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| **Software Requirement Specifications**  **AI Candidate Assessment System**  **Version: [1.0]**   |  |  | | --- | --- | | Project Code | F24-63 | | Supervisor | Ms. [nida munawar](mailto:nida.munawar@nu.edu.pk) | | Co Supervisor | - | | Project Team | Ashesh Kumar(21K-3451)  Abdul Wasay(21K-4589)  Fahad Ahmed(21K-4926) | | Submission Date |  | |

Document History

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| **Version** | **Name of Person** | **Date** | **Description of change** |
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| 1.0 | Abdul Wasay | 7/12/24 | Added References and Appendices |

Distribution List

|  |  |  |
| --- | --- | --- |
| **Name** | **Role** | |
| Miss Nida Munawar | | Supervisor |
| Abdul Wasay | | Project Team |
| Fahad Ahmed | | Project Team |
| Ashesh Kumar | | Project Team |

Document Sign-Off

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1. **Introduction**

* 1. **Purpose of Document**

The purpose of this Software Requirements Specification (SRS) document is to define the detailed functional and non-functional requirements for the **AI Candidate Assessment System**. The system aims to automate the HR hiring process by analyzing CVs, generating AI-based skill-specific tests for candidates, and generating reports for HR to evaluate applicants. This document will serve as a comprehensive guideline for the development, testing, and implementation of the system, ensuring that all stakeholders have a clear understanding of its features, objectives, and performance expectations.

* 1. **Intended Audience**
* Fast NU
* Jury
* Supervisor (Ms. Nida Munawar)
* Students of Fast NU
* Our Team(Designer, Developer, Tester)
* Potential Users of this product

**1.3 Abbreviations**

* **HR**: Human Resources
* **CV**: Curriculum Vitae
* **AI**: Artificial Intelligence
* **API**: Application Programming Interface
* **GPT**: Generative Pre-trained Transformer
* **SBERT**: Sentence Bidirectional Encoder Representations from Transformers
* **DB**: Database
* **UI**: User Interface
* **UX**: User Experience
* **JSON**: JavaScript Object Notation
* 1. **Document Convention**
* Font Family = Arial
* Font Size = 12 for headings, 10 for the rest of the content

1. **Overall System Description**
   1. **Project Background**

The **AI Candidate Assessment System** is developed to automate and improve the hiring process within organizations. Traditional recruitment methods, which involve manual CV screening and test creation, are often time-consuming, prone to human bias, and inefficient. This system leverages **Artificial Intelligence (AI)**, specifically using **SBERT** for accurate CV analysis to evaluate the suitability of applicants based on their skills and qualifications. Additionally, **GPT** is employed to generate personalized, skill-specific tests, enabling faster and more objective assessment of candidates. By automating key HR processes, the system aims to enhance decision-making, reduce hiring time, and ensure a more consistent, data-driven approach to candidate evaluation. This innovation responds to the growing demand for more efficient, scalable, and automated recruitment solutions in today’s competitive job market.

**Problem Statement:**

* The traditional hiring process is often slow, inefficient, and prone to human biases. HR professionals manually review CVs, conduct interviews, and design tests for candidates, which can lead to inconsistent evaluations and delayed decisions. The lack of automation in this process makes it challenging to scale recruitment efforts, especially for organizations with large volumes of applicants. To address these issues, an **AI Candidate Assessment System** is needed to streamline and automate CV screening, test generation, and candidate evaluation, ensuring faster, fairer, and more accurate hiring decisions.
  1. **Project Scope**

This system is designed to automate the hiring process, improving efficiency and accuracy in evaluating job applicants. By leveraging **AI technologies** such as **SBERT** for CV analysis and **GPT** for test generation, the system ensures more objective and consistent decision-making. It aims to simplify the process for HR professionals, reducing manual effort and time while enhancing the candidate evaluation process. The system will streamline workflows, minimize biases, and ultimately accelerate the recruitment cycle.

**Included Functionalities:**

* **CV Scanning**: Analyzing applicants' CVs using AI to evaluate qualifications and match candidates to job requirements.
* **AI-Generated Test**: Creating personalized technical tests based on the candidate’s required skill set and the job role they are applying for.
* **Test Evaluation**: Automated generation of evaluation reports, accessible by HR for decision-making.
* **HR Decision Support**: Providing reports to HR to assess candidate suitability.

**Excluded Functionalities**:

* **Job Posting Management**: The system does not handle job posting creation or management by HR.
* **Candidate Communication**: It does not offer direct communication features such as messaging or interviews between HR and candidates.
* **Job Role Expansion**: Initially, the system supports only the Junior Developer role, and additional roles or languages will be implemented later.
* **Advanced Analytics**: The system does not provide deep predictive analytics or insights beyond the basic reports for HR decision-making.
  1. **Not In Scope**

This system does not cover functionalities outside the recruitment process automation. It will not manage the candidate onboarding process, schedule or conduct interviews, or handle post-hiring employee management. Additionally, the system does not integrate with external job posting platforms or offer global language support. The system is initially limited to supporting the Junior Developer role and a specific set of programming languages, with plans to expand to other roles and languages in the future.

* 1. **Project Objectives**

**Automate CV Screening**:

* Use AI algorithms to quickly analyze and assess CVs, matching candidates with job requirements based on key skills and qualifications.
* Streamline the CV review process, reducing the time HR spends on manual candidate evaluations.

**Generate AI-Based Skill Tests**:

* Automatically generate customized technical tests based on the candidate’s required skillset and the job they are applying for.
* Ensure that each test is tailored to accurately measure the candidate’s relevant abilities for the specific role.

**Generate Evaluation Reports**:

* Provide HR with comprehensive, data-driven reports that assess candidate performance based on their test results.
* Ensure the reports are objective and clearly highlight the strengths and weaknesses of candidates for easier decision-making.

**Streamline the Recruitment Process**:

* Reduce manual intervention by automating CV scanning, test generation, and evaluation, resulting in a faster hiring process.
* Improve overall efficiency by enabling HR teams to focus more on decision-making rather than administrative tasks.

**Enhance Objectivity and Fairness:**

* Use AI to eliminate human bias in the candidate selection process, ensuring fair and consistent evaluations.
* Provide a standardized assessment process for all candidates, leading to a more equitable hiring procedure.

**Provide HR Decision Support:**

* Equip HR teams with data-backed insights and candidate performance metrics, making hiring decisions more informed and accurate.
* Allow HR professionals to make faster decisions based on comprehensive reports and objective assessments.
  1. **Stakeholders**
* HR Professionals
* Job Applicants
* System Administrators
* Project Managers
* Development Team
* Quality Assurance (QA) Team
* Hiring Managers
* IT Support Team
  1. **Operating Environment**

The **AI Candidate Assessment System** will operate in a web-based environment, requiring web servers to host the application and database. It will be accessible via user devices such as computers, smartphones (iOS and Android), and tablets, all using modern web browsers. The system will run on Linux-based servers, with the frontend developed using web technologies like React.js, and the backend powered by Node.js and MongoDB for data storage. AI models, such as **SBERT** for CV scanning and **GPT** for test generation, will be integrated to automate key functions. High-speed internet connectivity will be essential for seamless communication between clients and servers, with secure data transmission ensured through HTTPS. The system will also integrate third-party services for email notifications.

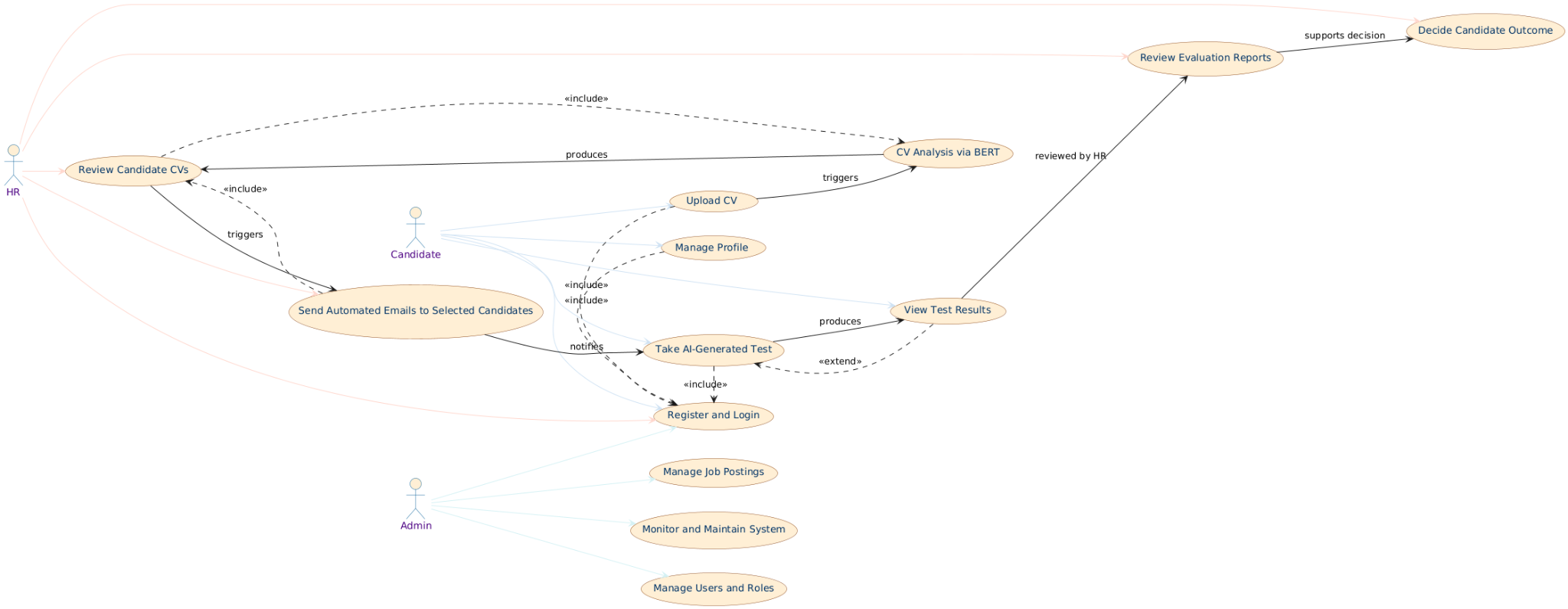
* 1. **System Constraints**
* **Software Constraints**: Dependent on the accuracy and availability of AI models like SBERT and GPT for CV analysis and test generation.
* **Hardware Constraints**: Requires modern web servers and client devices with sufficient processing power to handle AI model integrations.
* **Data Constraints**: The accuracy of assessments relies on the quality of candidate data (e.g., resumes and job descriptions).
* **Security Constraints**: Must comply with data protection regulations and implement strong encryption and access control measures.
  1. **Assumptions**
* Users have basic digital literacy to navigate the system and complete necessary tasks such as uploading CVs and taking tests.
* High-speed internet is available for most users to ensure smooth system access and functionality.
* Candidates will submit accurate and complete information in their CVs and other required documents.
  1. **Dependencies**
* System performance is dependent on the reliability and scalability of Successful integration with third-party APIs for email notifications, data storage, and AI model processing is essential for system functionality.
* Continuous access to updated AI models (SBERT and GPT) is crucial for accurate CV analysis and test generation.

1. **External Interface Requirements**
   1. **Hardware Interfaces**

* The system will interact with user devices such as smartphones, tablets, and desktops, requiring modern web browsers (e.g., Chrome, Firefox, Safari, Edge) for optimal performance.
* Web servers hosting the application must meet the required processing and storage capacity to support high traffic and AI model computations.
  1. **Software Interfaces**
* **AI Models**: The system will rely on external AI models like **SBERT** for CV analysis and **GPT** for generating technical tests, which may be accessed via APIs.
* **Email Services**: The system will integrate with third-party email services (e.g., SMTP) to send automated notifications to candidates and HR.
* **Database**: The system will use a cloud-based database (e.g., MongoDB) to store candidate profiles, test results, and generated reports.
  1. **Communications Interfaces**
* **Data Transmission**: The system will use **HTTPS** for secure data communication between users and the server, ensuring privacy and security during data exchange.
* **Email Notifications**: The system will use **SMTP** protocol to send automated emails related to test scheduling, eligibility decisions, and test results.
* **API Communication**: RESTful APIs will be used for data exchange between the frontend, backend, and external services like AI models and email systems.

1. **Functional Requirements**
   1. **Functional Hierarchy**
2. **User Management**1.1 **Registration and Authentication** 1.1.1 Allows candidates to register and log in securely.  
    1.1.2 Enables HR users to create accounts and access administrative tools.  
   1.2 **Profile Management** 1.2.1 Allows candidates to create, view, and update their profiles.  
    1.2.2 Enables candidates to upload and manage their CVs.  
    1.2.3 Allows HR users to view and manage candidate profiles and histories.  
   1.3 **Role Management** 1.3.1 Differentiates between candidate and HR roles.  
    1.3.2 Provides role-based access to system features and data.
3. **CV Analysis**2.1 **CV Scanning** 2.1.1 Analyzes CVs using AI (**SBERT**) to extract relevant data.  
    2.1.2 Identifies skills, qualifications, and experience from uploaded CVs.  
   2.2 **Matching and Scoring** 2.2.1 Compares extracted CV data against job requirements.  
    2.2.2 Generates a suitability score for each candidate.
4. **Test Generation**3.1 **Skill-Based Test Creation** 3.1.1 Uses AI (**GPT**) to create tailored technical tests for candidates.  
    3.1.2 Generates questions specific to the candidate’s skills and job role.  
   3.2 **Customization Options** 3.2.1 Allows HR to configure test parameters, such as difficulty level.  
    3.2.2 Includes options for adding custom questions relevant to the role.
5. **Test Evaluation**4.1 **Score Calculation** 4.1.1 Automatically evaluates test responses based on predefined criteria.  
    4.1.2 Calculates scores for accuracy, logic, and time efficiency.  
   4.2 **Weight Configuration** 4.2.1 Enables HR to set different weights for test sections (e.g., coding, theoretical).  
    4.2.2 Adjusts evaluation focus based on the job requirements.
6. **HR Decision Support**5.1 **Evaluation Reports** 5.1.1 Generates detailed reports summarizing candidate performance.  
    5.1.2 Highlights strengths and weaknesses in candidate evaluations.  
   5.2 **Candidate Comparison** 5.2.1 Allows HR to compare scores and profiles of multiple candidates.  
    5.2.2 Facilitates informed decision-making for the next stages of hiring.
7. **Notification System**6.1 **Automated Emails** 6.1.1 Sends notifications to candidates about test schedules and results.  
    6.1.2 Notifies HR when reports or actions are available.  
   6.2 **Alerts and Reminders** 6.2.1 Sends reminders to candidates for upcoming tests.  
    6.2.2 Notifies HR of pending candidate reviews.
8. **System Security**7.1 **Authentication and Authorization** 7.1.1 Implements secure login mechanisms for all users.  
    7.1.2 Enforces role-based access control to ensure data confidentiality.  
   7.2 **Data Protection** 7.2.1 Encrypts sensitive data, such as test results and candidate profiles.  
    7.2.2 Ensures compliance with data protection laws, such as GDPR.

**4.2. Use Case Diagram**



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| --- | --- | --- | --- | --- |
| **<UC-001>** | | | | |
| **Use case Id:** | | UC-001 | | |
| **Actors:**  Candidate, HR, Admin | | | | |
| **Feature:** User authentication to access role-based features. | | | | |
| **Pre-condition:** | | * Users must have valid credentials. * If registering, the email/username must not already exist. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | User accesses the login/registration page. | | | Displays the login or registration form. |
| **2.** | User enters email/username and password. | | | Validates the entered credentials. |
| **3.** | User submits the login/registration form. | | | Authenticates user and redirects to respective dashboard if valid. |
| **4.** | If registration, the user confirms email via link. | | | Activates account and provides login access. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If invalid credentials are entered, the system displays an error message and prompts for retry.**    **1b: If an account already exists with the entered email, the system notifies the user.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Users successfully log in or register. | | | |
| **2.** | Users are redirected to their role-specific dashboard. | | | |
| **Use Case Cross referenced** | | | **UC-002:** Manage Profile  **UC-003:** Upload CV | |

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| **<UC-002>** | | | | |
| **Use case Id:** | | UC-002 | | |
| **Actors:**  **Candidate** | | | | |
| **Feature:** Allow users to update their profile information. | | | | |
| **Pre-condition:** | | * Users must be logged in. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | User accesses the profile page. | | | Displays the profile information form. |
| **2.** | User edits the information (e.g., name, skills, contact). | | | Validates the changes. |
| **3.** | User submits the updated profile. | | | Updates the profile and shows a success message. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If invalid data is entered, the system highlights the error fields and prompts corrections.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Profile information is updated successfully. | | | |
| **Use Case Cross referenced** | | | * **UC-001:** Register and Login * **UC-003:** Upload CV | |

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| **<UC-003>** | | | | |
| **Use case Id:** | | UC-003 | | |
| **Actors:**  **Candidate** | | | | |
| **Feature:** Allow candidates to upload their CV for AI analysis. | | | | |
| **Pre-condition:** | | * Users must be logged in. * The uploaded file must be in a valid format (e.g., PDF). | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | User accesses the CV upload section | | | Displays the upload form. |
| **2.** | Users upload their CV. | | | Validates the file format and size. |
| **3.** | User submits the CV. | | | Initiates AI analysis via SBERT and shows a progress message. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If the file format is invalid, the system displays an error message.**  **1b: If the upload fails due to network issues, the system prompts the user to retry.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | CV is uploaded successfully and sent for analysis. | | | |
| **Use Case Cross referenced** | | | **UC-004:** CV Analysis via SBERT | |

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| **<UC-004>** | | | | |
| **Use case Id:** | | UC-004 | | |
| **Actors:**  **System** | | | | |
| **Feature:** Perform automated analysis of the uploaded CV to identify skills and eligibility. | | | | |
| **Pre-condition:** | | * A valid CV must be uploaded. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | System receives the uploaded CV.. | | | Parses and analyzes the CV using SBERT. |
| **2.** | System identifies skills and eligibility. | | | Saves the analysis results and generates a report. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If the CV is unreadable, the system logs an error and notifies the user.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Analysis results are saved for review. | | | |
| **Use Case Cross referenced** | | |  | |

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| **<UC-005>** | | | | |
| **Use case Id:** | | UC-005 | | |
| **Actors:**  HR | | | | |
| **Feature:** Allow HR to review analyzed CVs and approve or reject candidates. | | | | |
| **Pre-condition:** | | * CV analysis must be completed. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR accesses the reviewed CV list. | | | Displays the analyzed CVs. |
| **2.** | HR selects a candidate's CV for review. | | | Shows detailed analysis results. |
| **3.** | HR makes a decision (approve/reject). | | | Saves the decision and updates the candidate status. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If no CVs are available, the system shows a message: "No CVs to review."** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | HR's decision is recorded in the system. | | | |
| **Use Case Cross referenced** | | | .  **UC-006:** Send Automated Emails to Selected Candidates | |

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| **<UC-006>** | | | | |
| **Use case Id:** | | UC-006 | | |
| **Actors:**  **System** | | | | |
| **Feature:** Notify candidates via email regarding their eligibility and next steps (e.g., test details). | | | | |
| **Pre-condition:** | | * HR must approve or reject the candidate after CV review. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR approves/rejects a candidate after reviewing their CV. | | | Triggers the email automation process. |
| **2.** | System generates an email with test details or rejection. | | | Send the email to the candidate's registered email address. |
| **3.** | Candidate receives the email. | | | Email contains test details (if approved) or rejection reasons (if rejected). |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If email delivery fails, the system logs the failure and retries after a specified interval.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Candidate is notified via email about their status. | | | |
| **Use Case Cross referenced** | | | **UC-005:** Review Candidate CVs  **UC-007:** Generate AI-Based Tests | |

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| **<UC-007>** | | | | |
| **Use case Id:** | | UC-007 | | |
| **Actors:**  **System, Candidate** | | | | |
| **Feature:** Create and deliver AI-based tests tailored to the candidate’s skills and the applied job role. | | | | |
| **Pre-condition:** | | * Candidates must be approved by HR. * A test must be scheduled. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | System retrieves the candidate’s skills and job details. | | | Prepares a tailored test using GPT. |
| **2.** | Candidate accesses the test via a provided link. | | | Displays the test interface. |
| **3.** | Candidate completes and submits the test. | | | Evaluates the responses and generates a performance report. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If test generation fails, the system notifies HR and logs the error.**  **2a: If the candidate doesn't complete the test within the deadline, the system marks it as incomplete.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Test results are saved for review by HR. | | | |
| **Use Case Cross referenced** | | | * **UC-006:** Send Automated Emails * **UC-008:** Evaluate Test Responses | |

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| **<UC-008>** | | | | |
| **Use case Id:** | | UC-008 | | |
| **Actors:**  **System** | | | | |
| **Feature:** Automatically evaluate test responses and generate a detailed report. | | | | |
| **Pre-condition:** | | * Candidates must submit the test within the deadline. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | System retrieves the submitted test. | | | Parses the responses and evaluates them using GPT. |
| **2.** | System calculates the overall score and detailed metrics. | | | Generates a comprehensive report. |
| **3.** | System sends the report to HR. | | | Provides HR access to the candidate’s performance report. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If the test is incomplete or invalid, the system notifies HR.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Test evaluation results are saved and shared with HR. | | | |
| **Use Case Cross referenced** | | | * **UC-007:** Generate AI-Based Tests * **UC-009:** View Test Reports | |

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| **<UC-009>** | | | | |
| **Use case Id:** | | UC-009 | | |
| **Actors:**  **HR, Candidate** | | | | |
| **Feature:** Allow HR and candidates to view the generated test reports. | | | | |
| **Pre-condition:** | | * The test must be evaluated. * The report must be generated. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR accesses the test reports section. | | | Displays a list of all available reports. |
| **2.** | HR selects a candidate’s report to view details. | | | Displays the detailed test evaluation report. |
| **3.** | Candidates view their report after logging in. | | | Displays their specific performance metrics and score. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If no reports are available, the system displays a message: “No reports available.”** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Test reports are reviewed by HR or candidates. | | | |
| **Use Case Cross referenced** | | | **UC-008:** Evaluate Test Responses | |

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| **<UC-010>** | | | | |
| **Use case Id:** | | UC-010 | | |
| **Actors:**  **HR** | | | | |
| **Feature:** Notify successful candidates for a final interview based on their report results. | | | | |
| **Pre-condition:** | | * Candidate must pass the test. * HR must approve them for the interview. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR shortlists candidates based on test results. | | | System sends an interview invitation email. |
| **2.** | Candidate confirms attendance. | | | System logs the confirmation and schedules the interview. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If the candidate doesn't confirm, HR is notified for follow-up.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Candidate is scheduled for the final interview. | | | |
| **Use Case Cross referenced** | | | **UC-009:** View Test Reports | |

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| **<UC-011>** | | | | |
| **Use case Id:** | | UC-011 | | |
| **Actors:**  **HR** | | | | |
| **Feature:** HR can reject candidates who have either failed the test or are not suitable for the job. | | | | |
| **Pre-condition:** | | * Candidate must have completed the test and received the report. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR reviews the test report for a candidate. | | | System displays the report and highlights key areas for review. |
| **2.** | HR decides to reject the candidate based on performance. | | | System marks the candidate as rejected and logs the decision. |
| **3.** | HR sends a rejection email to the candidate. | | | System automatically sends a rejection email with reasons (if provided). |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If HR does not finalize the rejection, the system prompts them to make a decision before moving forward.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Candidate is marked as rejected and notified. | | | |
| **Use Case Cross referenced** | | | **UC-009:** View Test Reports | |

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| --- | --- | --- | --- | --- |
| **<UC-012>** | | | | |
| **Use case Id:** | | UC-012 | | |
| **Actors:**  **HR, System** | | | | |
| **Feature:** HR can view candidates' CVs for reviewing their qualifications and experience. | | | | |
| **Pre-condition:** | | * The candidate must have uploaded their CV during the application process. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR searches for a candidate's name in the system. | | | System retrieves and displays the candidate's profile and CV. |
| **2.** | HR views the details of the CV. | | | CV is displayed with sections like education, experience, and skills. |
| **3.** | HR reviews the CV for qualifications. | | | HR can download or print the CV for further review. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If the candidate has not uploaded a CV, the system displays an error message: "CV not available."** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | HR reviews the CV or downloads it for future reference. | | | |
| **Use Case Cross referenced** | | | **UC-003:** Candidate Uploads CV | |

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| --- | --- | --- | --- | --- |
| **<UC-013>** | | | | |
| **Use case Id:** | | UC-013 | | |
| **Actors:**  **HR, Candidate** | | | | |
| **Feature:** Schedule a final interview for shortlisted candidates based on test and CV review. | | | | |
| **Pre-condition:** | | * Candidates must be shortlisted, and an interview invitation needs to be sent. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.** | HR selects an available time slot for the interview. | | | System schedules the interview and sends the candidate an invitation. |
| **2.** | Candidate confirms the interview schedule. | | | System updates the interview status as confirmed. |
| **3.** | Interview is conducted. | | | System logs the completion of the interview. |
| **Alternate Scenarios:** Write additional, optional, branching or iterative steps. Refer to specific action numbers to ensure understandability. | | | | |
| **1a: If the candidate cannot attend the interview, they can request a new time. HR will reschedule.** | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1.** | Candidate is successfully scheduled for the interview. | | | |
| **Use Case Cross referenced** | | | **UC-010:** Final Interview Invitation | |

1. **Non-functional Requirements**
2. **Performance Requirements**

1.1. The system should handle at least 100 concurrent users without significant performance degradation.

1.2. The response time for CV scanning and test generation should not exceed 5 seconds for each request.

1. **Scalability Requirements**

2.1. The system must be scalable to accommodate a growing number of users and job roles.

2.1.1. The infrastructure should support adding new job roles without redesigning the system.

2.1.2. The system should scale up AI models as needed.

2.2. The system should allow for the easy addition of new features, such as additional job roles or tests.

1. **Reliability** **Requirements**

3.1. The system should have an uptime of 99.9% to ensure availability.

3.1.1. The system should remain operational for the majority of the time, with only scheduled maintenance downtime.

3.1.2. Any unplanned outages should be resolved within 1 hour.

3.2. Regular backups should be performed to prevent data loss.

3.2.1. Backups should be done daily.

3.2.2. Backup data should be encrypted and securely stored.

1. **Security**

4.1. All user data must be encrypted both at rest and in transit.

4.1.1. Use AES-256 encryption for data at rest.

4.1.2. Use TLS/SSL encryption for data in transit.

4.3. Role-based access control (RBAC) should ensure that users can only access relevant system functionalities.

4.3.1. Admin users should have access to all features, including managing candidates and tests.

4.3.2. Candidates should only have access to their profiles and test results.

1. **Usability**

5.1. The user interface must be intuitive and user-friendly.

5.1.1. The system should have a simple design that requires minimal training.

5.1.2. Navigation should be clear, with appropriate tooltips and help sections.

5.2. The system should provide clear and actionable error messages.

5.2.1. Error messages should describe the issue and provide possible solutions or contact information for support.

1. **Maintainability**

6.1. The system’s codebase should be modular and follow best coding practices.

6.1.1. The code should be easily extendable to add new features.

6.1.2. Code comments and documentation should be provided for clarity.

6.2. The system should support automated testing.

6.2.1. Unit tests should be written for all major features.

6.2.2. Integration tests should be run before deployment to ensure that new changes do not break existing functionality.

1. **References**

**BERT Model Documentation**

* **Source**: Official AI Model Documentation from Hugging Face
* **URL**: https://huggingface.co/docs/
* **Publisher**: Hugging Face
* **Description**: Provided guidance BERT

**SBERT Model Documentation**

* **Source**: Official AI Model Documentation from Hugging Face
* **URL**: https://huggingface.co/sentence-transformers
* **Publisher**: Hugging Face
* **Description**: Provided guidance on integrating SBERT working

**Applying BERT-Based NLP for Automated Resume Screening and Candidate Ranking**

* **Source**: Applying BERT-Based NLP for Automated Resume Screening and Candidate Ranking
* **URL**: [https://www.researchgate.net/publication/378829570\_Applying\_SBERT-Based\_NLP\_for\_Automated\_Resume\_Screening\_and\_Candidate\_Ranking](https://www.researchgate.net/publication/378829570_Applying_BERT-Based_NLP_for_Automated_Resume_Screening_and_Candidate_Ranking)
* **DOI**: 10.1007/s40745-024-00524-5
* **Publisher**: Springer
* **Year**: 2024

**Augmented SBERT: Data Augmentation Method for Improving Bi-Encoders for Pairwise Sentence Scoring Tasks**

* **Source**: NAACL 2021
* **URL**: <https://arxiv.org/abs/2010.08240>
* **Publisher**: Accepted at NAACL 2021
* **Year**: 2021

**Resume Parsing using Natural Language Processing**

* **Source**: Grenze scientific Society
* **URL**: https://thegrenze.com/pages/servej.php?fn=587.pdf&name=Resume%20Parsing%20using%20Natural%20Language%20Processing&id=1418&association=GRENZE&journal=GIJET&year=2023&volume=9&issue=1
* **Publisher**: Grenze International Journal of Engineering and Technology
* **Year**: 2021

1. **Appendices**

#### ****1. Summary of Stakeholders****

A quick summary table highlighting each stakeholder and their primary interaction with the system.

| **Stakeholder** | **Role in the System** |
| --- | --- |
| HR Professionals | Review CVs, approve/reject candidates, assign tests. |
| Job Applicants | Upload CVs, complete tests, receive notifications. |
| System Administrators | Ensure system uptime, manage configurations. |
| Development Team | Build, test, and maintain the system. |
| QA Team | Verify system functionality and performance. |

#### ****2. Future Enhancements (Planned Features)****

Add a section summarizing features that will be added later but are not in the current scope:

* **Advanced Analytics**: Predictive analytics for hiring trends.
* **Integration with Job Portals**: Automate job postings on external platforms.
* **Video Interviewing**: Integration of video conferencing tools for remote interviews.