



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

SECJ2203: Software Engineering

## **System Documentation (SD)**

Project Title

**UTM Ethics Approval Management System (EAMS)**

Version 3.0

Date: 19/01/2025

Faculty of Computing

Prepared by: Hyperrush

## Revision Page

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### a. Overview

This document is **Version 3.0** of the system documentation and consists of two major sections: **Test Cases** and **Traceability Matrix**. The Test Cases is the section that describes a set of conditions, relevant inputs with expected results to test the functionality and behavior of the particular features, modules, or the whole system of the proposed solution. Traceability Matrix is responsible to provide the cross-reference from package items to Use Cases, Sequence Diagrams and related test case, and ensures the complete traceability of each item throughout the development and testing life cycle.

### b. Target Audience

UTM staff, student and staff UTM REC.

### c. Project Team Members

Member Name	Role	Task	Status
Abdalla Ali Abdalla Ali A23CS3022	Moderator	Monitor group progress	Complete
Othman Hassan Othman Ali A23CS3026	Recorder	Record the results of discussion	Complete
Eyad Aimen Elsheikh Khalil A23CS3024	Skeptic	Give query and comment on the assignment	Complete
Chew Chuan Kai A23CS0062	Accuracy checker & Reporter	Check and compile the assignment	Complete

### d. Version Control History

Version	Primary Author(s)	Description of Version	Date Completed
1.0	Abdalla Ali Abdalla Ali	Completed Chapter 1 and 2, Section Introduction and Specific Requirements	25/11/2024
2.0	Eyad Aimen Elsheikh Khalil	Completed Chapter 3, 4, 5, 6 and 7 Section.	31/12/2024
3.0	Chew Chuan Kai	Completed Chapter 8 (Test Cases) and 9 (Traceability Matrix)	19/01/2025

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## 8. Test Cases

### 8.1 TC001: Test Request Application Subsystem: Apply Research(UC001) & Submit Application(UC002)

This test contains the following test cases:

- (a) TC001\_01: Test Apply Research (SD001)
- (b) TC001\_02: Test Submit Application (SD002)

#### 8.1.1 TC001\_01: Test Apply Research (SD001)

This test contains the following scenarios:

This test contains the following scenarios:

- (a) TC001\_01\_01: Test <normal scenario of Apply Research (SD001)>

Test Case ID	TC001_01_01	Test Case Description	Testing if the research application works successfully		
Created By	Othman Hassan	Reviewed By		Version	1.0
QA Tester's Log					
S#	Prerequisites:		S#	Test Data	
1	Applicant is already registered in the system		1	Sample form - animal medicine application	
			2	Name - ahmed	
			3		
			4		
			5		
Test Scenario					
The system fails to process payment due to invalid data and displays appropriate error messages.					
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended
1	the applicant clicks on the apply research button	The system provides a sample form			
2	The applicant fills the input feilds	The system checks the input feilds and finds them valid			
3	the applicant goes to the application submission page successfully	A new screen appears to show the applicant how to submit the application			

(b) TC001\_01\_02: Test <alternative scenario of Apply Research (SD001)>

Test Case ID	TC001_01_02	Test Case Description	Testing if the research application works successfully		
Created By	Othman Hassan	Reviewed By		Version	1.0
QA Tester's Log					
S#	Prerequisites:		S#	Test Data	
1	Applicant is already registered in the system		1	Sample form - animal medicine application	
			2	Name - ahmed	
			3		
			4		
			5		
Test Scenario					
The system fails to process payment due to invalid data and displays appropriate error messages.					
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended
1	the applicant clicks on the apply research button	The system provides a sample form			
2	The applicant fills the input feilds	The system checks the input feilds and finds them invalid			
3	the applicant goes to the application submission page successfully	A new screen appears to tell that something went wrong in the application and he needs to resubmit the application			

### 8.1.2 TC001\_02: Test Submit Application (SD002)

This test contains the following scenarios:

(a) TC001\_02\_01: Test <normal scenario of Submit Application (SD002)>

Test Case ID	TC001_02_01	Test Case Description	Test the complete and successful submission process when the form is valid, and the payment is successfully validated.				
Created By	Chuan Kai	Reviewed By		Version	1.0		
QA Tester's Log							
S#	Prerequisites:		S#	Test Data			
1	The applicant must have filled in the form.		1	Form Validity: Valid			
2	The applicant must have made a successful payment for the application.		2	Payment Status: Successful			
Test Scenario							
The applicant submits a valid form, and the payment is successfully validated. The submission process completes without errors.							
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended		
1	Applicant submits the filled form.	The system accepts the submission and initiates form validation.					
2	The system validates the form.	The system confirms the form is valid.					
3	The system validates the payment status.	The system confirms that the payment is successful.					
4	The system stores the form in the data access.	The system successfully saves the form data.					
5	The system notifies the applicant of successful submission.	The applicant receives confirmation of successful submission and updated status.					

(b) TC001\_02\_02: Test <alternate scenario 1 of Submit Application (SD002)>

Test Case ID	TC001_02_02	Test Case Description	Test the system's behavior when the submitted form contains invalid data. It ensures the system detects the error, notifies the applicant, and allows correction before resubmission.				
Created By	Chuan Kai	Reviewed By		Version	1.0		
QA Tester's Log							
S#	Prerequisites:			S#	Test Data		
1	The applicant must have filled in the form.			1	Form Validity: Invalid		
Test Scenario							
The system detects invalid form data and prompts the applicant to correct and resubmit the form.							
Step #	Step Details		Expected Results		Actual Results		Pass / Fail / Not executed / Suspended
1	Applicant submits the filled form.		The system accepts the submission and initiates form validation.				
2	The system validates the form.		The system detects errors in the form and displays appropriate error messages.				
3	Applicant corrects the form and resubmits.		The system revalidates the form and confirms its validity.				
4	The system proceeds to validate payment if the form is valid.		The system resumes normal processing.				

(c) TC001\_02\_03: Test <alternate scenario 2 of Submit Application (SD002)>

Test Case ID		TC001_02_03	Test Case Description		Test the system's behavior when the form validation is successful, but the payment validation fails. Ensures the system prompts the applicant to retry the payment before completing the submission process.					
Created By		Chuan Kai	Reviewed By				Version		1.0	
QA Tester's Log										
S#		Prerequisites:		S#		Test Data				
1		The applicant must have filled in the form.		1		Form Validity: Valid				
				2		Payment Status: Not Made or Failed				
Test Scenario		The system detects that payment is not made or is invalid and prompts the applicant to retry the payment before proceeding.								
Step #		Step Details		Expected Results		Actual Results		Pass / Fail / Not executed / Suspended		
1		Applicant submits the filled form.		The system accepts the submission and initiates form validation.						
2		The system validates the form.		The system confirms the form is valid.						
3		The system validates the payment status.		The system detects that payment is not made or is invalid.						
4		The system prompts the applicant to retry payment.		Applicant retries payment, and the system validates the new payment status.						
5		The system completes the submission process.		The system stores the form data and notifies the applicant of successful submission.						

## 8.2 TC002: Test Make Payment for Application Subsystem: Make Payment(UC003)

This test contains the following test cases:

(a) TC002\_01: Test Make Payment (SD003)

This test contains the following scenarios:

(a) TC002\_01\_01: Test <normal scenario of Make Payment (SD003)>

Test Case ID	TC002_01_01	Test Case Description	Test the payment process performed by the applicant		
Created By	Chuan Kai	Reviewed By		Version	1.0
QA Tester's Log					
S#	Prerequisites:		S#	Test Data	
1	The applicant must have filled in the form		1	Payment Method - Maybank	
2	The form has been validated successfully		2	Card Number - 1234 2345 3456 4567	
			3	Expiry Date - 08/98	
			4	CVC - 007	
			5	Name - Ali	
Test Scenario					
The applicant succesfully completes the payment process for the application					
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended
1	Navigate applicant to payment page by clicking "Next" button after completing the form.	The systen navigates to the payment page.			
2	Fill in the payment method, card number, expiry date, CVC and the cardholder name.	The system validates the payment information.			
3	Click the "Next" button to proceed with the payment.	The system successfully processes the payment for the application			
4	The system generates and sends a payment receipt to the applicant's email address.	The applicant receives the payment receipt as evidence of payment.			

(b) TC002\_01\_02: Test <alternate scenario of Make Payment (SD003)>

Test Case ID	TC002_01_02	Test Case Description	Test the payment process when the validation fails due to invalid data				
Created By	Chuan Kai	Reviewed By			Version	1.0	
QA Tester's Log							
S#	Prerequisites:		S#	Test Data			
1	The applicant must have filled in the form		1	Payment Method - Maybank			
2	The form has been validated successfully		2	Card Number - 1234 0000 0000 0000			
			3	Expiry Date - 13/25			
			4	CVC - 12			
			5	Name - A			
Test Scenario							
The system fails to process payment due to invalid data and displays appropriate error messages.							
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended		
1	Navigate applicant to payment page by clicking "Next" button after completing the form.	The systen navigates to the payment page.					
2	Fill in the payment method, card number, expiry date, CVC and the cardholder name.	The system detects invalid data and displays error messages for each invalid field.					
3	Attempt to click the "Next" button to proceed with the payment despite invalid data.	The system blocks further action and prevents payment processing until all fields are corrected.					

### 8.3 TC003: Test Application Track Subsystem: Track Progress(UC004)

This test contains the following test cases:

(a) TC003\_01: Test Track Progress (SD004)

This test contains the following scenarios:

(a) TC003\_01\_01: Test <normal scenario of Track Progress (SD004)>

Test Case ID	TC003_01_01	Test Case Description	Test the tracking of applied research progress preformed by the applicant			
Created By	Eyad Aimen	Reviewed By		Version		
QA Tester's Log						
S#	Prerequisites:		S#	Test Data		
1	The applicant have already submitted a research		1	Applied research - new Animal medicine		
			2	Update message - There some ambiguous information we would like you to clarify		
Test Scenario						
The update message is successfully shown to the applicant when the applicant opens the dashboard						
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended	
1	The clicks on "Dashboard"	The system navigates the applicant to the dashboard page				
2	The applicant clicks on the research to see if there are any updates	The system navigates the applicant to a page that contains research progress and its information				
3	The applicant review the update message	The system displays the message and show options of acting according to the update message				

(b) TC003\_01\_02: Test <alternative scenario of Track Progress (SD004)>

Test Case ID	TC003_01_02	Test Case Description	Test the tracking of applied research progress preformed by the applicant when there is no update message			
Created By	Eyad Aimen	Reviewed By		Version		
QA Tester's Log						
S#	Prerequisites:		S#	Test Data		
1	The applicant have already submitted a research		1	Applied research - new Animal medicine		
			2	Update message - none		
Test Scenario	The update message is successfully shown to the applicant when the applicant opens the dashboard					
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended	
1	The clicks on "Dashboard"	The system navigates the applicant to the dashboard page				
2	The applicant clicks on the research to see if there are any updates	The system navigates the applicant to a page that contains research progress and its information				
3	The applicant review the update message	The system displays that there is no update message and the applicant is still in progress				

#### 8.4 TC004: Test Review Application Subsystem: Update Progress(UC005), Review Application(UC006) & Notify Applicant(UC007)

This test contains the following test cases:

(a) TC004\_01: Test Update Progress (SD005)

(b) TC004\_02: Test Review Application (SD006)



(c) TC004\_03: Test Notify Applicant (SD007)

#### 8.4.1 TC004\_01: Test Update Progress (SD005)

This test contains the following scenarios:

(a) TC004\_01\_01: Test <normal scenario of Update Progress (SD005)>

Test Case ID	TC004_01_01	Test Case Description	Test the update research application progress when the staff REC successfully updates the progress			
Created By	Eyad Aimen	Reviewed By		Version		
QA Tester's Log						
S#	Prerequisites:		S#	Test Data		
1	Staff REC already reviewed the research		1	Applied research - new Animal medicine		
			2	status flag - stalled		
			3	update message - There are some ambiguous information we would like you to clarify		
Test Scenario		The update message is successfully submitted				
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended	
1	The staff REC select a status flag from a list of staus flags	The system displays a list of flags and allow the staff REC to choose one from them				
2	staff REC writes the update message regarding the application progress	the system will assign the update message to the applied research				
3	The staff REC submits the update by clicking "submit"	The system will notify the applicant and displays a message indicating that the update was successful				

(b) TC004\_01\_02: Test <alternative scenario of Update Progress (SD005)>

Test Case ID	TC004_01_02	Test Case Description	Test the update research application progress when the update progress is not successful due to system error			
Created By	Eyad Aimen	Reviewed By		Version		
QA Tester's Log						
S#	Prerequisites:		S#	Test Data		
1	Staff REC already reviewed the research		1	Applied research - new Animal medicine		
			2	status flag - stalled		
			3	update message - There are some ambiguous information we would like you to clarify		
Test Scenario						
The update message is failed to be submitted						
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended	
1	The staff REC select a status flag from a list of staus flags	The system displays a list of flags and allow the staff REC to choose one from them				
2	staff REC writes the update message regarding the application progress	the system will assign the update message to the applied research				
3	The staff REC submits the update by clicking "submit"	The system will display a message indicating that the update was failed to be submitted due to some errors and prompt the staff REC to resubmit the update again				

### 8.4.2 TC004\_02: Test Review Application (SD006)

This test contains the following scenarios:

(a) TC004\_02\_01: Test <normal scenario of Review Application (SD006)>

Test Case ID	TC004_02_01	Test Case Description	Test for system behavior when the REC staff review the application of an applicant					
Created By	Abdalla Ali	Reviewed By			Version			
QA Tester's Log								
S#	Prerequisites:			S#	Test Data			
				1	form validity: valid			
Test Scenario								
The REC saff successfully review and update the application.								
Step #	Step Details		Expected Results	Actual Results		Pass / Fail / Not executed / Suspended		
1	staff opens the dashboard		the system displays the dashboard page including the list of applications.					
2	the staff select an application from the list		the system opens the selected application.					
3	the staff notify the applicant		the system send an email to the applicant.					
4	the staff update the progress of applicants		the system update the progress of the selected application.					

### 8.4.3 TC004\_03: Test Notify Applicant (SD007)

This test contains the following scenarios:

(a) TC004\_03\_01: Test <normal scenario of Notify Applicant (SD007)>

Test Case ID	TC004_03_01	Test Case Description	Test the system behaviour when the REC staff notify the applicant regarding an update			
Created By	Abdalla Ali	Reviewed By		Version		
QA Tester's Log						
S#	Prerequisites:		S#	Test Data		
1	the system has updated the progress of an applicant's application.		1	form validity: valid		
Test Scenario	The REC staff successfully notified the applicats through the system					
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended	
1	The REC staff navigate and selects the applicants to notify by clicking on the applicant from the applicant list.	The system selects opens the applicants page selected by the REC staff.				
2	The REC staff composite an email by clicking on the email icon through the system.	the system opens the emailing page for the staff REC with selected applicants address				
3	REC staff send the email by clicking next	The system display successfully sent message and send the email to applicants				
4	Applicant recieves the email sent by REC staff	The system displays a notification to the applicant regarding arrival of a new email.				

## 8.5 TC005: Test Help Subsystem: Get Help(UC008)

This test contains the following test cases:

(a) TC005\_01: Test Get Help (SD008)

This test contains the following scenarios:

(a) TC005\_01\_01: Test <normal scenario of Get Help (SD008)>

Test Case ID	TC005_01_01	Test Case Description	Testing the get help functionality from the applicant to the chatbot and the applicant gets required help				
Created By	Othman Hassan	Reviewed By		Version	1.0		
QA Tester's Log							
S#	Prerequisites:		S#	Test Data			
			1	Help request - not able to process payment			
			2	Help message - I cannot pay my research fees for some reason			
			3	Name - ahmed			
			4				
			5				
Test Scenario							
The system fails to process payment due to invalid data and displays appropriate error messages.							
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended		
1	The applicant send help request to chatbot	The chatbot successfully processes the defined problem					
2	The chatbot Adresses The problem to the staff	A message to the staff that contains the details of the issue					
3	The staff sends the solution to the applicant	The staff successfully solves the issue of the applicant					

(b) TC005\_01\_02: Test <alternative scenario of Get Help (SD008)>

Test Case ID	TC005_01_02	Test Case Description	Testing the get help functionality from the applicant to the chatbot and the applicant gets required help		
Created By	Othman Hassan	Reviewed By		Version	1.0
QA Tester's Log					
S#	Prerequisites:		S#	Test Data	
			1	Help request - not able to process payment	
			2	Help message - I cannot pay my research fees for some reason	
			3	Name - ahmed	
			4		
			5		
Test Scenario	The system fails to process payment due to invalid data and displays appropriate error messages.				
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended
1	The applicant send help request to chatbot	The chatbot succesfully processes the defined problem			
2	The chatbot Adresses The problem to the staff	A message to the staff that contains the details of the issue			
3	The staff sends the solution to the applicant	The staff succesfully solves the issue of the applicant			

## 9. Traceability Matrix

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*The purpose of a Traceability Matrix is to establish a traceable link between various project elements, such as user requirements, system requirements, design documents, test cases, and defects. By establishing these links, it allows stakeholders to track the progress of requirements from their origin to the final implementation and testing phases.*

*Provide a cross-reference that traces the package item, the related Use Case and Sequence Diagram, and their test cases. In this example, we have two packages: Package 1 and Package 2. Each package contains specific Use Cases and their corresponding Sequence Diagrams. The RTM cross-references the Use Case IDs and Sequence Diagram IDs, providing a clear link between them. Additionally, each Use Case and Sequence Diagram may have multiple associated test cases. The RTM includes the Test Case IDs that are related to each Use Case and Sequence Diagram.*

*Use the tabular format below.*

**Table 9.1: Example of Traceability Matrix for <system name>**

Package Item	Use Case ID	Use Case Description	Sequence Diagram ID	Sequence Diagram Description	Test Case ID
Package 1	UC-001	User Registration	SD-001	Register User	TC-001
					TC-002
					TC-003
	UC-002	User Login	SD-002	User Login	TC-004
					TC-005
	UC-003	Create New Post	SD-003	Create Post	TC-006
					TC-007
Package 2	UC-004	Update Profile	SD-004	Update Profile	TC-008
					TC-009
	UC-005	Search Posts	SD-005	Search Posts	TC-010
					TC-011