

# Functional Requirements Specification (FRS) Document

Acme Corporation

Professional Evaluation Application (PEA)

Version 1.0



## Document Versioning Details

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## 1. Introduction

Acme Corp. (client) and RCube Technology Services (vendor) entered into a mutual agreement on 20<sup>th</sup> December 2021, where Acme Corp will provide application development and allied services to RCube Technology Services for the development, testing, and release of their product 'Professional Evaluation Application (PEA)'.

### 1.1 Purpose

This document aims to define the business objectives and describe the module-wise requirements of the product being built. The FRS document contains detailed project scope, business flows, functional and non-functional requirements, along with any assumptions, constraints, and risks associated with the project success.

### 1.2 Document Overview and Intended Audience

The FRS document to be referenced by project management, business and the technical teams of the PEA project.

### 1.3 Definitions and abbreviations

Term	Definition
PMO	Project Management Office (PMO) is a department within RR Technology Services (RTS) that defines and maintains the standard of project management across the organization
Baseline version	A specification (of a document or deliverable) that has been formally reviewed and agreed on serves as the basis for further development, and that can be changed only through formal change control procedures
Application	An application is a computer program that is designated to perform a group of coordinated functions, tasks, or activities for the benefit of the user
System	An organized, purposeful structure consists of interrelated and interdependent elements (components, entities, factors, members, parts, etc.)
Evaluation or Assessment	Evaluation is a method to judge the competency of an individual by evaluating her/his responses to a series of questions

Stakeholders	Anybody (individual or organizations) that is positively or negatively impacted by the outcome of the product being developed
SPOC	A Single Point of Contact (SPOC) is a person or a department serving as the coordinator or focal point of information concerning activity or program
SME	Subject-Matter Expert (SME) or domain expert is a person who is an authority in a particular area or topic
FM	Functionality Matrix (FM) is a crisp collection of all the requirements within the project scope, structured in the form of workflows (preferably excel)
RTM	Requirement Traceability Matrix (RTM) is a document that records and tracks the relationship of the project requirements to the design, documentation, development, testing, and release of the project/product
UAT	User Acceptance Testing (UAT), also called end-user testing, is a phase of software development in which the software/application is tested in the "real world" by the intended audience
Evaluation Panel	A group of individuals (within Acme Corp.) that defines the evaluating questions for a job applicant's assessment
Recruitment	A department within Acme Corp. that is responsible for finding, screening, and recruiting job applicants/candidates
Job applicant or Candidate	The person who is applying for a specific job position within Acme Corp.
Supervisor	A person responsible for overseeing the complete activities that are being performed on the application within an organization and is also responsible for the management of the users that use the application
Widgets	A widget is a self-contained piece of information usually available on the home screen (dashboard)
Analytics	Analytics is the discovery, interpretation, and communication of meaningful data within the application and is displayed on the application dashboard within a widget

## 1.4 References

Reference Document Details	Location
Project vision document	Project's Share Drive
Requirement Management Plan	Project's Share Drive
Staffing_Process.pdf	Project's Share Drive

Evaluation_List.pdf	Project's Share Drive
Project vision document	Project's Share Drive
Business Requirement Document	Project's Share Drive
System Requirement Specifications Document	Project's Share Drive

## 2. High-Level Description

### 2.1 Background

Acme Corp is a leading publishing house that concentrates on publishing educational books, magazines, and tabloids.

Acme has a dedicated team of highly experienced authors and writers whose excellent writing skills empower Acme's complete publishing portfolio. Acme's missions are to publish reading materials that educate and entertain their audiences, inspire them to achieve their life goals while inculcating feelings of compassion and care.

Acme Corp. is currently facing a challenge with its recruitment process while hiring competent authors, technical writers, and other professional staff personnel. The associates are not being thoroughly evaluated by their existing recruitment process and are turning out to be bad hires that do not fit the position entirely.

Thus, Acme Corp. wishes to create a web-based application where job applicants can attempt comprehensive evaluation tests containing a tailored set of questions.

### 2.2 Project Scope

#### In Scope

##### **Module 1 - Evaluation Panel**

This section of the platform will allow the evaluation panel member/s (e.g., business manager, technical lead, lead analyst, project/program manager) to create an evaluation that a job applicant needs to go through against a position to be filled within Acme corp.

##### **Module 2 – Recruitment**

This section of the platform is for the talent acquisition or recruitment team, where they could create a job applicant's profile and invite the shortlisted job applicants for the evaluation.

##### **Module 3 - Job applicant**

This section caters to the job applicants who will attempt the online, on-screen assessment prepared by the evaluation panel and assigned to the job applicant by the recruitment members.



## Module 4 – Supervisor

The supervisor login will be used for user management, where a pre-designated administrator will assign roles/permissions to the existing employees of an Acme corp., on the application.

The supervisor will be able to view and edit the existing evaluation and can add assessments as well.

### Out of Scope

- Chat-room/IM functionality for job applicants to chat with the recruitment team.
- Creating a separate assessment application to develop, document, and execute 'code' for technical assessments.
- Video interaction with the job applicant
- Developing any android or iOS mobile apps
- Any requirements not defined under in-scope, functional requirements, non-functional requirements, and other requirements sections.

## 2.3 User/Actor Roles and Characteristics

**Role Name:** Assessment Panel

**Role Designation/Title:** Technical Lead, Technical Architect, Manager-Delivery, Senior Business Analyst

**Role Description:** Based on the job vacancy/resource requirement, the assessment panel members are responsible for defining the skills and capabilities required for the job and creating an assessment on the platform to gauge those skills in the candidate.

**Frequency of use:** Frequently

**Role Name:** Recruitment

**Role Designation/Title:** Human Resource executives, Talent Acquisition executives, hiring executives

**Role Description:** As per the requirement of the recruitment, members are responsible for creating a job ID, shortlisting suitable candidates, creating a candidate profile on the platform, inviting candidates for assessment and keeping track of their status, and managing all the candidates/interviewees.

Additionally, they can also draw out detailed reports and analytics against the assessments and candidates on the evaluation platform.

**Frequency of use:** Frequently

**Role Name:** Job Applicant

**Role Designation/Title:** Candidate, interviewee

**Role Description:** Candidates are the shortlisted interviewee that are selected by the recruitment members against an open job position within Acme and are invited to take the assessment on the platform. Candidates are capable of answering questions and providing feedback on their experience on the assessment platform.

**Frequency of use:** Occasionally

**Role Name:** Supervisor

**Role Designation/Title:** Delivery Manager, Director, Administrators

**Role Description:** Supervisors have complete control of the platform, and only they can assign designated roles/access to existing employees of Acme. Additionally, they can also manage assessments and candidates and view analytics and reports against candidates.

**Frequency of use:** Occasionally

## 2.4 Constraints

- a) All the requirements defined in the SRS document should not take more than 6 sprints to develop
- b) Code should not be integrated without proper unit testing
- c) A sprint could only be released when it follows the release guidelines laid out in the exit criteria section above.
- d) The resources usage should be planned judiciously to avoid any budget overruns
- e) The project performance should be as per the explicitly defined specifications
- f) The number of project resources should not exceed the specified numbers
- g) The project should be developed under Agile project development methodology only
- h) The project should only follow the templates, models, processes, procedures, and policies defined within Acme Corp.
- i) For security reasons, no-code development should happen outside the designated development center/office/unit

- j) Any decisions that impact the deliverables of the project and pose any risks to the application development schedule, performance, security, usability, and quality should be thoroughly discussed with the key stakeholders before implementation

## 2.5 Assumptions

- a) Acme Corp. to provide the business rules and validations around the requirements
- b) Acme Corp. will review and sign-off all the requirements in a timely fashion without impacting the schedule of the development team
- c) All the features under the out of scope section are not to be considered for the development
- d) Acme Corp. will provide full cooperation and support in giving all the details around the requirements and clarifying any doubts or questions that business analysts or the development teams may have
- e) All project needs are correctly analyzed, brainstormed, and thought over before implementation.
- f) English (US) will be considered as the language for communication and collaboration
- g) All the resources will be available as per the defined schedule
- h) Java will be the preferred choice of development language
- i) Acme Corp. will provide a designated single point of contact (SPOC) for all requirement related clarifications
- j) The infrastructure of the application is designed following the maximum load definition
- k) The schedule will be created assuming that all the vendors will provide their work products as per the schedule and without any delays
- l) All the estimations are based on the project conditions and what is known about the project then.
- m) Any modifications to the existing project scope might impact the project estimations/schedule/timelines

## 2.6 Dependencies

- a) The project development will start only when the required software developers with adequate technical competency join the project team
- b) The successor activities begin only when the dependent predecessor activities are completed. E.g., Technical architecture design can be initiated only after the initial requirement analysis and elicitation is over
- c) The 3<sup>rd</sup> party integration and technical dependencies shall be listed in the technical design document
- d) The development shall start only when the respective user stories are approved and signed-off by the business stakeholders
- e) The UAT shall be authorized in written before the code is to be migrated to the production environment
- f) The completion of the project as per the defined schedule is dependent on resource availability and project scope. The introduction of new requirements and features may impact the project schedule and cost.
- g) Acme Corp. to provide an SME (Subject Matter Expert) for all domain/business clarifications.
- h) Application development can be started only when technical architecture design is ready
- i) Test cases can be prepared only when the respective use case document is reviewed and signed off

## 3. Functional Requirements

### 3.1 System Features (Module-wise)

#### a) System features – Evaluation Panel Module

- Login
- Dashboard
  - Notification widget
- Evaluations listing
  - Search evaluations
  - Filter evaluations
- View evaluation
- Create new evaluation
  - Evaluation Instructions
    - Pre-defined instructions
    - Create new instructions
    - Upload PDF, PPT document containing instructions
  - Evaluation Settings
    - Set difficulty level
    - Set the overall cut-off percentage
    - Set overall completion time
    - Set evaluation level (Fresher, Junior, Experienced, Manager, Senior Manager, Leadership )
  - Evaluation Sections
    - Create Sections
    - Allot weightage to each section
    - Assign cut-off percentage for each section
  - Evaluation Questions
    - Select skill (Business analysis, Project management, Testing, Java, PHP, etc.)
    - Select existing questions or define new questions
    - Question type selection (while defining new questions)
      - Highlight

- Dropdown
- Multiple choice, single answer
- Multiple choice, multiple answers
- Fill in the blank, drag and drop
- Fill in the blank, drop down
- Reorder
- Add questions
- Provide question's answers
- Add customized scoring/weightage to questions
- Delete question
- Preview evaluation
- Save evaluation
- Share evaluation with a colleague for feedback
- Submit evaluation
- Edit evaluation
- Logout

BR ID	FR ID	Feature Description
BR 01	FR 1.1	The system shall allow the registered evaluation panel members to login into the application
BR 01	FR 1.2	The system shall show the dashboard with the notifications widget
BR 01	FR 1.3	The system shall allow the user to add a new assessment by displaying all the relevant fields
BR 01	FR 1.3.1	The system shall allow the user to add pre-defined instructions, create new instructions and upload PDF, PPT documents containing instructions
BR 01	FR 1.3.2	The system shall allow the user to set the difficulty level, overall cut-off percentage, overall completion time, and evaluation level for an assessment
BR 01	FR 1.3.3	The system shall allow the user to create assessment sections, allot weightage to each section and assign a cut-off percentage for each section
BR 01	FR 1.3.4	The system shall permit the user to save an assessment
BR 01	FR 1.3.5	The system shall permit the user to preview an assessment
BR 01	FR 1.3.6	The system shall permit the user to share the assessment with a colleague for feedback

BR 01	FR 1.3.7	The system shall allow the user to submit an assessment
BR 02	FR 2.1	The system shall allow selecting the skill (from a dropdown) for the questions being created
BR 02	FR 2.2	The system shall allow creating a new skill for the questions being created
BR 02	FR 2.3	The system shall allow selecting existing questions created for other assessments
BR 02	FR 2.4	The system shall the following questions types: highlight, drop down, multiple choice - single answer, multiple choice - multiple answer, fill in the blank-drag and drop, fill in the blank-drop down, and reorder
BR 02	FR 2.5	The system shall allow adding a question successfully
BR 02	FR 2.6	The system shall allow setting customized scoring or weightage to individual questions
BR 02	FR 2.7	The system shall add all the questions to a questions library so that they can be re-used
BR 02	FR 2.8	The system shall allow deleting a question
BR 03	FR 3.0	The system shall show the listing of all the assessments along with the ability to search and filter assessments
BR 03	FR 3.1	The system shall allow the user to view assessments and the questions contained within
BR 03	FR 3.2	The system shall allow the user to edit assessments Instructions
BR 03	FR 3.3	The system shall allow the user to edit assessments Settings
BR 03	FR 3.4	The system shall allow the user to edit assessments Sections
BR 03	FR 3.5	The system shall allow the user to edit assessments Questions
BR 03	FR 3.6	The system shall allow the user to delete an assessment

## b) System features – Recruitment Module

- Login
- Dashboard widgets (below details can be filtered)
  - Notifications
    - Job applicants (who have) started attempting the evaluation
    - Job applicant (who have) completed the evaluation
  - Evaluation shared (i.e., no. of applicants with whom evaluation is shared)
  - Evaluation attempting (i.e., no. of applicants currently attempting the evaluation)

- Evaluation completed (i.e., no. of applicants who have completed their evaluation)
  - Evaluation cleared (i.e., no. of applicants who have cleared their evaluation)
  - Evaluation Failed (i.e., no. of applicants who have failed their evaluation)
  - Yet to take evaluation (i.e., no. of applicants who are yet to take their evaluation)
  - Evaluation shared but not attempted
- Manage Job applicant
  - List job applicants
    - Filter job applicant
    - Search job applicant
  - Add job applicant
    - Full name
    - Email id
    - Phone number
    - Age
    - Gender
    - Marital Status
    - Nationality
    - Key Skills
    - Experience
  - Select and view job applicant details
    - View job applicant's complete details
    - View evaluation status (completed, in-progress, yet to attempt)
  - Edit job applicant details
  - Delete job applicants
  - Invite job applicants for evaluation
    - Select Skill
    - Select evaluation
    - Select evaluation date and time/duration
    - Send invitation link to job applicant



- Contains ID and password
  - Available for a limited duration
- Review (applicant's) performance and track job applicants
  - Select job applicant
  - Display job applicant details
  - View score (overall and section-wise)
  - View evaluation answers
  - View evaluation attempt time
  - View idle time
  - Audit tracking
    - Applicant name
    - Logged in IP
    - Login date and time
    - Login browser
- Logout

BR ID	FR ID	Feature Description
BR 04	FR 4.1	The system shall allow the registered recruitment team members to login into the application
BR 04	FR 4.2	The system shall show the listing of all the candidates to the user and allow them to search and filter for candidates
BR 04	FR 4.3	The system shall allow the user to add a candidate by showing all the relevant fields
BR 04	FR 4.4	The system shall allow the user to view the job applicant's complete details and their evaluation status (completed, in progress, yet to attempt)
BR 04	FR 4.5	The system shall allow the user to edit a candidate's complete details
BR 04	FR 4.6	The system shall allow the user to delete a candidate
BR 04	FR 4.7	The system shall allow the user to invite candidates for assessment and send them an invitation email containing the application login ID and password
BR 05	FR 5.1	The system shall allow the user to view the candidate's score (overall and section-wise), evaluation answers, evaluation attempt time, and idle time
BR 05	FR 5.2	The system shall allow the user to view the candidate's logged in system's IP, login date and time, and login browser

BR 06	FR 6.1	The system shall show a notification widget containing the details of the candidates who have started attempting the evaluation and the ones who have completed the evaluation
BR 06	FR 6.2	<p>The system shall different widgets containing information of:</p> <ul style="list-style-type: none"> <li>- Evaluation shared (i.e., no. of applicants with whom evaluation is shared)</li> <li>- Evaluation attempting (i.e., no. of applicants currently attempting the evaluation)</li> <li>- Evaluation completed (i.e., no of applicants who have completed their evaluation)</li> <li>- Evaluation cleared (i.e., no of applicants who have cleared their evaluation)</li> <li>- Evaluation Failed (i.e., no. of applicants who have failed their evaluation)</li> <li>- Yet to take evaluation</li> </ul>

### c) System features – Job applicant Module

- Login through the invitation link
  - Enter captcha
- Read evaluation instructions
- Take mock evaluation
- Attempt actual evaluation test
  - System to show time remaining
  - Answer questions/scenarios
  - Review evaluation
  - Automatically submit evaluation when the time is over
  - System to track the idle time
  - Restrict job applicants to take screenshots and print screens
  - Submit evaluation
- Logout

BR ID	FR ID	Feature Description
BR 07	FR 7.1	The system shall send an invitation email containing the application login URL, login ID, and password on the candidate's registered email ID

BR 07	FR 7.2	The system shall allow the candidate to login using the link and the credentials in the invitation email
BR 08	FR 8.1	The system shall show the assessment related instructions before displaying the actual assessment
BR 08	FR 8.2	The system shall display some mock questions to the candidate before revealing the actual assessment questions
BR 08	FR 8.3	The system shall always display the assessment time that has elapsed.
BR 08	FR 8.4	The candidate should be able to shuffle between different sections while attempting the assessment
BR 08	FR 8.5	The system shall allow the candidate to answer the assessment questions by displaying options and choices
BR 08	FR 8.6	The system shall allow the candidate to review the assessment by allowing them to shuffle between different questions
BR 08	FR 8.7	The system shall automatically submit the assessment when the defined assessment time is over
BR 08	FR 8.8	The system shall permit the candidate to provide feedback on their overall experience of using the evaluation platform
BR 08	FR 8.9	The system shall allow the candidate to submit the assessment once they are done with the same

#### d) System features – Supervisor Module

- Login
- Dashboard widgets (below details can be filtered)
  - Notifications
    - User has been assigned/de-assigned roles
  - Evaluation shared (i.e., no. of applicants with whom evaluation is shared)
  - Evaluation attempting (i.e., no. of applicants currently attempting the evaluation)
  - Evaluation completed (i.e., no. of applicants who have completed their evaluation)
  - Evaluation cleared (i.e., no. of applicants who have cleared their evaluation)

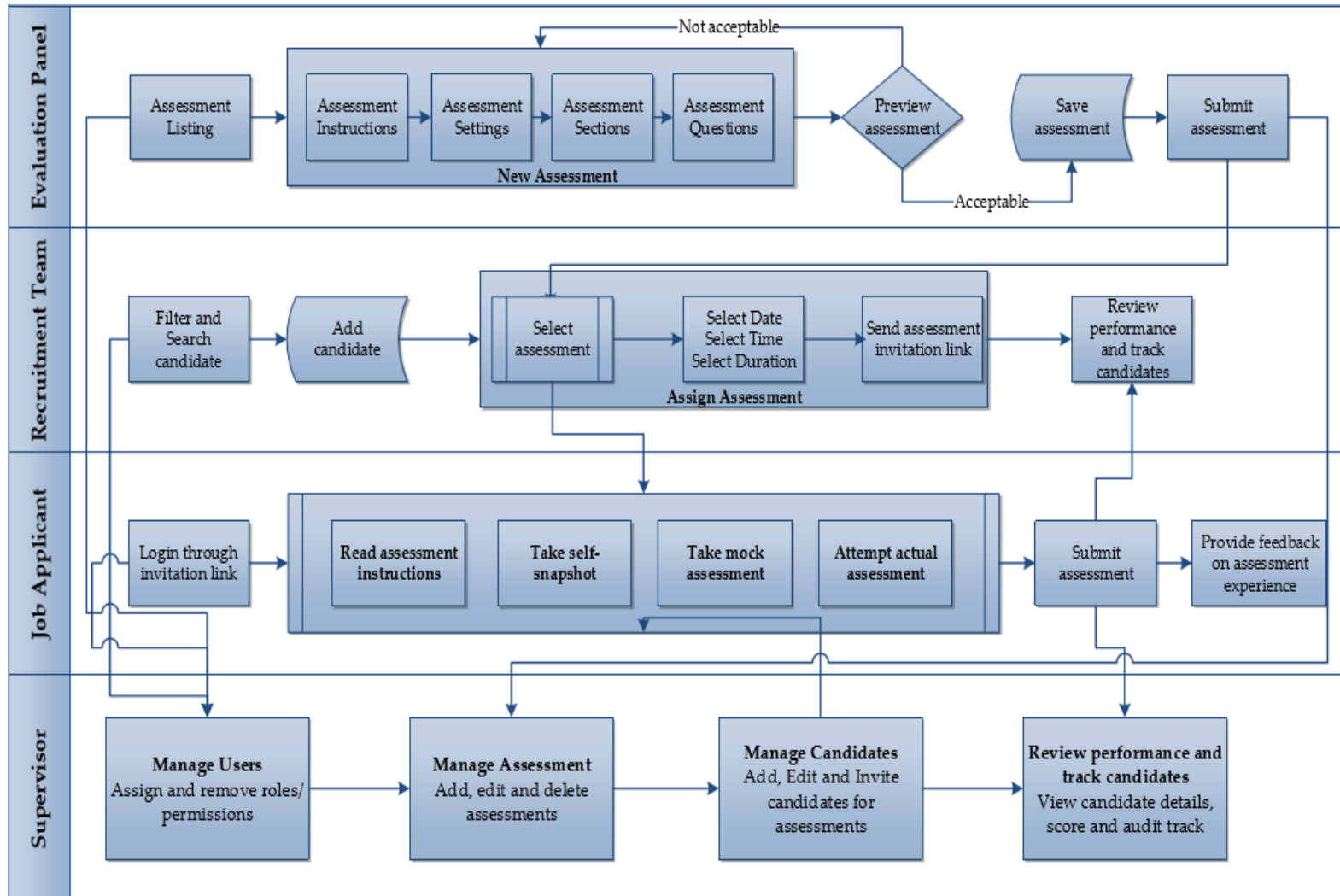
- Evaluation Failed (i.e., no. of applicants who have failed their evaluation)
  - Yet to take evaluation (i.e., no. of applicants who are yet to take their evaluation)
  - Evaluation shared but not attempted
- Manage Users
  - List existing users of Acme Corp.
    - Search List
    - Sort List
  - Assign roles/permissions
  - Remove roles/permissions
- Manage Evaluation
  - List all evaluations
    - Search evaluation
    - Filter evaluation
  - View evaluation
  - Add evaluation
  - Edit evaluation
    - Add/edit questions
    - Delete questions
  - Delete evaluation
- Manage Job applicants
  - List job applicants
    - Filter job applicant
    - Search Job applicant
  - Add job applicant
  - Select and view job applicant details
  - Edit Job applicant details
  - Invite job applicants for evaluation
- Review (applicant's) performance and track job applicants
  - Select job applicant
  - Display job applicant details
  - View score (overall and section-wise)
  - View evaluation answers

- View evaluation attempt time
- View idle time
- Audit tracking
  - Applicant name
  - Logged in IP
  - Login date and time
  - Login browser
- Logout

BR ID	FR ID	Feature Description
BR 09	FR 9.1	The system shall allow the registered supervisors to login into the application
BR 09	FR 9.2	The system shall list all the existing users of the PEA platform along with an ability to search and filter users
BR 09	FR 9.3	The system shall allow the user to assign roles and permissions to the users
BR 09	FR 9.4	The system shall allow the user to edit and remove the user's roles and permissions
BR 10	FR 10.1	The system shall show the listing of all the assessments along with the ability to search and filter assessments
BR 10	FR 10.2	The system shall allow the user to view assessments and the questions contained within
BR 10	FR 10.3	The system shall allow the user to add a new assessment by displaying all the relevant fields
BR 10	FR 10.4	The system shall allow the user to edit an assessment by editing the questions, sections, and settings.
BR 10	FR 10.5	The system shall allow the user to delete an assessment
BR 11	FR 11.1	The system shall allow the user to add a candidate by showing all the relevant fields
BR 11	FR 11.2	The system shall allow the user to view candidate details, their snapshot, and their assessment status
BR 11	FR 11.3	The system shall allow the user to edit a candidate's complete details
BR 11	FR 11.4	The system shall allow the user to delete a candidate
BR 11	FR 11.5	The system shall allow the user to invite candidates for assessment and send them an invitation email containing the application login ID and password

## 3.2 Business Process Flow

The section below defines the business process that needs to be followed around an evaluation.



### 3.2.1 Business Process Flow - Evaluation Panel Module

- **Login**

This section is primarily aimed at the business manager or the interview panel members, and the users belonging to such roles will be able to directly login to the Professional Assessment Platform owing to the SSO integration of the platform with the organization's active directory/domain.

- **Dashboard**

The user, once logged in, will be automatically redirected to the dashboard containing the widget called 'Notifications'. This widget will list the following notifications:

- Logged in user has created a new assessment
- Logged in user has edited an existing assessment
- Logged in user has deleted an assessment
- An update has happened to the assessment, which the user has shared for review/feedback with another colleague
- A new assessment has been shared with the user for review/feedback

This widget will contain pagination, and a maximum of 10/15 notifications could be displayed at a time. The widget will have search functionality, and the user can search for a specific notification.

### **Business Rules**

The latest notifications should be displayed first, and there should be no provision to delete a notification.

- **Assessments listing**

The system will show all the assessments that the logged-in user has created in a list view format along with the respective 'assessments creation date' and 'assessment skills'. Clicking on an assessment name will take the user to the view assessment page. Each of the records in the list will have an editing assessment and delete assessment icon.

On the top right of the list, the system will show an 'Add Assessment' button, which, when clicked, will take the user to the page where the user can add a new assessment.

This page will also have a search bar to search for specific assessment/s with its partial or full name. Additionally, a filter functionality will allow the user to filter assessments by 'assessment skills'.

## **Business Rules**

1. A user should be able to view/edit only those assessments that he (logged-in user) has created. No additional assessment should be displayed to a user until it has been specifically shared for review/feedback.
2. A user should be able to edit/delete only those assessments that are only saved and not submitted. The system will not show the edit/delete icon beside submitted assessments.

- **View assessment**

Clicking on an assessment name on the assessments listing page will take the user to the view assessment page. This is a view-only page, and the user will be able to view all the sections, questions, and the respective answers of an assessment without making any changes.

- **Create new assessment**

Clicking on the 'Add Assessment' button on the assessment list page will take the user to the add assessment page, where the user can add a new assessment.

This page will first ask the user the name of the assessment being created and allow the user to save the name. The assessment, once saved, will be available for editing. The creation of an assessment is divided into various sections, and they are described below:

- **Assessment Instructions**

Here the user can either select to have pre-defined instructions for the assessment being created or create a new set of instructions altogether. Selecting the option to create new instructions should open up a text area where the user can write and format the new set of instructions. Additionally, there should be an option for the user to upload a PDF/PPT document containing instructions.

- **Assessment Settings**

In this section, the user sets the difficulty level of the assessment being created as 'Easy', 'Average' or 'Difficult'. Also, the system allows defining the overall cut-off percentage, overall completion time, and the assessment level (Fresher, Junior, Experienced,



Manager, Senior Manager, Leadership) on this page. The system should have appropriate radio buttons/text boxes as per the settings being defined.

- **Assessment Sections**

Each assessment is divided into different sections (like comprehension, technical, reasoning etc...), and the platform should allow the user to create those sections here. Also, there should be a text box for each section to allow a specific percentage (i.e., how many parts they cover of the complete assessment) and respective cut-off percentages.

- **Assessment Questions**

Each section created above will contain the assessment questions, and the user can either create new questions or select existing questions.

However, before creating a question, the user needs to select the skills against which the questions need to be created (business analysis, project management, testing, Java, PHP, etc.) through a dropdown. Also, if a skill is not available, the system should allow the user to create on instantly.

Then, if the user selects the option to 'select existing questions,' the system should allow the user to open a utility that shows all the existing questions (populated based on the skill selected) with a checkbox beside each one of them. Checking these checkboxes will have the system import them (along with the answers) to the assessment being created.

Alternatively, a user may select the option to define a new question, and then the system should populate the below choices for the user to choose:

- Scenario
- Reflect
- Research
- Step by Step Planning
- Short text response
- Paragraph response
- Dropdown
- Multiple choice, single answer
- Multiple choice, multiple answers
- Multiple choice matrix
- Fill in the blank, drag and drop
- Reorder

- Classification
- Image annotate
- Draw on image
- Decision tree

The system should allow the user to define the question based on the selected question type and add the respective answers as well. Also, there should be an 'Add question' button that will allow the user to add more questions.

Each of the questions created by the user will have an option to add customized scoring/weightage to questions and delete the questions.

Note – Each of the questions created by the user will have an additional checkbox reading 'Add to question library'. This checkbox, when checked, will signal the system to add all those questions to the existing questions library against the defined skills. However, this action can only be performed after the questions are finally submitted.

All the questions added to the questions library can then be imported while creating future assessments.

### **Business Rules**

1. Imported questions cannot be edited.
2. If the delete button is pressed against an imported question, it will just get removed from the created assessment.
3. The system should make sure that weightage to the questions should add up to 100% for every section within the assessment
4. Either customized scoring or weightage can be selected at a time (but not both) – there should be an internal algorithm for performing the underlined calculations.

- **Save assessment**

This function will allow the user to save the assessment for further review/edit.

- **Preview assessment**

The system should allow the user to preview the assessment, and the preview mode should display in the evaluation precisely as it should be shown to the end-user/candidate.

- **Share assessment with a colleague for feedback**

This feature, when exercised, will allow the user to share the assessment with a colleague/senior for review. The system should show a text area where the user can write the email Id of the user to whom he wants to send the assessment for feedback (multiple users can be added separated by comma).

The colleague will be able to edit the assessment and save his editing. The assessment flow will come back to the original author, post feedback and editing, and then the user can submit it.

### **Business Rules**

An assessment can only be shared when it's still saved and not submitted. An assessment, once submitted, cannot be shared for feedback.

Also, to avoid multiple people editing the assessments simultaneously, the system will allow the user to share the assessment with only one user at a time.

- **Submit assessment**

Submitting the assessment is an irreversible activity that will finalize (freeze) the assessment, and no further editing can take place against that assessment.

- **Edit assessment**

Clicking on an 'Edit assessment' icon against an assessment on the assessments listing page will take the user to the edit assessment page. The user can edit all the sections, questions, and answers to an assessment on this page.

- **Provide feedback on assessment/Overwrite an assessment**

The assessments shared with the user for any feedback will come here. The user should view/edit the assessments and save their changes. All the saved changes will reflect both (the original author and the reviewer/s) when they access the document the next time.

- **Logout**

Clicking this button will log the user out of his existing session of the Professional Assessment Platform, and any unsaved changes will be lost.

## **Business Rules**

If there are any unsaved changes, the system should alert the user and ask for their confirmation before logging out.

### **3.2.2 Business Process Flow - Recruitment Team Module**

- SSO login

This section is primarily aimed at the recruitment team members, and the users belonging to such roles will be able to directly login to the PEA owing to the SSO integration of the platform with an organization's active directory/domain.

- **Dashboard widgets**

The user post-login will be redirected to the dashboard containing the following widgets

- Notifications: This widget will notify when a candidate started attempting the assessment and when the candidate completed the assessment. Each of these notifications should have the respective date and time against them.
- Assessment shared: Assessment-wise numbers of the user with whom the assessment is shared.
- Assessment attempting: Assessment-wise numbers of the users who are attempting the assessment
- Assessment completed: Assessment-wise numbers of the users who have completed the assessment
- Assessment cleared: Assessment-wise numbers of the users who have passed the assessment
- Assessment Failed: Assessment-wise numbers of the users who have failed the assessment
- Yet to take assessment: Assessment-wise numbers of the users who are yet to take the assessment and their due date has not elapsed

- Assessment shared but not attempted: Number of the users who are yet to take the assessment and their due date have elapsed. It should be noted that such reports are time-bound.

- **Manage Candidate**

This section is to manage the candidates and contains the below sub-sections

- **List candidates**

The system will show all the candidates that have been created in the system in a list view format along with the respective 'candidate creation date', 'email ID', and 'key skills'. Each of the records in the list will have edit and delete icon. Clicking on a candidate name will take the user to the 'View Candidate Details' page.

On the top right of the list, the system will show an 'Add Candidate' button, which, when clicked, will take the user to the page where the user can add a new candidate.

This page will also have a search bar where users can search for specific candidate/s with their partial or complete names. Additionally, a filter functionality will allow the user to filter assessments by 'key skills'.

### **Business Rules**

A user should be able to view/edit all the candidates that she (logged in user) or any other user with a 'recruitment' role has created.

- **Add Candidate**

Clicking on the 'Add Candidate' button on the candidate list page will take the user to a page containing a form, filling which can create a new candidate on the system. Below are the fields available on this form:

- Full name\* – text box
- Email id\* – text box
- Phone number\* – text box
- Age – calendar/text box
- Gender - dropdown
- Marital Status - dropdown
- Nationality – text box

- Key Skills\* – dropdown [there should be a way for the user to add a missing skill on the fly, and that skill should come in the dropdown as well as filter on the dashboard]

- Experience\* - dropdown

\* = Mandatory fields

- **Select and view candidate details**

Clicking on a candidate's name on the candidate list page will take the user to a page where he can view the candidate's details in a read-only format. Here, the user can additionally view candidate's snapshots (if attempted assessment and captured snapshot) and their assessment status (completed, in-progress, yet to attempt).

- **Edit Candidate details**

Clicking on an 'Edit candidate' icon against a candidate on the candidate listing page will take the user to the edit candidate page. Here, the logged-in user can edit all the details against the candidate apart from candidate's snapshot and assessment status.

- **Delete candidates**

Deleting the candidate will delete the candidate and all his information from the system.

### **Business Rules**

The system should alert the user and ask for confirmation before deleting a candidate.

- **Invite candidates for assessment**

This function will allow the user to invite a candidate for assessment by first selecting the skill from a dropdown. Based on the skill chosen, the system will populate all the submitted assessments in a dropdown. Post assessment selection, the system will allow the user to define the assessment validity by:

- Either defining a specific date and time until which the assessment is valid or
- 'X' number of days from the invitation generation date

The invitation email that the system will send to the candidate's email id should contain the link to the platform, login ID, the access password, and the assessment validity date or the duration.

## **Business Rules**

The recruitment members can assign assessments belonging to their organization only.

- **Review performance and track candidates**

This section will allow the recruitment members to review candidate's performance and track them constantly. There should be a screen where the system will list down all the candidates (with the same function as that of the list candidate page), and selecting a candidate should display:

- their details available on the system
- their overall and section-wise scores
- assessment attempt time
- idle time

There should be a provision for the user to view the complete assessment that the candidates have worked upon, the answers they have selected vs. the correct answers, and the questions they failed to attempt. Also, the system should show percentile scores and median scores of the candidate compared to the other candidates who have taken the same assessment.

On the same page, there should be a provision of tracking the audit log against that candidate and should contain the following sections:

- User name – the user name with which the candidate has logged in
- Logged in IP – the IP with which the candidate has logged
- Login date and time
- Login browser

- **Logout**

Clicking this button will log the user out of his existing session of the PEA platform, and any unsaved changes will be lost.

## **Business Rules**

If there are any unsaved changes, the system should alert the user and ask for their confirmation before logging out.

### 3.2.3 Business Process Flow - Job Applicant/Candidate Module

- **Login through the invitation link**

When invited by the recruitment member, the candidate shall receive an email containing a link to the PEA platform and the ID and password. The candidate should be able to login to the platform using the URL and provided ID and password.

The system should also have a captcha on the login page to validate that the user logging in is an actual human being and not a bot.

#### **Business Rules**

If the credentials are used beyond the duration specified in the email, the system should not allow the candidate to login and show an alert stating that the assessment has expired.

- **Read assessment instructions**

The candidate, post login, should be redirected to a page where they can read the instructions for the assessment. If the assessment author uploaded any PDF/PPT document containing instructions, the system should allow the candidate to view it by opening it in respective viewer within the platform.

- **Take self-snapshot**

The system should allow the candidate (provided that the candidate has a web-cam option) to take and upload a self snapshot that will be used to validate the candidate's identity who is attempting to take the assessment.

- **Take mock assessment**

The system should have a provision to take a mock assessment to get the candidates acquainted with the PEA platform. This test should contain at least one example of all the question types in the platform.

- **Attempt actual assessment**



The system should allow the candidate to show all the sections and respective questions in the assessment that the author has finalized. Detailed below are the features:

- The timer should start as soon as the candidate begins the test, and the system should show the duration remaining at all times on the screen
- The candidate should be able to shuffle between various sections of the assessment
- The candidate should be able to answer questions/scenarios as per the options/text area provided
- The candidate should be able to review his answers, and the system should show all the questions that he is yet to attempt in the assessment
- The system should show the total questions, the questions attempted, and the questions remaining at the top of each of the assessment sections
- The system should automatically submit the assessment when the assessment time limit is over. However, the system should alert the candidate 15 and 5 minutes before the assessment is set to submit automatically
- System to track the idle time, i.e., the time when there is no on-screen cursor activity by the candidate. However, the same should not be shown to the candidate, and it is for the recruitment members to view.
- Restrict candidate to take screenshots and print screens  
The platform should not allow the candidate to take screenshots and print screens of any platform screens, nor should it enable the candidate to copy or paste any text from/to the platform.
- The platform should auto-save all the answers written by the candidate every 2 seconds, which should be mentioned in the assessment instructions.

- **Submit assessment**

The candidate should be able to submit the assessment, and the system should alert the candidate before performing this action.

### 3.2.4 Business Process Flow - Supervisor Module

- **Login**

This section is primarily aimed at the business manager or the interview panel members, and the users belonging to such roles will be able to directly login to the Professional

Assessment Platform owing to the SSO integration of the platform with an organization's active directory/domain.

- **Dashboard widgets**

The admin, post login, will be redirected to the dashboard containing the following widgets

- Notifications: This widget will give the admin the notifications for the scenarios when:
  - Users are 'granted' roles on the platform i.e., changing role from 'None'
  - User's roles are 'changed'
  - Users access is 'revoked,' i.e. changing the role to 'None'
- Assessment shared: Assessment-wise numbers of the user with whom the assessment is shared.
- Assessment attempting: Assessment-wise numbers of the users who are attempting the assessment
- Assessment completed: Assessment-wise numbers of the users who have completed the assessment
- Assessment cleared: Assessment-wise numbers of the users who have cleared the assessment.
- Assessment Failed: Assessment-wise numbers of the users who have failed the assessment
- Yet to take the assessment: Assessment-wise numbers of the users who are yet to take the assessment and their due date has not elapsed
- Assessment shared but not attempted: The number of users who have yet to take the assessment and their due date has elapsed. It should be noted that such reports are time-bound.

- **Manage Users**

The admin is the sole role that could manage users, and detailed below are the functions that the admin should be able to exercise under this section:

- a) **Users List**

The system will show all the users who belong to the organization's active directory/domain and the respective 'email ID' and their 'role' on the tool. Each of the records in the list will have an edit icon. Clicking on a candidate name will take the admin to the view user details page.

This page will also have a search bar where the user can search for specific user/s with their partial or full name and email id. Additionally, a filter functionality will allow the user to filter assessments by their 'role'.

#### **b) View roles/permissions**

Clicking on a user's name on the list page will take the admin to a page that shall contain the user's details like:

- User's full name
- Email ID
- Designation
- Role within the PEA platform

#### **Business Rules**

By default, the role that is assigned to any user is 'None'

#### **c) Edit roles/permissions**

Clicking on the edit role button on the user details page will take the admin to a page where they can edit and assign a new role to the user. The available roles are:

- Assessment Panel
- Recruitment
- Supervisor

#### **• Manage Assessments**

This section contains the below-detailed sub-sections:

- **Assessments listing**

The system will show all the assessments that have been created by all the assessment panel members/business managers in the listing to the logged-in admin in a list view format along with the respective 'assessments creation date' and 'assessment skills'. Each of the records in the list will have an 'Edit Assessment' and 'Delete Assessment' icon. Clicking on an assessment name will take the admin to the view assessment page.

On the top right of the list, the system will show an 'Add Assessment' button, which, when clicked, will take the admin to the page where the admin can add a new assessment.

This page will also have a search bar where the admin can search for specific assessment/s with its partial or full name. Additionally, a filter functionality will allow the admin to filter assessments by 'assessment skills'.

### **Business Rules**

An admin should be able to view/edit all the assessments (within their respective organization only) irrespective of whether they have created them or not.

However, an admin should edit/delete only those assessments that are only saved and not submitted. The system will not show the edit button beside submitted assessments.

It should be noted that submitted assessments could be deleted (only by the admin), and once deleted, they will cease to be available for selection. The system should alert the admin and ask for confirmation before deleting assessments.

#### **○ View assessment**

Clicking an assessment name on the assessments listing page will take the admin to the view assessment page. This is a view-only page, and the admin will be able to view all the sections, questions, and the respective answers of an assessment without being able to make any changes.

#### **○ Create new assessment**

Clicking on the 'Add Assessment' button on the assessment list page will take the admin to the add assessment page, where the user can add a new assessment.

This page will first ask the user the name of the assessment being created and allow the user to save the name. The assessment, once saved, will be available for editing. The creation of an assessment is divided into various sections, and they are described below:

- **Assessment Instructions**

Here the admin can either select to have pre-defined instructions for the assessment being created or create a new set of instructions altogether. Selecting the option to create new instructions should open up a text area where the user can write and format the new set of instructions. Additionally, the admin should have an option to upload a PDF/PPT document containing instructions.

- **Assessment Settings**

In this section, the admin sets the difficulty level of the assessment being created as 'Easy', 'Average' or 'Difficult'. Also, the system allows to define the overall cut-off percentage, overall completion time, and the assessment level (Fresher, Junior, Experienced, Manager, Senior Manager, Leadership) on this page. The system should have appropriate radio buttons/text boxes as defined by the settings.

- **Assessment Sections**

Each assessment is divided into different sections (like comprehension, technical, reasoning etc...), and the platform should allow the admin to create those sections here. Also, each section should have a text box to allot a specific percentage (i.e., how many parts they cover of the complete assessment) and respective cut-off percentages needed to clear this section.

- **Assessment Questions**

Each section created above will contain the assessment questions, and the admin can either create new questions or select existing questions.

However, before creating the question, the user needs to select the skills against which the questions need to be created (Business Analysis, Project Management, Testing, Java, PHP, etc.) through a dropdown. Also, if a skill is not available, the system should allow the user to create one instantly.

Then, suppose the admin selects the option to 'select existing questions'. In that case, the system should allow the admin to do so by opening a utility that shows all the existing questions (populated based on the skill selected) with a checkbox beside each one of them. Checking these checkboxes will have the system import them (along with the answers) to the assessment being created.

Alternatively, an admin may select the option to define a new question, and then the system should populate the below choices for the admin to choose:

- Scenario
- Reflect
- Research
- Step by Step Planning
- Short text response
- Paragraph response
- Dropdown
- Multiple choice, single answer
- Multiple choice, multiple answers
- Multiple choice matrix
- Fill in the blank, drag and drop
- Reorder
- Classification
- Image annotate
- Draw on image
- Decision tree

The system should allow the admin to define the question based on the selected question type and add the respective answers as well. Also, there should be an 'Add question' button that will allow the admin to add more questions.

Each of the questions created by the user will have an option to add customized scoring/weightage to questions and delete the questions as well.

Note – Each of the questions created by the user will have an additional checkbox reading 'Add to question library'. This checkbox, when checked, will signal the system to add all those questions to the existing questions library against the defined skills. However, this action can only be performed after the questions are finally submitted.

All the questions added to the questions library can then be imported while creating future assessments.

### **Business Rules**

1. Imported questions cannot be edited.

2. If the delete button is pressed against an imported question, it will just get removed from the created assessment.
3. The system should make sure that weightage to the questions should add up to 100% for every section within the assessment
4. Either customized scoring or weightage can be selected at a time (but not both) – there should be an internal algorithm for performing the underlined calculations.

- **Save assessment**

This function will allow the user to save the assessment for further review/edit.

- **Preview assessment**

The system should allow the admin to preview the assessment, and the preview mode should display the assessment precisely as it should be displayed to the end-user/candidate.

- **Submit assessment**

Submitting the assessment is an irreversible activity that will finalize (freeze) the assessment, and no further editing can take place against that assessment.

- **Manage Candidate**

This section is to manage the candidates and contains the below sub-sections

- **List candidates**

The system will show all the candidates that have been created in the system in a list view format along with the respective 'candidate creation date', 'email ID', and 'key skills'. Each of the records in the list will have edit and delete icon. Clicking a candidate name will take the admin to the view candidate details page.

On the top right of the list, the system will show an 'Add Candidate' button, which, when clicked, will take the admin to the page where the admin can add a new candidate.

This page will also have a search bar where the admin can search for specific candidate/s with their partial or full name. Additionally, a filter functionality will allow the admin to filter assessments by 'key skills'.

## **Business Rules**

An admin should be able to view/edit all the candidates that she (logged in admin) or any other admin with a recruitment role has created.

### **○ Add Candidate**

Clicking on the 'Add Candidate' button on the candidate list page will take the admin to a page containing a form, filling which the admin can create a new candidate on the system. Below are the fields available on this form:

- Full name\* – text box
- Email id\* – text box
- Phone number\* – text box
- Age – calendar/text box
- Gender - dropdown
- Marital Status - dropdown
- Nationality – text box
- Key Skills\* – dropdown [there should be a way for the admin to add a missing skill on the fly, and that skill should come in the dropdown as well as filter on the dashboard]
- Experience\* - dropdown

### **○ Select and view candidate details**

Clicking on a candidate's name on the candidate list page will take the admin to a page where he can view the candidate's details in a read-only format. Here, the admin can additionally view candidate's snapshots (if attempted assessment and captured snapshot) and their assessment status (completed, in-progress, yet to attempt).

### **○ Edit Candidate details**

Clicking on an 'Edit candidate' icon against a candidate on the candidate listing page will take the admin to the edit candidate page. Here, the logged-in admin can edit all the details against the candidate apart from candidate's snapshot and assessment status.

### **○ Delete candidates**

Deleting the candidate will delete the candidate and all his information from the system.



## **Business Rules**

The system should alert the admin and ask for confirmation before deleting a candidate.

### **○ Invite candidates for assessment**

This function will allow the admin to invite a candidate for assessment by first selecting the skill from a dropdown. Based on the chosen skill, the system will populate all the submitted assessments in a dropdown. The post-assessment selection system will allow the candidate to select the date and time until the assessment is valid or the number of days from the invitation.

The invitation email that the system will send to the admin's email id should contain the link to the platform, ID, and password to access and the assessment validity date or the duration.

## **Business Rules**

A candidate should not be able to attempt an assessment post the assessment validity and show an alert stating that the assessment has expired.

### **• Review performance and track candidates**

This section will allow the recruitment members to review candidate's performance and track them constantly. There should be a screen where the system will list down all the candidates (with the same function as that of the list candidate page), and selecting a candidate should display:

- their details available on the system
- their overall and section-wise scores
- assessment attempt time
- idle time

There should be a provision for the user to view the complete assessment that the candidates have worked upon, the answers they have selected vs. the correct answers, and the questions they failed to attempt. Also, the system should show percentile scores and median scores of the candidate compared to the other candidates who have taken the same assessment.

On the same page, there should be a provision of tracking the audit log against that candidate and should contain the following sections:

- User name – the user name with which the candidate has logged in

- Logged in IP – the IP with which the candidate has logged
- Login date and time
- Login browser

- **Logout**

Clicking this button will log the admin out of his existing session of the PEA platform, and any unsaved changes will be lost.

### **Business Rules**

If there are any unsaved changes, the system should alert the admin and ask for their confirmation before logging out.

## **3.3 Wireframes/Prototype**

*The prototype creation is currently underway, and the design team will share the same post review and sign-off.*

## **3.4 User Interface Requirements**

- a) The application's user interface should be intuitive and straightforward. The position of the buttons and menu items should be as per the prevalent industry norms (like having the user profile, settings, and logout on the top right side of the application header).
- b) The layout, graphics, and color scheme should be consistent for all the user types, and the user experience throughout the complete application should be seamless. Additionally, all the interface elements (buttons, lists, slider, pagination, icons, tooltip, message box, modal windows, etc...) should be predictable and should blend with the overall application design.
- c) The application should be responsive and adapt itself based on the screen size being viewed, extending its usability across all devices.
- d) Wherever required, contextual help icons should tell more about the page or the specific functionality when they are clicked over.
- e) The system should communicate what is happening, and there should be pop-ups, alerts, notifications, and toasters for all the actions executed by the user.

## 4. Use Cases

### 4.1 Use Case – Assessment Panel – Login

This user story covers the functionality of a user logging into the PEA platform

Use Case ID	Use Case Name
<b>Pre-condition(s)</b>	The user should be on the login page of the PEA platform
<b>Post-condition(s)</b>	The user should successfully login and be redirected to the dashboard of the PEA platform
<b>Actor(s)</b>	Assessment Panel members
<b>Main flow of events</b>	<p><b>1.1</b> Once the user arrives on the login page, the autofocus/cursor should automatically be set on the email field. This mandatory field is a text box that will accept the registered email id of the user attempting to login.</p> <p><b>1.2</b> Only the user clicks on the Login button, the system will validate that the inputted email ID is a valid, registered email ID available in the database. However, if the email id is not found in the database as a registered email id, the system will show an alert message reading.</p> <p><b>2.1</b> This Password field is a text box that will accept the password associated with the user's entered email id. The password entered by the user will be hashed with an asterisk, and the user will not be able to see the characters typed in this field.</p> <p><b>2.2</b> The system will match the password entered by the user with the email id written in the email field. If the password entered by the user was found to be incorrect, the system would display a message reading</p> <p><b>2.3</b> If both the email ID and password match, the system will allow the user to log in to the application and display the dashboard page.</p> <p><b>3.1</b> The login button, when clicked, will validate the email and password entered in the respective fields, and if successfully authenticated, the user will be allowed to login to the PEA platform and redirected to the dashboard.</p>

	<b>3.2</b> Below the login button, the system will have links for 'Forgot Password', which, when clicked, will take the user to the respective flow.
<b>Alternate/extension flow</b>	User clicks the 'Forgot Password' button and is taken to the 'Forgot Password' screen where she can reset her password
<b>Exception flow</b>	The user enters the incorrect password consecutively five times, and her ID gets disabled for the next 24 hours
<b>Related use cases</b>	Login - Forgot Password
<b>Additional Information</b>	As a security best practice, the login user should not be disclosed whether the email or the password is incorrect

### a) Field level specifications

Field Label	UI Control	Mand?	Editable	Data Type	Value Set	Default Text
Email	Textbox	Yes	Yes	Email	None	Email here
Password	Textbox	Yes	Yes	Alphanumeric	None	Password here

### b) Business Rules and dependencies

Field Label	Business Rules	Error Messages	Data Dependencies
Email	Entered email id is not found in the Acme's user database as a registered email id	Sorry, either the email or the password is incorrect	No
Password	Entered password should match the password available against the user in the database	Sorry, either the email or the password is incorrect	No

### c) UI elements

Type	On-click Event	Other Events	Enabled / Disabled	Navigate To	Validation
Login Button	Allow the user to		Stay grey and disabled (not clickable) until	Application Dashboard	Verify if both the user ID and

	login into the application if		both the email and password fields contain values		password are correct
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## 5. Non-Functional Requirements

Elucidated below are the different sections that detail the non-functional requirements within the application.

### 5.1 Performance Requirements

Since it is an application that is used by both internal (evaluation panel, recruitment team, and supervisor) and external (job applicant) users, the overall performance of the application should be optimal and seamless.

Desirable performance-related aspects of the application are:

- The application, since being web-based, should be able to run on all the internet networks having a bandwidth equal to or greater than 1 Megabits per second (Mbps)
- The application is expected to perform consistently while operating below the peak load conditions (defined below), and in cases of peak load, a 'toaster' shall be displayed alerting the user about possible impacts to performance
- Load definition – At any given point, the average load on the Application for Acme Corp could be 200-300 internal and 500 external users. However, the application should also be robust enough to handle the 'peak load' of 600 internal users and 1000 external users
- The response time for all the CRUD (Create, Read, Update, and Delete) operations within the application should be within the range of 2-5 seconds, with 5 seconds being the maximum acceptable
- In the case of user-initiated reports, the complete turnaround time for the entire report to be generated should not be longer than 8 seconds
- In case of any maintenance-related activities, the system outage should not be longer than 90 minutes. Also, such outages shall be planned during non-business hours, and all the users within Acme Corp using the application should be communicated well in advance.

The system shouldn't allow job applicants to perform assessments during the outage period and show them a toaster about the scheduled outage.

- The application should be scalable and should be able to handle a gradual increase in application load if additional hardware/computation processors are added
- The system should continuously monitor the disk space utilization and CPU utilization of the servers and send alerts to designated users in case the respective utilizations increase beyond 80%

## 5.2 Usability Requirements

- The application should have a clear, structured layout with the main modules represented in the application's main menu header. The interface should be intuitive, easy to navigate with the headings, and labels simple to understand. Also, the UI should appear sleek and easy to comprehend without making it difficult for the users to figure things out.
- There should be a dedicated 'Help' button for each of the main modules explaining all controls and fields on that screen.
- The performance should be within the acceptable limits with the page load time not greater than 2 seconds (in case of memory-intensive tasks or any operations taking more than 2 seconds, the 'Please wait' message should be shown on the screen).
- In case of issues and exceptions, the error message should contain sufficient information to help the user understand the problem and what needs to be done next.

## 5.3 Security Requirements

The application should enforce strict security norms and processes covering the following points:

- The application should validate the ID and password of the users, and only users with valid credentials are allowed to login
- In the case of 3 wrong ID/password combinations, the users should be locked out of the application
- The roles and permissions should be defined for each of the users
- Once logged in, the users should see only the modules which they are allowed as per their roles and respective permissions
- The system should take a comprehensive daily backup covering the application users, evaluations, job applicants, and answers by the job applicants along with other application parameters
- The system should take measures to control any threats that steal sensitive information/data from the system, manipulate data or cause disruption of services
- The application should be subjected to stringent Vulnerability Assessment and Penetration Testing (VAPT) to assess the vulnerabilities of the system being developed. Based on the test reports, relevant actions should be taken to ensure application security.

## 5.4 Training Requirements

Once the application is fully developed and thoroughly tested, a support team should be trained regarding the complete usage of the application and troubleshooting against common application errors. This support team will assist the users if they face any issues while using the application and at times perform some of the tasks on behalf of the internal and external users

## 5.5 Recovery Requirements

Disaster may be regarded as any natural or human-made event that impacts the existing application services, operating system, infrastructure, or any other component that hinders the performance and normal functioning of the application and its services.

- In case of a disaster, there should be a provision of switching the complete infrastructure to a backup system that ensures that the application and its services remain operational. All the technical and functional details of the backup system and procedures that should be followed in case of a disaster should be maintained in a disaster recovery (DR) plan. The plan should adhere to the following tolerance levels:
  - Acceptable limits of data that could get lost in the event of a disaster should not be more than 24 hours' worth of data.
  - Acceptable limits of time the business can be without the service, without incurring significant risks or significant losses is 18 hours.
  - When the system is operating out of a backup system, the performance degradation tolerance limits are within 70-80% of the peak performance.
- A disaster recovery mock drill should run every six months to ensure that the team is aware of what procedures to follow in case of disasters, and the DR drill logs should be documented.



## 6. Other Requirements

### 6.1 Hardware/Software Requirements

*This section is to be filled after obtaining the necessary inputs and details from the technical teams.*

### 6.2 Quality Control and Testing Requirements

To ensure that the quality of the application being delivered is of high standards and is acceptable by the business, the following are the activities that should be performed:

- The scope of the testing activities is to cover the complete set of functional as well as non-functional requirements (as it shall be defined in the respective use case documents) along with the performance, usability, and security-related aspects of the application
- The testing should cover system testing (ST), module-level testing (MLT), integration testing (IT), and user acceptance testing (UAT)
- The majority of the application is to be manually tested. However, some of the functionalities that consume a considerable testing time and are heavily used (like the creation of assessment, etc.) should be automated for testing purposes. However, the decision regarding the same shall be taken after obtaining a consensus amongst the project stakeholders.
- Test (QA) environment should be a replica of the UAT environment
- To perform stress/load testing, there should be a provision to emulate the conditions of the system under optimal load (80% of the peak load) and full load.
- All the test data and system test cases prepared against each use case should be thoroughly reviewed by the business/SME and executed only after the respective sign-offs.
- Proper defect tracking (through a dedicated bug tracking tool) to ensure that all the issues found during tested are appropriately logged, tracked, and closed.
- Weekly 'test execution reports' and 'defect summary' to be shared with the business. The reports should also contain test execution coverage for the week, the error density, and listing of defects.
- Every sprint release should accompany the respective 'release notes' by the quality team detailing the extent of testing performed over the released build as well as the underlined issues/bugs that are still present in the release.

## 6.3 System Maintenance and Additional Requirements

Requirements that define some of the other aspects of the application are discussed below.

### 6.3.1 Project management requirements

- a) The project should be managed in an Agile-based project management methodology while following a 'Scrum-based' framework. It is suggested that the sprint duration should not be more than 3 weeks, and every sprint should have a proper planning session, followed by a sprint retrospection.
- b) All the significant aspects of the project, like project management, business analysis, and application testing, should have their individual plans detailing how the underlined activities have to be organized, managed and controlled.
- c) Tasks and deliverables for every sprint should be prioritized with the business/SME—also, the estimates for the deliverables and sprint capacity to be discussed.
- d) Each sprint is to be followed by a demo of the tasks/functionalities achieved over the course of the sprint to the business. The sprint velocity and burn-down charts to be made available at the end of the sprint to discuss the sprint performance.
- e) Post completion of all the sprints, the final UAT will be performed by the business, and the respective feedback shall determine the Production (Go Live) date.

### 6.3.2 Reporting requirements

The project manager should share the Weekly Performance Report (WPR) with the business detailing what all activities were scoped for the week, their respective status, and any risks or impediments around the same,

Additionally, there should be a weekly status review call and a monthly governance call with the key project stakeholders and the business to assess the performance and discuss any corrective or preventive measures.

### 6.3.3 System maintenance

The team shall provide support and maintenance of the production system post the deployment and Go live. This support shall include the following items:

- Issues/bugs with the deployed functionalities

- End-user issues
- Login/access-related issues
- Performance concerns
- User interface/responsiveness issues
- Security threats and vulnerabilities

### 6.3.4 Resource/workforce requirements

The team working on developing the product should have the following suggested strength and experience:

Role	IT Experience (in years)	Strength
Project Manager	12+	1 (max.)
Business Analyst	5+	1
Technical Lead	8+	1 (max.)
Sr. Developer	4+	3
Developer	2+	4
Sr. Application Tester	5+	2
UI Designer/ Developer	3+	1

## 7. Risks

- a) The team may be late in picking up any new technology used in the project, and it might impact the timelines
- b) The new developers may not join on time which may cause a delay in rolling out project deliverables
- c) Uncontrolled changes to the project scope/lack of change management may result in scope creep
- d) Some of the functionalities may not be thoroughly analyzed and may result in an increase of scope in future
- e) The requirements might be poorly defined, limiting the level of understanding the development/testing team has
- f) Developing functionalities without obtaining a sign off on their exact functionality might result in rework
- g) Assumptions assumed around the project start may turn out to be false
- h) There may be a lot of dependency on a single/handful of resources, and unavailability of the resource might cause a bottleneck situation
- i) Any changes to the project scope/requirements will impact the existing development schedule and will result in the delay of deliverables roll out

## 8. Completion Criteria/Exit Criteria

Detailed below are the acceptance criteria defined for each sprint under the development cycle. The sprint should be assessed for conformance to the below criteria to be accepted by the business:

- The functionality and tasks to be covered in the sprint should be discussed, prioritized, documented, and signed off for their implementation.
- The development team members should do a thorough unit testing of the functionality and follow proper code guidelines and coding best practices
- The code should be subjected to a manual review by the technical lead, followed by an automated 3rd party application review. The code review and conformance report shall be attached, along with the sprint release notes.
- Based on the signed-off functionalities, the test cases shall be prepared, reviewed, and signed off by the SMEs/Acme corp stakeholders. The test execution reports and defect summary shall be shared along with the sprint release notes.
- For a sprint to be accepted, the test execution span for a sprint should be no less than 95% of the functionalities planned for that sprint.
- For a sprint to be accepted, the defect density should not be higher than 2% (2 defects per 1000 lines of code). Also, there shouldn't be any severity 1 bugs in the release, the number of severity 2 bugs should no higher than 6, and the number of severity 3 bugs should not be greater than 10.
- For UAT to be accepted, there shouldn't be any severity 1 and severity 2 bugs in the release, the number of severity 3 bugs should no higher than 5.

## 9. Appendix

Document Details	Location
Project vision document	Project's Share Drive
Requirement Management Plan	Project's Share Drive
Process_flow.png	Project's Share Drive
Staffing_Process.pdf	Project's Share Drive
Evaluation_List.pdf	Project's Share Drive
Project Management Plan	Project Management Office Directory
Configuration Management Plan	Project Management Office Directory
Issues_and_Conflict_Tracking_Log	Project Management Office Directory
Weekly Status Reports	Project Management Office Directory
Technical Design Document	Project's Share Drive
Module_Estimations.xls	Project's Share Drive
Sprint_Plans.doc	Project Management Office Directory