Test Procedure Specification

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1.0 Introduction

1.1 Purpose

The procedure describes the execution of the test case described in Test Case Specification.

For test cases, please refer to the following documents:

I. FR Test Case Specification

1.2 Scope

The following feature is covered in this procedure:

Function ID	Function
F001	Register
F002	Login
F003	Logout
F004	Forget Password
F005	Manage Exam
F006	View Exam
F007	Upload Sample Answer
F008	Upload Student Data
F009	View Student Score
F010	Generate Student Report
F011	Preprocess Image
F012	Extract Answer
F013	Compare Answer to Question
F014	Calculate Exam Score
F015	User Manual

1.3 References

The following IEEE standards have been referenced in preparation of this document:

i. *IEEE* 829-2008 Standard for Software and System Test Documentation.

The following documents provide the test basis for this design:

i. System Design Document

2.0 Test Procedure

2.1 F001 Register

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'Register' page needs to be up and functioning.

Test Procedure ID	TP-01-001
Objective	Verify the "Don't have an account? Register here" button redirects the user to the Register page.
Test Cases To Be Executed	TC-01-001
Set Up	Click the "Don't have an account? Register here" button.
Wrap	None

Test Procedure ID	TP-01-002
Objective	Verify the validation of the new account with correct input.
Test Cases To Be Executed	TC-01-002
Set Up	 Fill in the username. Fill in the email. Fill in the password. Fill in the confirm password.
Wrap	None

Test Procedure ID	TP-01-003
Objective	Verify the validation of the new account when passwords do not match.
Test Cases To Be Executed	TC-01-003
Set Up	 Fill in the username. Fill in the email. Fill in the password. Fill in the confirm password that doesn't match the password.
Wrap	None

Test Procedure ID	TP-01-004
Objective	Verify the validation of the new account when the username already exists.
Test Cases To Be Executed	TC-01-004
Set Up	 Fill in an existing username. Fill in the email. Fill in the password. Fill in the confirm password.
Wrap	None

Test Procedure ID	TP-01-005
Objective	Verify the validation of the new account when the email already exists.
Test Cases To Be Executed	TC-01-005
Set Up	 Fill in the username. Fill in an existing email. Fill in the password. Fill in the confirm password.
Wrap	None

Test Procedure ID	TP-01-006
Objective	Verify the validation of the new account with missing inputs.
Test Cases To Be Executed	TC-01-006
Set Up	 Leave the username field empty. Leave the email field empty. Leave the password field empty. Leave the confirm password field empty.
Wrap	None

2.2 F002 Login

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'Login' page needs to be up and functioning.

Test Procedure ID	TP-02-001
Objective	Verify the login validation with correct credentials.
Test Cases To Be Executed	TC-02-001
Set Up	Fill in an existing username or email. Fill in the correct password.
Wrap	None

Test Procedure ID	TP-02-002
Objective	Verify the login validation with incorrect credentials.
Test Cases To Be Executed	TC-02-002
Set Up	Fill in a non-existing username or email. Fill in the incorrect password.
Wrap	None

Test Procedure ID	TP-02-003
Objective	Verify the login validation with missing credentials.
Test Cases To Be Executed	TC-02-003
Set Up	Leave the username or email field empty. Leave the password field empty.
Wrap	None

2.3 F003 Logout

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'Logout' function needs to be up and functioning.

Test Procedure ID	TP-03-001
Objective	Verify successful logout when the user manually clicks the logout button
Test Cases To Be Executed	TC-03-001
Set Up	User signs into the system User clicks the logout button
Wrap	None

Test Procedure ID	TP-03-002
Objective	Verify proper session termination after a period of inactivity in the website.
Test Cases To Be Executed	TC-03-002
Set Up	 User signs into the system User session remains inactive for the configured timeout period.
Wrap	None

Test Procedure ID	TP-03-003
Objective	Verify logout functionality while logged in multiple devices with the same credentials
Test Cases To Be Executed	TC-03-003
Set Up	User signs into the system using multiple devices parallelly User logs out from one device while remaining logged on another device
Wrap	None

Test Procedure ID	TP-03-004
Objective	Verify behavior when attempting to access restricted pages after logout
Test Cases To Be Executed	TC-03-004
Set Up	 User signs into the system. User clicks the logout button. User tries to access a restricted page after logging out by clicking back or entering url of the restricted page.
Wrap	None

Test Procedure ID	TP-03-005
Objective	Verify session data is cleared upon logout.
Test Cases To Be Executed	TC-03-005
Set Up	User signs into the system. User logs out of the system
Wrap	None

Test Procedure ID	TP-03-006
Objective	Verify logout functionality is accessible and functional across different browsers and devices
Test Cases To Be Executed	TC-03-006
Set Up	 User signs into the system using various browsers (e.g., Chrome, Firefox, Safari) and devices (e.g., desktop, mobile). User logs out of the system using various browsers (e.g., Chrome, Firefox, Safari) and devices (e.g., desktop, mobile). 3.
Wrap	None

2.4 F004 Forgot Password

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'Logout' function needs to be up and functioning.

Test Procedure ID	TP-04-001
Objective	Verify password reset request submission for registered account
Test Cases To Be Executed	TC-04-001
Set Up	User clicks forgot password button User enters registered email address User clicks send email button
Wrap	None

Test Procedure ID	TP-04-002
Objective	Verify password reset request submission for unregistered account
Test Cases To Be Executed	TC-04-001
Set Up	User clicks forgot password button User enters unregistered email address User clicks send email button
Wrap	None

Test Procedure ID	TP-04-003
Objective	Verify password reset request submission for invalid email
Test Cases To Be Executed	TC-04-001
Set Up	User clicks forgot password button User enters email address of an invalid format User clicks send email button
Wrap	None

Test Procedure ID	TP-04-004
Objective	Verify expiration of password reset link after a certain period.
Test Cases To Be Executed	TC-04-002
Set Up	User clicks forgot password button User clicks the verification link after the expiration time limit.
Wrap	None

Test Procedure ID	TP-04-005
Objective	Verify security measures against unauthorized password reset requests
Test Cases To Be Executed	TC-04-003
Set Up	User repeatedly clicks the "forgot password" button at two-minute intervals multiple times.
Wrap	None

2.5 F005 Manage Exam

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'Manage Exam" page needs to be up and functioning.

Test Procedure ID	TP-05-001
Objective	Verify that the system allows users to create a new exam record.
Test Cases To Be Executed	TC-05-001
Set Up	User clicks on the "Create" button to create new exam record
Wrap	None

Test Procedure ID	TP-05-002
Objective	Verify that the system allows users to edit existing exam records.
Test Cases To Be Executed	TC-05-002
Set Up	User selects an exam record and clicks on the "Edit" button to edit existing exam records
Wrap	None

Test Procedure ID	TP-05-003
Objective	Verify that the system allows users to delete existing exam records.
Test Cases To Be Executed	TC-05-003
Set Up	User selects an exam record and clicks on the "Delete" button
Wrap	None

2.6 F006 View Exam

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'View Exam" page needs to be up and functioning.

Test Procedure ID	TP-06-001
Objective	Verify that the system displays available exam records on the Home page.
Test Cases To Be Executed	TC-06-001
Set Up	User logs in and navigates to the Home page.
Wrap	None

Test Procedure ID	TP-06-002
Objective	Verify that the system allows users to view details of a specific exam record.
Test Cases To Be Executed	TC-06-002
Set Up	User clicks on a particular exam record from the list
Wrap	None

2.7 F007 Upload Sample Answer

- I. The 'Exam Management' page needs to be up and functioning.
- II. There should be a minimum of one exam record created.
- III. The 'Exam Details' page needs to be up and functioning.

Test Procedure ID	TP-07-001
Objective	Verify upload sample answers validation with the correct format.
Test Cases To Be Executed	TC-07-001
Set Up	 User clicks the eye icon in the Exam Management page. User clicks the Upload Answer button. User clicks the + icon in the Answer Scheme page. User uploads the sample answers in text file format. User clicks the Upload this file button to upload the file selected. User clicks the Confirm button.
Wrap	None

Test Procedure ID	TP-07-002
Objective	Verify upload sample answers validation with the invalid format.
Test Cases To Be Executed	TC-07-002
Set Up	 User clicks the eye icon in the Exam Management page. User clicks the Upload Answer button. User clicks the + icon in the Answer Scheme page. User uploads the sample answers in an invalid format. User clicks the Upload this file button to upload the file selected. User clicks the Confirm button.
Wrap	None

Test Procedure ID	TP-07-003
Objective	Verify upload sample answers validation with empty sample answers.
Test Cases To Be Executed	TC-07-003
Set Up	 User clicks the eye icon in the Exam Management page. User clicks the Upload Answer button. User clicks the + icon in the Answer Scheme page. User uploads empty sample answers User clicks the Upload this file button. User clicks the Confirm button.
Wrap	None

Test Procedure ID	TP-07-004
Objective	Verify upload sample answers validation message upon successful upload.
Test Cases To Be Executed	TC-07-004
Set Up	 User clicks the eye icon in the Exam Management page. User clicks the Upload Answer button. User clicks the + icon in the Answer Scheme page. User uploads the sample answers in text file format. User clicks the Upload this file button to upload the file selected. User clicks the Confirm button.
Wrap	None

Test Procedure ID	TP-07-005
Objective	Verify upload sample answers validation message upon unsuccessful upload.
Test Cases To Be Executed	TC-07-005
Set Up	 User clicks the eye icon in the Exam Management page. User clicks the Upload Answer button. User clicks the + icon in the Answer Scheme page. User uploads the sample answers in an invalid format or empty sample answers. User clicks the Upload this file button to upload the file selected. User clicks the Confirm button.
Wrap	None

2.8 F008 Upload Student Data

- I. The 'Exam Management' page needs to be up and functioning.
- II. There should be a minimum of one exam record created.
- III. The 'Exam Details' page needs to be up and functioning.

Test Procedure ID	TP-08-001
Objective	Verify upload student data validation with the correct data format.
Test Cases To Be Executed	TC-08-001
Set Up	 User clicks a particular exam record in the 'Exam Management' page. User clicks the Add button. User keys in student ID. User keys in name. User clicks the Upload button to upload the student's answer sheet in image format. User clicks Upload this file button after choosing the selected file. User clicks the Save button.
Wrap	None

Test Procedure ID	TP-08-002
Objective	Verify upload student data validation with an invalid data format.
Test Cases To Be Executed	TC-08-002
Set Up	 User clicks a particular exam record in the 'Exam Management' page. User clicks the Add button. User keys in student ID. User keys in name. User clicks the Upload button to upload the student's answer sheet in an invalid format. User clicks Upload this file button after choosing the selected file. User clicks the Save button.
Wrap	None

Test Procedure ID	TP-08-003
Objective	Verify upload student data validation with an empty entry of student data.
Test Cases To Be Executed	TC-08-003
Set Up	 User clicks a particular exam record in the 'Exam Management' page. User clicks the Add button. User leaves student ID and name fields empty. User does not upload any student's answer sheet. User clicks Upload this file button. User clicks the Save button.
Wrap	None

Test Procedure ID	TP-08-004
Objective	Verify upload student data validation message upon unsuccessful upload.
Test Cases To Be Executed	TC-08-004
Set Up	 User clicks a particular exam record in the 'Exam Management' page. User clicks the Add button. User keys in student ID. User keys in name. User clicks the Upload button to upload the student's answer sheet in image format. User clicks Upload this file button after choosing the selected file. User clicks the Save button.
Wrap	None

Test Procedure ID	TP-08-005
Objective	Verify upload student data validation message upon unsuccessful upload.
Test Cases To Be Executed	TC-08-005
Set Up	 User clicks a particular exam record in the 'Exam Management' page. User clicks the Add button. User keys in student ID. User keys in name. User clicks the Upload button to upload the student's answer sheet in an invalid format. User clicks Upload this file button after choosing the selected file. User clicks the Save button.
Wrap	None

2.9 F009 View Student Score

- I. The 'Exam' page needs to be up and functioning.
- II. There should be a minimum of one exam record created.
- III. The 'Exam Details' page needs to be up and functioning.

Test Procedure ID	TP-09-001
Objective	Check if the system displays the list of student scores correctly
Test Cases To Be Executed	TC-09-001
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page User needs to scroll down to see all the students' scores
Wrap	None

Test Procedure ID	TP-09-002
Objective	Test if clicking the eye icon redirects to the Student Answer Page
Test Cases To Be Executed	TC-09-002
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page
Wrap	None

Test Procedure ID	TP-09-003
Objective	Test if clicking the pencil icon prompts a pop-up with existing student data
Test Cases To Be Executed	TC-09-003
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page User needs to scroll down to see all the students' scores Once the user see the lists of students, click the edit icon of a particular student
Wrap	None

Test Procedure ID	TP-09-004
Objective	Test if clicking the trash icon prompts a confirmation message and removes the student from the class list
Test Cases To Be Executed	TC-09-004
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page User needs to scroll down to see all the students' scores Once the user see the lists of students, click the trash icon of a particular student
Wrap	None

Test Procedure ID	TP-09-005
Objective	Test if the system handles errors gracefully
Test Cases To Be Executed	TC-09-005
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page User needs to scroll down to see all the students' scores
Wrap	None

2.10 F010 Generate Student Report

- I. The 'Results' page needs to be up and functioning.
- II. There should be a minimum of one exam record created.

Test Procedure ID	TP-10-001
Objective	Test if clicking the "View Result" button redirects the user to the Results page
Test Cases To Be Executed	TC-10-001
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page
Wrap	None

Test Procedure ID	TP-10-002
Objective	Ensure that the system correctly calculates the mean and median scores
Test Cases To Be Executed	TC-10-002
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page Once the user directed to the 'Exam Details' page, they will see the mean and median of the class
Wrap	None

Test Procedure ID	TP-10-003
Objective	Confirm that the system accurately displays the individual scores of each student
Test Cases To Be Executed	TC-10-003
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page User needs to scroll down to see all the students' scores
Wrap	None

Test Procedure ID	TP-10-004
Objective	Test how the system handles cases where no scores have been uploaded for an exam
Test Cases To Be Executed	TC-10-004
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page
Wrap	None

Test Procedure ID	TP-10-005
Objective	Test the system's response to unexpected or erroneous inputs
Test Cases To Be Executed	TC-10-005
Set Up	 User clicks an eye button of a particular exam record in the 'Exam' page. The user will be directed to the 'Exam Details' page
Wrap	None

2.11 F011 Preprocess Image

Prior to execution of the following test procedures, these special requirements must be prepared:

Test Procedure ID	TP-11-001
Objective	Verify the system adjusts the resolution and format of the uploaded images successfully.
Test Cases To Be Executed	TC-11-003
Set Up	 Navigate to the "Exam" and select the exam you wish to grade. In the student column, locate and click the "Add" button to input student data. Enter the student's ID and name into the designated fields. Click the "Upload" button to update the student's answer sheet. To add the student's answer sheet, either drag a file or use the "Choose files" option to select the file from your computer. Once a file is selected for upload, the system will begin processing the image.
Wrap	None

Test Procedure ID	TP-11-002
Objective	Verify the system displays an error message if image preprocessing fails.
Test Cases To Be Executed	TC-11-004
Set Up	 Navigate to the "Exam" and select the exam you wish to grade. In the student column, locate and click the "Add" button to input student data. Enter the student's ID and name into the designated fields. Click the "Upload" button to update the student's answer sheet. To add the student's answer sheet, either drag a file or use the "Choose files" option to select the file from your computer. Once a file is selected for upload, the system will begin processing the image.
Wrap	None

2.12 F012 Extract Answer

Prior to execution of the following test procedures, these special requirements must be prepared:

Test Procedure ID	TP-12-001
Objective	Verify the system performs OCR to extract answers from uploaded images.
Test Cases To Be Executed	TC-12-001
Set Up	 Navigate to the "Exam" and select the exam you wish to grade. In the student column, locate and click the "Add" button to input student data. Enter the student's ID and name into the designated fields. Click the "Upload" button to update the student's answer sheet. To add the student's answer sheet, either drag a file or use the "Choose files" option to select the file from your computer. Once a file is selected for upload, the system will begin processing the image. After successful processing, users are required to enter a filename for saving and the author's name. Click on "Extract this file" to initiate OCR processing. The system will commence extracting text from the image.
Wrap	None

Test Procedure ID	TP-12-002
Objective	Verify the system displays an error message if no answers are detected.
Test Cases To Be Executed	TC-12-002
Set Up	 Navigate to the "Exam" and select the exam you wish to grade. In the student column, locate and click the "Add" button to input student data. Enter the student's ID and name into the designated fields. Click the "Upload" button to update the student's answer sheet. To add the student's answer sheet, either drag a file or use the "Choose files" option to select the file from your computer. Once a file is selected for upload, the system will begin processing the image. After successful processing, users are required to enter a filename for saving and the author's name. Click on "Extract this file" to initiate OCR processing. The system will commence extracting text from the image.
Wrap	None

Test Procedure ID	TP-12-003
Objective	Verify the system displays extracted answers for user confirmation or redo extraction.
Test Cases To Be Executed	TC-12-003
Set Up	 Navigate to the "Exam" and select the exam you wish to grade. In the student column, locate and click the "Add" button to input student data. Enter the student's ID and name into the designated fields. Click the "Upload" button to update the student's answer sheet. To add the student's answer sheet, either drag a file or use the "Choose files" option to select the file from your computer. Once a file is selected for upload, the system will begin processing the image. After successful processing, users are required to enter a filename for saving and the author's name. Click on "Extract this file" to initiate OCR processing. The system will commence extracting text from the image. Upon successful extraction, the extracted text (answers) will be displayed. If the extracted data is incorrect, users may request a reupload.
Wrap	None

2.13 F013 Compare Answer to Question

Prior to execution of the following test procedures, these special requirements must be prepared:

Test Procedure ID	TP-13-001
Objective	Verify that the system correctly identifies a correct student answer when compared to the sample answer.
Test Cases To Be Executed	TC-13-001
Set Up	 User clicks the Exam Details page. Users upload the answer by manually input or upload in text-file format. User clicks Upload Answer button to key in the answer User clicks Complete button
Wrap	None

Test Procedure ID	TP-13-002
Objective	Verify that the system correctly identifies an incorrect student answer when compared to the sample answer
Test Cases To Be Executed	TC-13-002
Set Up	 User clicks the Exam Details page. User uploads the sample answers, either by manually keying-in or by uploading it in text file format. User clicks the Upload Answer button to key in the answer. User clicks the Complete button.
Wrap	None

Test Procedure ID	TP-13-003
Objective	Verify that the system correctly identifies the sequence of students' answers with sample answers.
Test Cases To Be Executed	TC-13-003
Set Up	 User clicks the Exam Details page. User uploads the sample answers, either by manually keying-in or by uploading it in text file format. User clicks the Upload Answer button to key in the answer. User clicks the Complete button.
Wrap	None

F014 - Calculate Exam Score

Prior to execution of the following test procedures, these special requirements must be prepared:

Test Procedure ID	TP-14-001
Objective	Verify that the system correctly calculates the score when all answers match perfectly.
Test Cases To Be Executed	TC-14-001
Set Up	 User clicks the <i>Exam</i> page. User uploads the sample answers, either by manually keying-in or by uploading it in text file format. User clicks the <i>Upload Answer</i> button to key in the answer. User clicks the <i>Complete</i> button.
Wrap	None

Test Procedure ID	TP-14-002
Objective	Verify that the system correctly calculates the score when some answers match partially.
Test Cases To Be Executed	TC-14-002
Set Up	 User clicks the Exam Details page. User uploads the sample answers, either by manually keying-in or by uploading it in text file format. User clicks the Upload Answer button to key in the answer. User clicks the Complete button.
Wrap	None

Test Procedure ID	TP-14-003
Objective	Verify that the system correctly handles cases where there are missing answers from the student
Test Cases To Be Executed	TC-14-003
Set Up	 User clicks the Exam Details page. User uploads the sample answers, either by manually keying-in or by uploading it in text file format. User clicks the Upload Answer button to key in the answer. User clicks the Complete button.
Wrap	None

Test Procedure ID	TP-14-004
Objective	Verify that the system updates the student's score record correctly and displays the updated score on the Exam Details page.
Test Cases To Be Executed	TC-14-004
Set Up	 User clicks the Exam Details page. User uploads the sample answers, either by manually keying-in or by uploading it in text file format. User clicks the Upload Answer button to key in the answer. User clicks the Complete button. Users check the updated score in Exam Details.
Wrap	None

2.15 F015 User Manual

Prior to execution of the following test procedures, these special requirements must be prepared:

I. The 'User Manual' function needs to be up and functioning.

Test Procedure ID	TP-15-001
Objective	Verify that the users are able to access the app user manual
Test Cases To Be Executed	TC-15-001
Set Up	User signs into the system User clicks the user manual button
Wrap	None

Test Procedure ID	TP-15-002
Objective	Verify that the user interface is responsive for all screen sizes to ensure readability
Test Cases To Be Executed	TC-15-002
Set Up	 User sign into the application using 3 devices of different sizes (eg. laptop, tablet and phone) User clicks the user manual button
Wrap	None

Test Procedure ID	TP-15-003		
Objective	Verify that the close user manual navigates correctly.		
Test Cases To Be Executed	TC-15-003		
Set Up	 User signs into the system User clicks the user manual button User clicks the close user manual button 		
Wrap	None		

Approvals

Approved Date	Approved Version	Approver Role	Approver