this system positions itself as a cutting-edge, self-contained product that aligns seamlessly with the contemporary trends of AI and ML integration.

The genesis of this system lies in the recognition of the limitations of manual succession planning. The contemporary business environment demands agility, efficiency, and precision in talent management, especially as AI and ML technologies continue to advance. The system is not a mere follow-on member of an existing product family; it is an innovative response to the need for a dynamic, technology-driven approach to succession planning.



2.2 Product Features

2.2.1 Features

1. User Authentication and Access:

    - User Sign-Up: Prospective users can create an account by entering their email, creating a secure password, and specifying their role within the organization.
    - User Login: Returning users can log in using their registered email address and password to access the system.
    - Sign Out: Users can securely log out, ensuring the termination of their session and enhancing privacy and security measures.
    - Password Recovery: In case of forgotten passwords, users can initiate the recovery process by clicking the designated button on the login page. Upon request, the system sends a recovery email to the user's registered email address with instructions and a secure link to reset their password.

2. Navigation and Interface:

    - Navigation Bar: A central hub for accessing various features and functionalities within the application, providing quick and intuitive access to different sections and tools.
    - Dashboard: The primary interface offering an overview of tasks, goals, and progress, consolidating essential information for enhanced user productivity.

3. Management Functionalities:

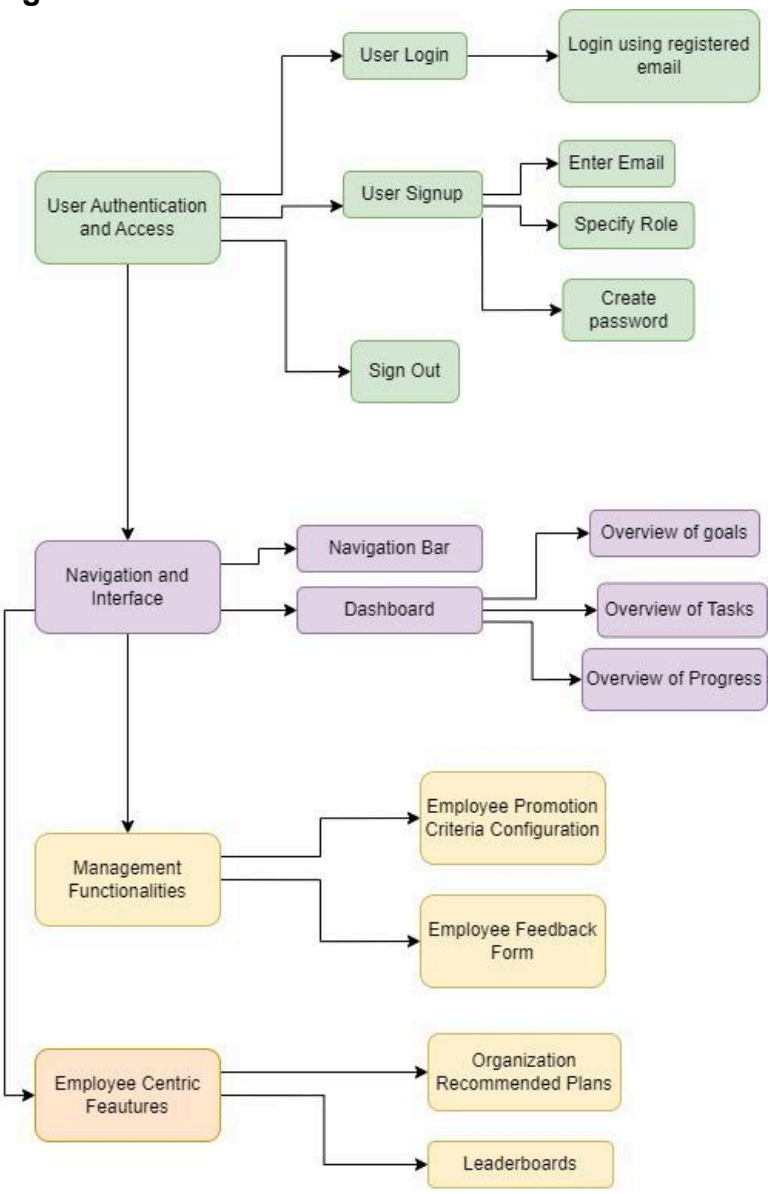
    - Employee Promotion Criteria Configuration: HR administrators can configure and update criteria determining employee rankings for promotion, generating a list of employees ranked based on specified criteria.
    - Employee Feedback and Numerical Evaluation: employers can provide constructive feedback and numerical evaluations for various aspects of employee performance, stored for employee self-improvement and performance assessments.
    - Customization of Employee Development Plans: Companies are able to make development plans that are in line with the needs of their departments and the career objectives of their employees. Plans specify goals, competencies, and developmental stages for career advancement.
    - Analytics Export: Analytics reports can be easily exported by users with administrative roles for in-depth offline analysis or easy sharing.
    - Notifications from the system: HR administrators are promptly notified of important occurrences, such as the identification of high-potential personnel and the conclusion of cycles of performance reviews.
    - Employee Skill Set Search: Management can efficiently locate employees possessing specific skill sets or identifiers within the organization's workforce.

4. Employee-Centric Features:

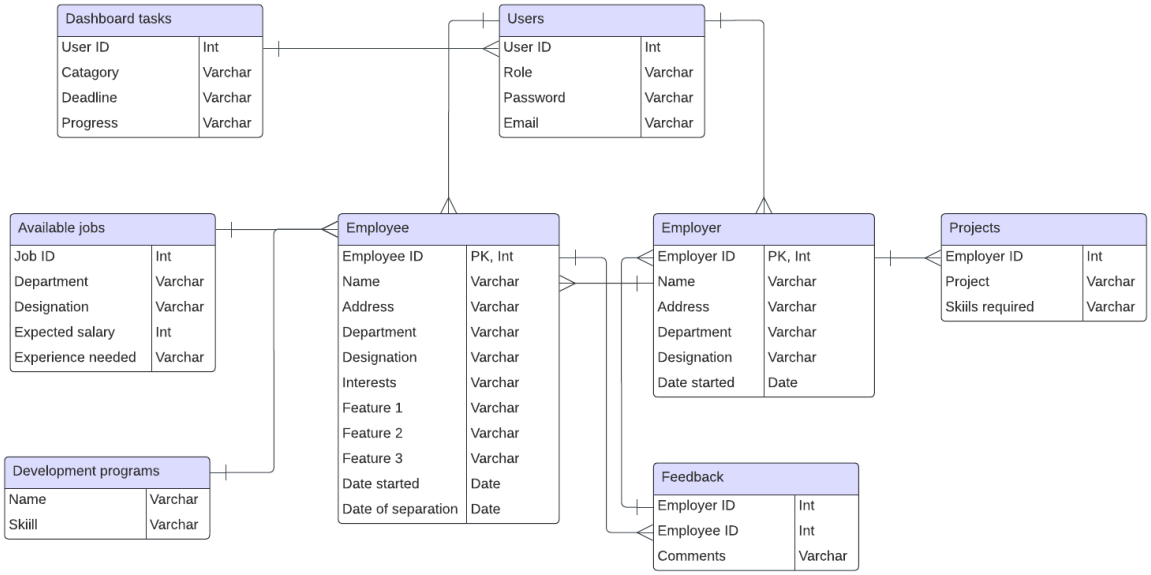
    - Navigation Bar (Employee): A customized navigation bar tailored to meet employees' specific needs, facilitating intuitive navigation within the application.

- Employee Dashboard: Offers a comprehensive overview of individual achievements and provides curated recommendations for professional development.
- Organization Recommended Plans: Curated plans aligned with employees' status, affiliations, and aspirations, serving as strategic roadmaps for skill enhancement.
- Leaderboards: Provide transparent insights into performance standings, fostering a culture of healthy competition, recognition, and motivation.
- Adding Identifiers to Profiles (For Employees): Empowers employees to enhance their profiles by adding specific skills and attributes for efficient talent identification within the organization.

2.2.2 Flow diagram



2.2.3 Entity relationship diagram



2.3 Users and Characteristics

The Succession Planning System is a vital asset for employers, HR administrators, and employees alike. With its user-friendly interface, it empowers HR to configure promotion criteria, enables employers to provide detailed feedback, and guides employees in personalized career development, fostering a culture of growth and collaboration. This system is pivotal for shaping a resilient and thriving organizational future.

HR Administrators:
Characteristics:
Frequency of Use: Regular, daily usage.
Technical Expertise: High, as they configure and manage critical functionalities.
Privilege Levels: High, with access to sensitive employee data and promotion criteria configuration.
Functionalities: Configuration and updating of employee promotion criteria. Access to detailed analytics and performance metrics for strategic decision-making.

Employers:
Characteristics:
Frequency of Use: Regular, frequent usage for performance evaluations and employee development planning.
Technical Expertise: Moderate, as they provide feedback and evaluate employee performance.
Privilege Levels: Moderate, with access to employee feedback and evaluation features.
Functionalities: Providing detailed feedback and numerical evaluations for employees. Customization of employee development plans aligned with departmental needs.

Employees:
Characteristics:
Frequency of Use: Regular, interacting with the system for professional development.
Technical Expertise: Basic to moderate, as they navigate through the system for self-assessment and development.
Privilege Levels: Limited, with access to personal development plans and recommendations.
Functionalities: Access to personalized dashboards for self-assessment and progress tracking. Utilizing organization-recommended plans for skill enhancement.

HR Administrators and Employers are considered the most important users due to their critical roles in configuring promotion criteria, providing feedback, and managing employee development. Employees are important as end-users engaging with their personal development plans. All users share basic requirements for user authentication and efficient navigation.

2.4 Assumptions

Data Privacy Compliance:
Assumption: The assumption is that the client's organization adheres to data privacy regulations such as GDPR.
Potential Impact: If the organization does not comply with such regulations, additional measures and functionalities may be required to ensure data privacy, potentially impacting the system design.

Availability of HR System APIs:
Assumption: The assumption is that the existing HR systems, which the Succession Planning System needs to integrate with, provide well-documented and accessible APIs.
Potential Impact: If the APIs of the HR systems are not well-documented or accessible, integration challenges may arise, requiring custom solutions or alternative integration approaches. The project is designed to build upon existing infrastructure, and a full system overhaul is not within the scope. Customization and adaptations will be made within the limits of the existing HR systems' capabilities.

Cloud-Based Server Availability:
Assumption: The assumption is that the cloud-based servers, such as those provided by AWS, are available and provide the necessary infrastructure support. Potential Impact: If cloud services are not available or face prolonged outages, it may impact the system's performance, availability, and scalability. Contingency plans and alternative hosting solutions may need consideration.

Employee Data Volume:
Assumption: The assumption is that the number of employees in the client's organization falls within a typical range for medium to large enterprises.
Potential Impact: If the organization has an exceptionally large or small number of employees, it may impact the system's scalability and performance requirements. Adjustments in system architecture or configurations may be needed.

Client's Commitment to Machine Learning Model Updates:
Assumption: The assumption is that the client is committed to periodically updating and enhancing the machine learning models used for candidate identification.

Potential Impact: If the client is not willing or able to invest resources in regular model updates, the accuracy of candidate identification may be compromised, affecting the system's overall effectiveness.

HR Administrator and Employer Technical Expertise:
Assumption: The assumption is that HR administrators and employers have a moderate to high level of technical expertise to navigate and utilize the system effectively.
Potential Impact: If users lack the expected technical skills, additional training resources or a more intuitive user interface may be required to ensure successful system adoption.

Web Browser and Operating System Diversity:
Assumption: The assumption is that employees and stakeholders use a diverse set of web browsers (e.g., Chrome, Firefox, Safari) and operating systems (e.g., Windows, Linux, macOS).
Potential Impact: If a significant portion of users relies on less common browsers or operating systems, additional testing and optimization efforts may be necessary to ensure a consistent user experience.

Employee Engagement in Self-Assessment:
Assumption: The assumption is that employees will actively engage in the self-assessment tools and personalized development plans provided by the system.
Potential Impact: If employee engagement is lower than expected, the effectiveness of the system in supporting individual career development may be compromised, and strategies to encourage participation may be needed.

Client's Commitment to Security Measures: Assumption:
Assumption: The assumption is that the client is committed to implementing and maintaining the recommended security measures, such as multi-factor authentication and regular security audits.
Potential Impact: If the client does not prioritize or implement the recommended security measures, the system may be vulnerable to unauthorized access or data breaches, compromising sensitive information.

Accessibility of Adequate Historical Records:
Assumption: A significant amount of historical data, including historical trends and personnel performance measures, are available to the client.
Potential Impact: Machine learning algorithms may be less successful in producing precise succession planning predictions if there is insufficient historical data. Sufficient availability of data is essential for building robust and trustworthy models.

2.5 Operating Environment

The system will be compatible with the standard server configurations that are commonly available in medium to large enterprises. It will support the major operating systems, Windows, Linux distributions, and macOS. It will be optimized to work on a variety of standard web browsers including Chrome, Microsoft Edge, and Mozilla Firefox. The system is designed to integrate seamlessly with popular databases, with a preference for MongoDB as the primary NoSQL database. It will be built using React for the frontend and Node.js for the backend to ensure

compatibility and ease of integration with popular systems. The system is cloud-friendly and can be deployed on popular cloud platforms like Amazon Web Services (AWS).
This compatibility ensures that the Succession Planning System can be easily integrated into existing enterprise IT infrastructures, providing a smooth and efficient user experience across various hardware and software configurations.

3 Specific Requirements

3.1 Functional Requirements

Sign-up, Log in and Log out
System functionality

RQ<1> - Sign up

Description: The user can sign up for the web application and enter their role.

Input: Prospective users will be prompted to enter their email address, create a secure password, and specify their role within the organization.

Processing: The system will validate the provided information and verify if the email address is not already associated with an existing account in the database. Upon successful validation, the system will generate a new user account.

Output: Following a successful sign-up, users will be seamlessly transitioned to the login page, ready to access the system's features.

RQ<2> - Login

Description: The user can login if they have already signed up. Otherwise they should sign up first.

Input: Returning users will input their registered email address along with their password to initiate the login process.

Processing: The system will meticulously authenticate the provided credentials against the encrypted data stored in the database, ensuring the security and integrity of user accounts.

Output: Upon successful authentication, users will be granted entry into the succession planning portal, where they can proceed with their designated tasks and responsibilities.

RQ<3> - Sign out

Description: The process of logging out ensures the secure termination of a user's session within the system, enhancing privacy and security measures.

Input: Users initiate the sign-out process by clicking on the designated action button within the interface**.**

Processing: The system initiates an authentication check to ensure the legitimacy of the sign-out request and to safeguard against unauthorized access.

Output: Upon successful authentication, the system redirects the user to the login page, effectively concluding the session and preventing further access to the system's features until the user logs in again.

RQ<4> - Password Recovery

Description: Facilitating users in the event of forgotten passwords, this feature enables them to securely recover their access credentials.

Input: Users initiate the password recovery process by clicking the designated button located on the login page.

Processing: Upon request, the system promptly dispatches a recovery email to the user's registered email address, containing instructions and a secure link to reset their password.

Output: Following the initiation of the recovery process, the system redirects users to the login page, where they can await the arrival of the recovery email. Once received, users can proceed to reset their password securely and regain access to their account. This seamless process ensures minimal disruption to user workflow while upholding stringent security measures.

System Requirements
User requirement

RQ<1> - Navigation bar

Description: The navigation bar serves as a central hub for accessing various features and functionalities within the application. It provides users with quick and intuitive access to different sections and tools.

For Employees:

Input: Employees interact with the navigation bar by selecting tabs corresponding to the sections or features they wish to explore further.

Processing: Upon receiving user input, the system intelligently processes the selection and seamlessly directs employees to the relevant pages or sections within the application.

Output: Employees experience smooth redirection to their desired destinations, enhancing overall user experience and productivity.

For Employers:

Input: User interacts with the navigation bar by clicking on the respective tabs corresponding to the desired sections or features.

Processing: The system processes the user's selection and navigates to the corresponding page or section within the application.

Output: Users are seamlessly redirected to the intended page or section based on their selection from the navigation bar.

RQ<2> - Dashboard

Description: The dashboard serves as the central hub for users, offering a comprehensive overview of their tasks, goals, achievements, and professional development within the application. It consolidates essential information to enhance user productivity and decision-making.

For Managers:

Input: Data pertaining to completed tasks, impending tasks, and current goals is collected and processed by the system.

Processing: The system organizes and formats the collected data to create an informative and visually appealing dashboard layout.

Output: Employers are presented with a comprehensive dashboard view that showcases completed tasks, impending tasks, and current goals in a structured and accessible manner, enabling them to track their progress and priorities effectively.

For Employees:

Input: Employees engage with various data elements to gain insights into their performance and can navigate to recommended pages for in-depth analysis and action.

Processing: Leveraging sophisticated algorithms, the system organizes and presents data in a visually appealing and user-friendly layout, ensuring clarity and relevance.

Output: The employee dashboard dynamically showcases individual achievements and suggests tailored development plans, fostering continuous growth and improvement. Employees can gain insights into their performance and access curated recommendations for professional development, empowering them to thrive within the organization.

RQ<3> - Employee Promotion Criteria Configuration (For HR Administrators)

Description: This tab will be accessible to HR administrators and will serve as a dedicated space for configuring and updating the criteria that determine employee rankings for promotion. The output will be a list of all employees ranked from the most qualified to the least for a specific position.

Input: Criteria for employee promotion (e.g., performance metrics, skills, experience)
Position or department for which the promotion criteria are being configured

Processing: The system will allow HR administrators to input and customize the criteria used to evaluate employees for promotion. This may involve setting weightage for different criteria, defining thresholds, or specifying qualifications.

Output: Upon completion of the configuration, the system will generate a list of employees ranked from the most qualified to the least for the specified position based on the configured promotion criteria.

RQ<4> - Employee Feedback and Numerical Evaluation (For management)

Description: This feature will empower employers to provide constructive feedback to employees through a dedicated platform. It includes the ability to numerically evaluate various aspects of employee performance.

Input: Employee name or identification
Feedback comments
Numerical ratings for specific performance criteria (e.g., communication skills, teamwork, punctuality)

Processing: The system will allow employers to select the employee for whom the feedback is intended.
Employers will input detailed comments regarding the employee's performance.
Numerical ratings will be assigned to specific performance criteria based on predefined scales.
Output: The feedback form, including detailed comments and numerical evaluations, will be stored in the system. Employees will have access to their feedback for self-improvement.
Aggregated numerical evaluations may contribute to performance assessments and reports.

RQ<5> - Employee Development Plan Customization (For Management)

Description: Employers customize development plans to align with employee career goals and departmental requirements, defining objectives, skills, and milestones.

Input: Employers input employee career goals and current department affiliations, identify skills for improvement, and set milestones.

Processing: The system assists employers in creating personalized plans, analyzing career aspirations, and departmental needs, integrating skill development initiatives and progress tracking.

Output: The system generates structured plans tailored to employees' aspirations and departmental demands, outlining objectives, skill enhancements, and measurable milestones.

RQ<6> - Analytics Export (For Management)

Description: Empowering administrators, users with administrative roles can seamlessly export analytics reports for comprehensive offline analysis or convenient sharing purposes.

Input: Administrators select the specific analytics parameters of interest and opt for their preferred export format, such as CSV or PDF.

Processing: The system diligently collates and organizes the analytics data according to the user's selected parameters and format preferences.

Output: Upon completion of processing, users receive a downloadable analytics report tailored to their specifications, available in the chosen format. This feature ensures that administrators can delve deeper into insights and facilitate informed decision-making processes effortlessly.

RQ<7> - System Notifications

Description: Enhancing administrative efficiency, the system ensures HR administrators stay informed by receiving timely notifications for critical events, including the identification of high-potential employees and the completion of performance evaluation cycles.

Input: HR administrators have the flexibility to configure their notification preferences based on their specific needs and priorities.

Processing: The system actively monitors key events and triggers, promptly identifying instances such as high-potential employee identification or the conclusion of performance evaluation cycles. Subsequently, it dispatches notifications to the designated HR administrators in accordance with their configured preferences.

Output: HR administrators receive notifications containing pertinent information, enabling them to stay abreast of important developments and take timely actions as necessary. This feature streamlines communication channels and fosters proactive decision-making within the HR management framework.

RQ<8> - Employee Skill Set Search (For management)

Description: This feature enables management to efficiently locate employees possessing specific skill sets or identifiers within the organization's workforce.

Input: Management selects the desired identifiers, indicating the specific skill set or criteria they seek, and initiates the search process by clicking the designated button.

Processing: The system employs advanced algorithms to scan employee profiles and identify individuals who have included the specified identifiers within their profiles.

Output: Upon completion of the search, the system presents a comprehensive list of employee profiles that match the specified criteria on the screen. This allows management to review and assess the returned profiles to fulfill specific organizational needs or project requirements effectively.

RQ<9> - Organization Recommended Plans (For Employees)

Description: Organization-recommended plans are meticulously curated to align with employees' current status, departmental affiliations, and career aspirations, serving as strategic roadmaps for skill enhancement and career progression.

Input: Employees have the autonomy to select from a range of recommended plans that best align with their job roles, skill gaps, and professional objectives.

Processing: The system employs advanced recommendation algorithms to generate personalized plans that resonate with employees' unique needs and organizational priorities.

Output: Employees gain access to detailed plans designed to address their specific areas for improvement, with the flexibility to initiate and revisit them as part of their ongoing development journey.

RQ<10> - Leaderboards (For Employees)

Description: Leaderboards provide employees with transparent insights into their performance standings, fostering a culture of healthy competition, recognition, and motivation within the organization.

Input: Employees can customize leaderboard views by selecting different timeframes to evaluate their performance over specific durations, such as weekly, monthly, or yearly periods.

Processing: Utilizing robust data analytics capabilities, the system generates leaderboards that accurately reflect employee performance metrics and rankings.

Output: The interface presents employees' standings on the leaderboard for the selected timeframe, enabling them to track progress, celebrate achievements, and stay motivated towards continual improvement.

RQ<11> - Adding Identifiers to Profiles (For Employees)

Description: This feature empowers employees to enhance their profiles by adding specific skills and attributes they possess, enabling management to efficiently locate individuals with desired skill sets.

Input: Employees can access their profile settings and select from available identifiers to add relevant skills and attributes to their profiles.

Processing: Upon selection, the system securely saves the changes to the database, ensuring the accuracy and integrity of the profile data.

Output: Upon successful update, the system confirms the change, displaying a notification on the screen indicating that the identifiers have been added to the employee's profile. This transparent process ensures that employees' profiles accurately reflect their skills and attributes, facilitating seamless collaboration and talent identification within the organization.

3.2 External Interface Requirements

3.2.1 User Interfaces

1. The portal interface will feature a user-friendly navigation bar offering multiple options for seamless navigation. Users can simply click on any desired option to access specific pages. Additionally, a sign-out option will be available on the navigation bar, enabling users to easily end their session with a confirmation prompt upon selection. Each tab within the portal will present a range of user-selectable features, allowing individuals to perform actions according to their needs. The interface design prioritizes clarity and simplicity to minimize misclicks and avoid cluttered button layouts.There will be no need for a command line interface. We will be using a graphical user interface for a more seamless experience.

2. To ensure inclusivity, the portal will be optimized to accommodate all users, with separate functionalities tailored for both employees and management. The interface will incorporate clear text labels and uncluttered interactive elements to enhance usability. Colors and fonts will be chosen thoughtfully to prevent disorientation, and there will be adequate color contrast for readability. The web application will be able to resize for different devices and will have optimal functionality on any screen size.Furthermore, there will be multilingual support so no discrimination in the workplace.

3.2.2 Software Interfaces

The following softwares (with their purposes are listed below):

- **React:** React is a front-end JavaScript library used for building user interfaces. It interacts with the client-side operating system (which could be any standard web browser running on Windows, Linux, macOS, etc.) to render the user interface elements and handle user interactions in the web application.
- **MongoDB:** MongoDB is a NoSQL database used for storing application data. The web application built with React and Node.js interacts with MongoDB to perform CRUD (Create, Read, Update, Delete) operations on data. MongoDB communicates with the operating system (such as Linux) to manage storage and access data files.
- **Cloud-Based Servers (e.g., AWS):** Cloud-based servers, such as those provided by AWS, are used for hosting and scaling the web application. The operating system of the cloud servers (often Linux-based) provides the underlying infrastructure for deploying and managing the application components, including React, Node.js, MongoDB, and other services.
- **Node.js:** Node.js is used for building the backend of the web application. It interacts with the operating system of the server (e.g., Linux) to handle HTTP requests, manage server resources, and communicate with external services and databases.
- **TensorFlow:** TensorFlow is used for building, training, and deploying machine learning models for employee succession planning. It interacts with the operating system (e.g., Linux) to perform computations, manage memory, and access data files.
- **Apache:** Apache is used for hosting the web servers that serve the web application built with React and Node.js. It interacts with the operating system of the server (e.g., Linux) to handle incoming HTTP requests, manage server resources, and serve static and dynamic content to clients.

- **D3.js/Tableau:** D3.js and Tableau are used for processing and designing data visualizations. They interact with the client-side operating system (e.g., Windows, Linux) to render visualizations in web browsers and handle user interactions.
- **OpenAI API:** Using OpenAI API to process non-numerical data such as texts, graphs, etc.

Hence, in essence, the web application built with React, Node.js, and MongoDB interacts with the operating system (e.g., Linux) of the server infrastructure and client-side systems to deliver a user-friendly interface, access and store data, and perform data processing and visualization tasks. The use of cloud-based servers, such as AWS, facilitates scalability and management of the web application components.

4 Non-functional Requirements

4.1 Performance Requirements

Automated Succession Planning Workflow Response Time:

Requirement: The automated succession planning workflow must respond to user requests within 5 seconds under normal system load conditions.
Rationale: Ensures quick and efficient interactions with the automated workflow for HR professionals, managers, and organizational leaders, enhancing user satisfaction and productivity.

Advanced Analytic System Processing Time:

Requirement: The advanced analytic system, including machine learning algorithms, must generate performance insights and analytics reports within 15 seconds for a dataset of 1000 employees.
Rationale: Efficient processing is crucial for providing timely and actionable insights to support informed talent development decisions and succession planning.

Machine Learning-Based Candidate Identification Accuracy:

Requirement: The machine learning algorithms for identifying high-potential candidates must achieve a minimum accuracy rate of 90%.
Rationale: Ensures high accuracy in candidate identification, minimizing errors in talent assessment and maintaining the credibility of the succession planning system.

Seamless Integration with HR Systems Latency:

Requirement: The integration with existing HR systems must have a latency of less than 7-8 seconds for data retrieval and synchronization.

Rationale: Low latency is crucial for real-time collaboration and data consistency, ensuring seamless integration with HR systems.

User Interface Responsiveness:

Requirement: The user interface of the web application must load and respond within 5 seconds.
Rationale: A responsive and intuitive interface is essential for user engagement and adoption, contributing to the overall success of the succession planning system.

Self-Assessment Tools and Personalized Development Plans Loading Time:

Requirement: The self-assessment tools and personalized development plans should load within 3 seconds.
Rationale: Fast loading times contribute to a positive user experience, encouraging employees to actively participate in their career growth and development.

Unbiased Machine Learning Algorithm Training Time:

Requirement: The training time for machine learning algorithms used in succession planning should not exceed 24 hours for updates and enhancements.
Rationale: Timely updates to machine learning models are essential for maintaining accuracy and relevance in identifying high-potential candidates, aligning with the project's objectives.

Form Submission Processing Time:

Requirement: The form submission process for employers and administrators should be completed within 10 seconds.
Rationale: Efficient form submission supports real-time data updates, contributing to the overall accuracy of the succession planning system.

Skill-Based Task Allotment Search Response Time:

Requirement: The search functionality for skill-based task allotment should provide results within 7-8 seconds.
Rationale: Rapid response times for skill-based searches contribute to efficient task allocation, optimizing team efficiency within the organization.

4.2 Safety and Security Requirements

Safety Requirements:

Data Privacy Compliance:

Requirement: The system must adhere to stringent data privacy regulations such as GDPR, ensuring the protection of sensitive employee information.
Safeguard: Implementation of end-to-end encryption for data in transit and at rest, regular privacy impact assessments, and the appointment of a Data Protection Officer (DPO) to oversee compliance.

User Authentication Safeguards:

Requirement: Multi-factor authentication must be enforced for user identity verification, particularly for administrators and employers accessing sensitive employee data.
Safeguard: Implementation of secure authentication protocols, continuous monitoring for unusual login activities, and periodic training for users on secure password practices.

Disaster Recovery and Backup Mechanism:

Requirement: A comprehensive disaster recovery plan must be in place to safeguard against data loss or system failures.
Safeguard: Regularly test the disaster recovery plan, automate backups of critical data, and store backups in geographically diverse locations to ensure data availability in case of unforeseen incidents.

Security Requirements:

Access Control:

Only authorized personnel should have access to sensitive data and system functionalities. Access control measures must be granular, allowing different levels of access based on user roles.

Data Encryption:

All data, both in transit and at rest, must be encrypted to prevent unauthorized access or interception. This includes encryption of communication between the frontend and backend components.

Regular Security Audits:

Conduct regular security audits and vulnerability assessments to identify and address potential security threats. This ensures that the system is resilient against evolving cybersecurity risks.

Secure APIs and Integrations:

If the system integrates with external services or APIs, those interfaces must be secure and follow industry best practices to prevent data breaches or unauthorized access.

Logging and Monitoring:

Implement robust logging mechanisms to track user activities, system changes, and potential security incidents. Continuous monitoring of logs to detect and respond to any suspicious activities.

Incident Response Plan:

Develop and maintain an incident response plan outlining procedures to be followed in the event of a security breach. This ensures a swift and coordinated response to mitigate the impact of any security incidents.

User Data Deletion:

Provide mechanisms for user data deletion, ensuring compliance with privacy regulations. Users should have the ability to request the deletion of their personal data from the system.

Secure Development Practices:

Adhere to secure coding practices throughout the software development lifecycle to minimize vulnerabilities. Regular code reviews and secure coding training for developers.

4.3 Software Quality Attributes

Reliability Requirement:
System Uptime:

Requirement: The system must achieve a minimum uptime of 99.9% over any given month.
Rationale: A high level of reliability is crucial to ensure continuous access to the succession planning system, supporting HR professionals, managers, and organizational leaders in their daily operations.

Achieving Reliability:

Redundancy and Failover Mechanism:

Implement redundancy for critical system components to ensure uninterrupted service in case of hardware failures. Utilize failover mechanisms to seamlessly switch to backup servers if the primary server experiences issues.

Automated Monitoring and Alerts:

Employ automated monitoring tools to constantly track system health and performance. Immediate alerts should be triggered for any deviations from normal operating conditions, allowing for proactive intervention.

Regular Load Testing:

Conduct regular load testing to identify and address potential performance bottlenecks. This ensures that the system can handle expected user loads without compromising reliability.

Usability Requirement:

User Interface Responsiveness:

Requirement: The user interface should respond to user interactions within 2 seconds, providing a smooth and responsive experience.
Rationale: A responsive interface enhances user satisfaction and productivity, contributing to the overall usability of the succession planning system.

Achieving Usability:

User-Centric Design:

Utilize user-centric design principles to create an intuitive and visually appealing interface. Conduct user feedback sessions and usability testing throughout the development process to iteratively improve the user interface.

Role-Based Access and Personalization:

Implement role-based access control to ensure that users only see relevant information based on their roles (employee, employer, admin). Provide personalization options for users to customize their views, enhancing overall usability.
Clear Navigation and Information Hierarchy:
Design a clear navigation structure with an intuitive information hierarchy. Users should be able to easily locate and access features relevant to their tasks, reducing the learning curve and improving usability.

Maintainability Requirement:

Code Modularity:

Requirement: The software codebase should be modular, with well-defined and independent modules for easy maintenance and updates.
Rationale: Code modularity facilitates efficient maintenance, allowing developers to update specific modules without affecting the entire system, supporting the adaptability of the system to changing requirements.

Achieving Maintainability:

Version Control System:

Implement a version control system (e.g., Git) to track changes to the codebase, enabling easy rollbacks, collaboration among developers, and the ability to trace modifications over time.

Documentation Practices:

Enforce comprehensive and up-to-date documentation practices for the codebase, including inline comments, README files, and API documentation. This ensures that developers can understand, modify, and extend the codebase with ease.

Automated Testing:

Implement automated testing practices to ensure that updates or modifications do not introduce unexpected issues. This reduces the risk of regression errors and supports a more maintainable codebase.

5 Backlog Tracking

5.1 Product Backlog

Business Requirement (ID)	User Story	Priority	Estimated Time
BR001	As a user, I want to login, logout and change my password to keep my data secure	5	3 hours

BR002	As an HR admin, I want to create and manage different promotion criteria sets for various positions.	4	10 hours
BR003	As an HR admin, I want to define the weightage of different criteria, such as experience, skills, and performance ratings, for each promotion criteria set.	3	5 hours
BR004	As an HR admin, I want to view and edit existing promotion criteria sets.	3	1 hour
BR005	As an HR administrator, I want to generate promotion recommendations based on the defined criteria and employee performance data.	5	20 hours
BR006	As an HR administrator, I want to view and analyze employee performance data so I can identify high-potential candidates for promotion.	5	20 hours
BR007	As an HR admin, I want to add new employees to the system by entering their basic information, contact details, and job titles	5	3 hours
BR008	As an HR admin, I want to edit employee profiles to update their information as needed.	5	1 hour
BR009	As an HR admin, I want to	3	4 hours

	view and search employee profiles by various criteria, such as skills, department, or performance rating.		
BR010	As an HR admin, I want to delete employee profiles (when they leave the company.)	5	1 hour
BR011	As an employee, I want to view my profile information, including my contact details, job title, and performance history.	5	5 hours
BR012	As an employee, I want to update my profile information, such as my contact details and skills.	5	1 hour
BR013	As an employee, I want to view my personalized development plan, which includes recommended training courses, skill development resources, and mentorship opportunities.	5	20 hours
BR014	As an employee, I want to track my progress on my development plan and mark tasks as completed.	3	10 hours
BR015	As an employee, I want to request feedback from my employer on my development progress.	3	5 hours

BR016	As an employee, I want to receive notifications or reminders for upcoming tasks in my development plan.	3	3 hours
BR017	As an employer, I want to search for employees with specific skills and experience needed for a task.	4	4 hours
BR018	As a user, I want the web application to be responsive on various devices, including tablets and smartphones.	5	10 hours
BR019	As a user, I want an interactive onboarding tutorial to familiarize myself with the features and functionalities of the Succession Planning System.	4	6 hours
BR020	As a HR admin, I want to assign new employees to employers	4	3 hours

5.2 Sprint Number 1 Backlog

Priority	User Story	Tasks	Assigned to	Estimated time (hours)
1	As a first time user I should be able to make a new account on the website	verify identity	Adil	1
		make new entry for user in database	Abdullah	1
		save all user details in relevant tables	Abdullah	1
		validate, encrypt and save password	Hamza	2
		test making an account	Hamna	2
2	As a user, I should be able to edit my profile details	design profile page	Maryam	
		input these details from user and validate	Adil	2
		store in relevant tables	Hamza	1
		test editing profile	Hamna	2

Appendix B – Contribution Statement

Name	Contributions in this phase	Approx. Number of hours	Remarks
Abdullah Arshad	**3 Specific Requirements** 3.1 Functional Requirements 3.2 External Interface Requirements 3.2.1 User Interfaces 3.2.2 Software Interfaces **4 Other Non-functional Requirements** 4.1 Performance Requirements 4.2 Safety and Security Requirements 4.3 Software Quality Attributes	10	
Hamna Shafqat	**1 Introduction** 1.1 Proposal 1.2 GitHub Setup **2 Overall Description** 2.1 Product Perspective 2.2 Product Features 2.3 Users and Characteristics 2.4 Assumptions 2.5 Operating Environment	10	
Maryam Usman	Product backlog Sprint backlog	5	
Muhammad Adil	Backlog Tracking	5	
Sheikh Hamza Elahi Sodana	**3 Specific Requirements** 3.1 Functional Requirements 3.2 External Interface Requirements 3.2.1 User Interfaces 3.2.2 Software Interfaces **4 Other Non-functional Requirements** 4.1 Performance Requirements 4.2 Safety and Security Requirements 4.3 Software Quality Attributes	10	

Marking Rubric

Total marks: 50

Component	Marks
Github Board and Repositories	3
Product Perspective	4
Product Features	3+3 (in scope + out of scope)
Users and Characters	3
Assumptions & Operating Environment	3
Functional Requirements	10
External Interface Requirements (Users +Software)	3
Non Functional Requirements	4
Product Backlog	4
Sprint Backlog	4
Concise and to-the-point descriptions	3
Writing Quality (Descriptions should be coherent and should covers all questions asked under the heading/follows format of document)	3