

Niramaya

Feature PRD

Assessments Module

V2.0

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Glossary/ Acronyms

CB	Capacity building
FRAC	Framework of Roles, Activities and Competencies
iGOT	Integrated Government Online Training
MCQ	Multiple choice questions
PIAA	Proctored independent, authorised assessment
PRD	Product requirement document
QR	Questions repository
QR_C	Questions repository contributor
QR_M	Questions repository manager
SOP	Standard operating procedure
UPTSU	Uttar Pradesh technical support unit

1. Overall Purpose and Vision

The scope of the document is to define the purpose and functionality of the knowledge based assessment tool for assessing the competency proficiency levels of individual candidates, specifically in knowledge. It lays out detailed users, functional requirements with flows. It also defines the desired outputs of each functionality. The document also details out how the self assessment and proctored assessment modules will interact and communicate with other digital systems. The assessment is part of PIAA (proctored, independent, authorised assessment) which is used for identifying the competency proficiency levels of candidates for all competencies that the participants require.

The document is designed by the UPTSU team for technical partners, and vendors to clearly understand the requirements of the knowledge based assessment tool.

2. Project scope

The module will enable creation and conduction of written and objective competency linked assessments in two setups:

1. Self assessment for the candidate to practise and gauge whether they have attained the competency levels mapped to their roles or position
2. Proctored, independent, authorised assessment (PIAA) in a designated PIAA centre to maintain credible competency levels attainment records for candidates and to provide inputs to the verifiable resume / competency passbook of each individual

Assumptions and dependencies

1. A competency directory, mapped with each position, role and activity is ready to refer for Assessment composition
2. Databases like list of PIAA centres ; PIAA setter; mapping of assessment process owners and other system users is available when setup starts

3. Overview of use case and interface requirements

The MCQ based assessment tool will have 6 roles namely;

#	Role	Entities
1	Question repository contributor (QR_C)	Faculty, Independent User, Regulatory Body
2	Question Repository Manager (QR_M)	Faculty, Independent User, Regulatory Body
3	PIAA Setter	Faculty, Independent User, Regulatory Body
4	PIAA Nodal	Faculty, Independent User, Regulatory Body
5	Candidate	Student, Working professional

6	Assessment Admin	Regulatory Body
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4. Nouns:

1. Blueprint: Parameters that define a question set
2. Question Sets: Smallest unit of a collection of questions
3. Question bank: Collection of all questions in all question sets
4. Assessment package: Dynamically generated assessment that a candidate attempts
5. Contributor: Creator of questions within question sets
6. Reviewer: Reviews questions within question sets
7. PIAA Centre: Centre where competency-based assessments can be attempted
8. PIAA Nodal: Supervisor of assessments in a PIAA centre
9. Candidate: Individual taking a self/PIAA assessment
10. Admin: Regulator sourcing questions, adding roles and permissions, adding blueprints, & approving assessments

5. Noun verbs

1. Questions - Create (QR C), Review (QR M)
2. Blueprint for Question paper - Create (PIAA setter)
3. Assessment Package - Compose (PIAA Setter), View(PIAA Setter), Administer(PIAA Nodal)
4. Self Assessment- Select (candidate), Attempt (Candidate), Submit (Candidate)
5. Proctored Assessment (PIAA) - Select (PIAA Nodal), Administer(PIAA Nodal), Attempt(Candidate), Pause(Candidate), Submit (Candidate), Abort(PIAA Nodal), Reject (PIAA Nodal), Review(Assessment Admin)
6. Verifiable credentials - Create (Assessment Admin), Issue (Assessment Admin), View (candidate)

Based on the requirements, some of the use cases for users are listed below.

S.No	Use Case	Description	User Role
1	Proposes competency level wise questions to questions repository	As a QR contributor, I am able to record and propose various types of questions in the questions repository linked to competency levels. I should also be able to add a tag of "PIAA only" to each question. PIAA tagged questions will only appear in the proctored assessment packages.	Question Repository Contributor
2	Review questions: Edit, approve or reject	As a QR manager, I can view proposed questions, and reject or accept the questions	Question Repository

	questions	proposed.	Manager
3	Manages and maintains question repository	As a QR manager, I review questions, and I am able to approve previously rejected questions or disapprove previously approved questions	Question Repository Manager
4	Compose assessment blueprints for various roles and cadres in public health	As a PIAA setter/Admin, I am able to create a blueprint for assessment based on the below three criteria: 1) Competency & levels 2) Question Type 3) Number of questions of each question type	PIAA Setter/Admin
5	Compose an assessment package	As a PIAA Nodal, once I have selected an assessment blueprint, I should be able auto-generate an assessment package, in which randomised questions with the "PIAA only" tag get populated as per the blueprint criteria	PIAA Nodal
6	Initiate assessment session for candidates and facilitate	As a PIAA Nodal, I am able to assign assessment packages to different candidates and, I should be able to write comments about the assessment session	PIAA Nodal
7	Attempt a practice self assessment	As a candidate, I am able to select any of the available blueprints from the directory, generate a self assessment package and attempt a self assessment in a timed manner. I am also able to view the results.	Candidate
8	View and download certificate	As a candidate, I am able to view and download certificates for the PIAA assessments I have taken so far	Candidate
9	Review assessment session, results and issue certificates to assessment takers	As an Assessment admin, I am able to review assessment sessions, view results and issue certificates to the assessment takers	Assessment Admin

Versioning

Use case #	Description	Version
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1	<p>Proposes competency level wise questions to questions repository</p> <p>Question type: MCQ Single select Question type: Multiple choice questions – Single/Multi MCQ type , One-word answers, Fill in the blanks, Short/long answers, Case study-based questions, Match the following</p>	v1 v3
2	<p>Review questions:</p> <p>Approve or Reject questions Edit questions</p>	v1 v3
3	<p>Manages and maintains questions repository</p>	v2
4	<p>Create assessment blueprints for various roles and cadres in public health</p> <p># of questions by competency levels # of questions by question type</p>	v2 v3
5	<p>Administer assessment session for candidates and facilitate</p> <p>PIAA Nodal opens the assessment blueprint on a desktop computer and assigns it to a candidates Candidates can attempt PIAA assessment</p>	v1 v2
6	<p>Attempt a self assessment</p> <p>Timed</p>	v1
7	<p>View and download certificate</p> <p>View and download assessment certificate View and download certificate with assessment scores (PDF) View and download verifiable competency certificates</p>	v1 v2 v2
8	<p>Review assessments, evaluation of results, issue certificates</p>	v2

Use case details by user

A. Question Repository Contributor

Use case 1: Proposes competency wise questions to questions repository

1. QR contributors log in with Unique user id and password
2. The home page will include two tabs namely 'Create questions' and 'View questions'
3. The home page will display the following metrics (v3)
 - I. Number of questions created
 - II. Number of questions approved
 - III. Number of questions rejected
 - IV. Number of questions pending review
4. When QR contributors click on 'Create questions', a dropdown of position and competency directory will be shown to select competency level (Position-Competency-Competency level). Once the competency level is selected, a window to record the question body, options and correct answer input will be provided. Question body may contain pure text, text and image or only image also. This can be the method for adding one question at a time. For the v1, only single-select MCQ type questions can be added.
5. For a set of questions, a QR contributor is able to upload a set of questions in the repository in a specific format (csv) defined by system admin by clicking on 'Upload questions' CTA in the 'Create questions' page
6. The QR_C can see the questions created in the 'View questions' tab
7. On adding questions, the QR_C gets options to either 'Save' or 'Submit for Review'
8. The questions will be displayed along with any one of the following status
 - I. Approved
 - II. Sent for review
 - III. Pending review
 - IV. Rejected
9. The questions will also have CTAs to send for review, or delete the questions
10. The user will not be able to delete those questions which have their status as "Pending review"
11. The QR_C cannot resubmit questions which have been rejected
12. QR_C can click on the 'Send for review' CTA against a question to send it for review. QR_C can also multi-select the questions and submit them for review.

Types of Assessment questions (v2) :

The written assessments for competencies may use various types of items. A pop-up will be displayed while the QR_C is creating questions where they can select the type of questions. These types of items in the assessment item bank can be:

- A. Multiple choice questions – Single/Multi select: using text/ images
- B. One-word answers, Fill in the blanks
- C. Short/long answers
- D. Case study-based questions
- E. Match the following

The selection of a particular/ mix of question types for an assessment blueprint is a choice of the PIAA setter. The question repository will have all types of questions mapped to each competency and competency level. For the first two types of questions (MCQs and one word/ fill in the blanks) the mapping to a particular competency and competency level will be 1:1. For the others, it might be 1:many

B. Question Repository Manager

Use case 2: Review questions: Approve or Reject questions

1. QR manager logs in with Unique user ID and password. On successful login, the user would be able to see the home page with the following tabs; 'Review questions' and 'Manage reviewed questions'
2. The home page will display the following metrics (v3)
 - I. Number of approved questions
 - II. Number of questions pending review
 - III. Number of rejected questions
3. Once the QR_M clicks on 'Review questions', all the questions appear for review. This list will have multiple options to filter/sort based on position, roles, competency and competency levels, and question type.

Use case 3: Manages and maintains questions repository

1. On clicking on the 'Manage reviewed questions' tab, the list of questions which have been approved and rejected by the specific QR_M will be displayed
2. QR_M will have the option to multi-select questions and edit their status - i.e., previously approved questions can be rejected and vice versa

S. No	Functionality	User
1	Propose competency level wise questions to questions repository & add "PIAA only" tags to questions	QR contributor
2	Review questions : Approve or Reject questions	QR Manager
3	Manage and maintain question repository	QR Manager

C. PIAA Setter/ Admin

Use case 4: Compose assessment blueprints for various roles and cadres in public health

1. PIAA/ Admin setter logs in using unique user id based login and password
2. The PIAA setter/ Admin creates an assessment blueprint by tagging competency levels.
3. The PIAA setter/ Admin adds attributes and tags to the assessment blueprint
 - a. Name of assessment
 - b. Description
 - c. Mode - self assessment vs PIAA
4. Further, the PIAA setter/ Admin adds additional tags to the assessment blueprint by selecting a set of competency levels (dropdown) from the competency directory. The competency directory will only reflect those competency levels which are applicable to the position selected by the PIAA Setter/ Admin in the previous step
5. The platform will list all the questions applicable to the competency levels of a position
6. The PIAA setter/ Admin will define the assessments blueprint:
 - a. Blueprint will include - # of questions by competency levels (version 2 to also include # of questions by question type)
 - b. Based on the created blueprint, an assessment package will be composed (if such an assessment package is for self assessment, then it will exclude "PIAA only" tagged

questions)

- c. System will pick randomly during conduction of the assessment from locked questions only as per the defined blueprint
7. Once an assessment blueprint is finalised and made live, it will be visible to the relevant positions for self practice assessment and to the PIAA Nodal for those positions
8. Homepage will have all assessment blueprints– draft-in-process, finalised but not live and currently live. PIAA setters/ Admin will be able to remove assessment blueprints from live, edit assessment blueprints and delete existing blueprints at any stage.

D. PIAA Nodal

Use case 5: Initiate assessment session for candidates and facilitate

1. PIAA nodal logs in with unique ID and password based login - Authentication of candidate will be handled offline.
2. The PIAA nodal is able to see all live and PIAA tagged assessment blueprints on the home screen with positions and competency levels tagged for each blueprint
3. The assessment blueprint can be started as follows:
 - a. Individual - PIAA nodal selects the assessment blueprint on a desktop computer and assigns it to a candidate
 - b. The candidate log in to their account, and access the assessment under the “PIAA Assessments” tab
 - c. Batch start can be part of Version 2
4. Once the assessment goes live, the candidate is shown an instructions page and the timer for the assessment starts once the assessment taker presses ‘Okay’
5. The assessment should allow moving from one question to another, to edit responses and to move back to earlier questions to review / update answers.
6. The PIAA nodal can abort, reject assessment for any assessment taker on the system
7. The PIAA nodal should be able to submit a feedback / issues form after every assessment to be able to submit the data to the admin
8. The assessment taker can provide feedback for the assessment sessions

E. Candidate

Use case 6: Take a self assessment

1. candidate logs in with unique ID and password
2. Once successfully logged in, the candidate has the following tabs/sections on the home page – User profile (editable data fields for the individual. Mandatory on first login) ‘Self assessment’, ‘PIAA Assessment’ and ‘View Certificate’
3. By clicking on the self assessment tab, the list of available assessment blueprints for that position are displayed, by clicking on the blueprint, the competency lists being assessed in the blueprint can be viewed.
4. The candidate selects ‘take the self assessment’ for any of the available blueprints and starts the self practice assessment. In v2 an instructions screen will appear before assessment starts.
5. Each time the self practice assessment is triggered for any assessment blueprint, based on the pre-defined composition algorithm, random questions are selected from the question bank and displayed in a random order to the candidate. The questions tagged as “PIAA only” won’t be displayed in self practice assessment
6. Candidate submits their responses to all the questions in the self assessment and submits. Option to review answers, move back and forward on the questions and end test without answering all questions may be provided.
7. Candidates are shown the score achieved and have the option to scroll through the questions with the answer given by them and the correct answer indicated against each question.

Use Case 7: View and download certificate

1. Candidate logs in with unique ID and password
2. Once successfully logged in, the candidate has the following tabs/sections on the home page – User profile (editable data fields for the individual. Mandatory on first login) ‘self assessment’, ‘PIAA Assessment’ and ‘View Certificate’
3. By clicking on the view certificate tab, the candidate will be able to see a list view of the certificates for the assessments they’ve taken so far.
4. The competency level achieved for each competency will be updated based on their score on the most recent assessment they attempted. For example, if a candidate achieves C2L4 on an assessment, and then subsequently achieves a C2L3 on an assessment taken at a later point,

then their competency level will be reflected as C2L3. (v2)

#	Competency level	Date taken	Status of issuance
1	C1L2	01/09/2022	VIEW CERTIFICATE <small>(download icon)</small>
2	C2L3	09/09/2022	In process

- By clicking on the 'View Certificate' CTA, they will be able to view their certificate
- Additionally, there would be an option to download the certificate through a download icon across the particular assessment taken

S. No	Functionality	User
4	Compose assessment blueprints	PIAA setter
5	Initiates a PIAA session	PIAA Nodal
6	Generate and initiate a practice question paper	candidate
7	View and download certificate	candidate

F. Assessment Admin

Use case 8: Review assessments, approving / aborting assessment packages for the evaluation of results

- Admin logs in with unique ID and password
- Admin's home page will have the following tabs: 'Review assessment sessions' and 'Issue certificates'
- The Admin selects the 'Review assessment sessions' tab
- Admin reviews all assessment sessions from issues / comments shared by the PIAA nodal and takes a decision to approve/ abort an assessment session based on the SOPs.

Use Case 9: View results and issue certificates to assessment takers

- Admin logs in with unique ID and password

- Admin's home page will have the following tabs: 'Review assessment sessions' and 'Issue certificates'
- The Admin selects the 'Issue certificates' tab
- This tab will reflect a list view of candidates whose results have been evaluated and generated along with the status of certificate issuance

#	Name of the candidate/ Assessment Taker	Assessment Code	Status of Issuance
1	Sagari	GNM063	<i>Certificate issued</i>
2	Rinkle	ANM023	ISSUE CERTIFICATE

- The admin can find a CTA to issue certificates across the name of each candidate. By clicking the same, a certificate will be generated and issued to the candidate
- The admin will also have an option to multi select/ select all candidates and issue them the certificates upon which the certificate will be issued to the candidates

S. No	Functionality	User
8	Review assessments, approving / aborting assessment blueprints for the evaluation of results	Assessments Admin
9	View results and issue certificates to assessment takers	Assessments Admin

Milestone phasing

#	Category	Phase	Milestones	Dec	Jan	Feb
1	Assessments (Pre and Post Graduation)	Requirements	Define module PRD			
			UI / UX implementation design <i>(based on existing Sunbird framework)</i>			
		v1 Demos	Update program competencies			
			Update assessment blueprint creation flow			
		Enable question creation for assessments				

			Enable question approval flow for assessments			
			Enable v1 process for making proctored assessments live			
			Enable workflows for rendering timed assessments			
			Setup transaction data capture			
			Ongoing testing			
			Feedback from testing updated			