

1. Test Objective

The test objectives are to verify the Functionality of the application Software Genius and guarantee that all features can work normally at a normal speed in the real business environment.

2. Testing Scope

2.1. In Scope

2.1.1. Controller modules

Module Name	Applicable Roles	Features Description
PlayerController	Student Administrator	<ul style="list-style-type: none">• A user can sign up an account• A user can log in an account• A user can log off an account• A student user can view its profile• An administrator user can view all student user's reports
CombatController	Student	<ul style="list-style-type: none">• A user can start a combat• A user can end a combat
WorldController	Student	<ul style="list-style-type: none">• A user can unlock a world of a category• A user can get the list of his worlds and their categories• A user can enter a world and view the 24 lands• A user can view the list of users who unlocked a certain category of world• A user can own• land after winning a combat• A user can get the general leaderboard and leaderboards of four world category
QuestionController	Administrator	<ul style="list-style-type: none">• An administrator user can add questions• An administrator user can update questions• An administrator user can view all questions• An administrator user can view question by Id• An administrator user can view questions by category, difficulty level, and limit• An administrator user can view the

		accuracy of questions <ul style="list-style-type: none"> An administrator user can delete Question by Id
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2.1.2. UI interface system

2.2. Out of Scope

2.2.1. Performances under high load

2.2.2. Security

3. Types of testing performed

3.1. Unit Testing

Test Method	It is performed by using the White Box Testing method.
Test Level	It is the first level of software testing and is performed prior to other testings.
Test Coverage	It is carried out on every function of the back end services.
Test purpose	The purpose is to validate that each unit of the software performs as designed.

3.2. Integration Testing

Test Method	It is performed by using the White Box Testing method.
Test Level	It is the second level of software testing and is performed prior to other testings.
Test Coverage	It is carried out on every CRUD function of backend APIs.
Test purpose	The purpose is to explore the faults in the interaction between integrated units which are combined individual units as a group.

3.3. System Testing

Test Method	It is performed by using the Black Box Testing method.
Test Level	It is the third level of software testing and is performed at last.
Test Coverage	It is carried out on every feature of the whole system.
Test purpose	The purpose is to evaluate the system's compliance with the specified requirements.

4. Metrics

Test type	Unit test
Number of test cases planned	121
Number of positive test cases planned	57
Number of negative test cases planned	64
Number of test cases executed	121
Number of test cases passed	121
Number of test cases failed	0

Test type	Integration test
Number of test cases planned	51
Number of positive test cases planned	28
Number of negative test cases planned	23
Number of test cases executed	51
Number of test cases passed	51
Number of test cases failed	0

Test type	System test
Number of test cases planned	25
Number of positive test cases planned	15
Number of negative test cases planned	10
Number of test cases executed	25
Number of test cases passed	25
Number of test cases failed	0

5. Test Cases

5.1. Backend integration test cases

Module	Scenarios	Test Data	Status (Pass/Fail)	Expected Result	Actual Result
Player	Add a user fulfilled all constraints	{"username": "Rebecca", "accountType": "FB", "realName": "Kefan Chen", "password": "ps", "Email": "email1@e.com"}	Pass	Status code: 200 Return last inserted userId	Status code: 200 Return last inserted userId
Player	Add a user failed to fulfill the not null field constraint	{"username": "Rebecca", "overallExp": 10, "password": "ps", "Email": "email2@e.com"}	Pass	Status Code: 400 (BAD REQUEST)	Status Code: 400 (BAD REQUEST)
Player	Add a user failed to fulfill the unique field constraint	{"username": "Rebecca", "overallExp": 10, "password": "ps", "Email": "email1@e.com"}	Pass	Status Code: 400 (BAD REQUEST)	Status Code: 400 (BAD REQUEST)
Player	Get an existing user by correct userId	inputUserId = 1	Pass	Status code: 200 Return user with a matching userId	Status code: 200 Return user with a matching userId
Player	Get a non-existing user with incorrect userId	inputUserId = -1	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
Player	Login with correct existing credentials	email = testing1@test.com password = testing1	Pass	Status code: 200 Return the corresponding userId	Status code: 200 Return the corresponding userId
Player	Login with not registered email	email = notexist@test.com password = testing1	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
Player	Login with not unmatched password	email = testing1@test.com password = testing2	Pass	Status code: 401 (UNAUTHORIZED)	Status code: 401 (UNAUTHORIZED)
Player	Logout with correct userId	inputUserId = 1	Pass	Status code: 200	Status code: 200
Player	Logout with incorrect userId	inputUserId = -1	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)

Player	Get report of all users		Pass	Status code: 200	Status code: 200
Player	General report contains correct average accuracy		Pass	Return accuracy score as calculated via database	Got the correct accuracy score
Player	Get report with correct userId	inputUserId = 1	Pass	Status code: 200	Status code: 200
Player	Get report when the user never answer any questions	inputUserId = 1	Pass	Set 'NaN' for all accuracy-related field	Got 'NaN' for all accuracy-related field
Player	Get report when the user has less than 1 min game time	inputUserId = 1	Pass	Omit hour and minute when showing total gaming time	Hour and minute got omitted in the field 'total_game_time'
Player	Get report with incorrect userId	inputUserId = -1	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
World	Get Character by correct worldId	worldId = 1	Pass	Status code: 200	Status code: 200
World	Get Character with not existed worldId	worldId = 999999	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
World	Get lands with correct worldId	worldId = 1	Pass	Status code:200 Return a list of 24 Land object	Status code: 200 Got a list of 24 Land object
World	Get lands with incorrect worldId	worldId = 'a'	Pass	Status code: 400 (BAD REQUEST)	Status code: 400 (BAD REQUEST)
World	Get lands with not existed worldId	worldId = 999999	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
World	Get lands with correct userId and correct category	userId = 1 category = SE	Pass	Status code: 200	Status code: 200
World	Get lands with not existed userId and category	userId = 999999 category = SE	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
World	Get lands with correct userId and incorrect category	worldId = 1 category = XXXXX	Pass	Status code: 400 (BAD REQUEST)	Status code: 400 (BAD REQUEST)
World	Get lands with correct userId but locked category	worldId = 3 category = PM	Pass	Status code: 404 (NOT FOUND)	Status code: 404 (NOT FOUND)
World	Unlock a world	userId = 3	Pass	Status code: 200	Status code: 200

	with correct userID and correct category	Category = PM			
World	Unlock a world with correct userID but already unlocked category	userID = 3 Category = PM	Pass	Status code: 409 (CONFLICT)	Status code: 409 (CONFLICT)
World	Get top 10 users in the SE world	category = SE offset = 0 limit = 10	Pass	Status code: 200 user list with descending score	Status code: 200 user list with descending score
World	Get top 10 users in the SA world	category = SA offset = 0 limit = 10	Pass	Status code: 200 user list with descending score	Status code: 200 user list with descending score
World	Get top 10 users in the QA world	category = QA offset = 0 limit = 10	Pass	Status code: 200 user list with descending score	Status code: 200 user list with descending score
World	Get top 10 users in the PM world	category = PM offset = 0 limit = 10	Pass	Status code: 200 user list with descending score	Status code: 200 user list with descending score
World	Wrong category code when getting leaderboard	category = WRONG offset = 0 limit = 10	Pass	Status code: 400	Status code: 400
World	offset larger than actual user number when getting leaderboard	category = SE offset = 10000 limit = 10	Pass	Status code: 200 Return empty list	Status code: 200 Empty list returned
World	offset + limit larger than actual user number when getting leaderboard	category = SE offset = 0 limit = 10000	Pass	Status code: 200 Return empty list	Status code: 200 Empty list returned
World	Get top 10 users by user experience point	offset = 0 limit = 10	Pass	Status code: 200 user list with descending score	Status code: 200 user list with descending score
World	Get all lands of a user in a particular world, both occupied and unoccupied	category = SE userID = 1	Pass	Status code: 200 list of 24 Land object	Status code: 200 list of 24 Land object
Question	AddNewQuestion fulfilled all database constraints	{"Category": "SA", "difficultyLevel": 3, "answer": 1, "problem": "problem 1", "choice1": "choice 1", "choice2": "choice 2",	Pass	Status code: 200	Status code: 200

		<pre> "choice3": "choice 3", "choice4": "choice 4", "userAnswered": 0, "userCorrect": 0 } </pre>			
Question	AddNewQuestion fail to fulfill database not null constraint	<pre> {"Category": "SA", "difficultyLevel": 3, "answer": 1, "problem": "problem", "userAnswered": 0, "userCorrect": 0 } </pre>	Pass	Status code: 400 BAD_REQUEST	Status code: 400 BAD_REQUEST
Question	Get Question by a valid Id	id=1	Pass	Status code: 200 Question requested	Status code: 200 Question requested
Question	Get Question by an invalid Id	id=-1	Pass	Status code: 404 NOT FOUND	Status code: 404 NOT FOUND
Question	getAllQuestions		Pass	Status code: 200 Questions requested	Status code: 200 Questions requested
Question	qnsScore with a valid id	id=1	Pass	Status code: 200 Question 1's Accuracy	Status code: 200 Question 1's Accuracy
Question	qnsScore with an invalid id	id=-1	Pass	Status code: 404 NOT FOUND	Status code: 404 NOT FOUND
Question	deleteQuestion with a valid id	Id of the last question	Pass	Status code: 200 True	Status code: 200 True
Question	deleteQuestion with an invalid id	Id = -1	Pass	Status code: 404 NOT FOUND	Status code: 404 NOT FOUND
Question	qnsAnswered with valid question ids	Id [] = [1, 2, 3, 4, 5]	Pass	Status code: 200 The added question's question answered adds one	Status code: 200 The added question's question answered adds one
Question	qnsAnswered with invalid question ids	Id [] = [-1, -2, -3, -4, -5]	Pass	Status code: 404 NOT FOUND	Status code: 404 NOT FOUND
Question	qnsCorrectlyAnswered with valid question ids	Id [] = [1, 2, 3, 4, 5]	Pass	Status code: 200 The added question's question answered adds one	Status code: 200 The added question's question answered adds one

Question	qnsCorrectlyAnswered with invalid question ids	Id [] = [-1, -2, -3, -4, -5]	Pass	Status code: 404 NOT FOUND	Status code: 404 NOT FOUND
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5.2. Overall system with UI test cases

Module	Scenarios	Test Data (Action)	Status (Pass/Fail)	Expected Result	Actual Result
MapUI	Enter scene Display	Enter scene	Pass	24 land icons are displayed in 4 lines and 6 columns, character stand on first land, worldname displays correctly	24 land icons are displayed in 4 lines and 6 columns, character stand on first land, worldname displays correctly
MapUI	Show Land difficulty record	Click on an explored land	Pass	"Difficulty record : corresponding difficulty" text displays correctly	"Difficulty record : corresponding difficulty" text displays correctly
MapUI	Show Land difficulty record	Click on an unexplored land	Pass	Difficulty text disappear	Difficulty text disappear
MapUI	Change Character position	Click on any land except unexplored land in others' world	Pass	Character jump on desired land	Character jump on desired land
MapUI	Change Character position	Click on unexplored land in others' world	Pass	Character won't change position	Character won't change position
MapUI	Enter combat	Click on "Enter Combat" or "Challenge" button	Pass	Redirected to DifficultyLevelUI	Redirected to DifficultyLevelUI
MapUI	Enter Userlist	Click on "Enter Userlist" button	Pass	Redirected to UserListUI	Redirected to UserListUI
MapUI	Back to Mode(Student)	Click on "Back Home" button	Pass	Redirected to Mode Student UI	Redirected to Mode Student UI
UserListUI	Enter scene display	Enter scene	Pass	Display a list of all users currently having the same world type as player	Display a list of all users currently having the same world type as player
UserListUI	Enter other user's world	Click on any user avatar	Pass	Redirected to MapUI for the particular user's world	Redirected to MapUI for the particular user's world
DifficultyLevelUI	Enter scene display	Click "Enter Combat" or "Challenge" button on MapUI	Pass	3 level buttons: "Easy", "Medium", "Hard" are displayed. Only the buttons which are higher than the previous completed level are enabled.	3 level buttons: "Easy", "Medium", "Hard" are displayed. Only the buttons which are higher than the previous completed level are enabled.
CombatUI	Enter scene display	Click on one of 3 level buttons	Pass	Character and Enemy are displayed consistently with	Character and Enemy are displayed consistently with

				world and difficulty level. The health bar and hit points are 100 for both Character and Enemy. One Question is displayed on the board. The 25sec countdown begins.	world and difficulty level. The health bar and hit points are 100 for both Character and Enemy. One Question is displayed on the board. The 25sec countdown begins.
CombatUI	Answer the Question	Click on one of 4 answers	Pass	The ticked one answer is highlighted. Other 3 answers are normal.	The ticked one answer is highlighted. Other 3 answers are normal.
CombatUI	Submit the answer	Click on "Confirm" button	Pass	If the answer is correct, Text "Correct!" is displayed on a red background for 3sec. Enemy's hit point decreases according to Character's damage point. If the answer is wrong, Text "Wrong!" is displayed on the brown background for 3sec. Character's hit point decreases according to Character's damage point. Then, a new Question is displayed on the board with 4 unchosen answers.	If the answer is correct, Text "Correct!" is displayed on a red background for 3sec. Enemy's hit point decreases according to Character's damage point. If the answer is wrong, Text "Wrong!" is displayed on the brown background for 3sec. Character's hit point decreases according to Character's damage point. Then, a new Question is displayed on the board with 4 unchosen answers.
CombatUI	Win the combat	The hit point of Enemy becomes 0	Pass	"Congratulations! You win the battle" and the total number of experiences added are displayed.	"Congratulations! You win the battle" and the total number of experiences added are displayed.
CombatUI	Lose the combat	The hit point of Character becomes 0	Pass	"Practice makes perfect." and the total number of experiences added are displayed.	"Practice makes perfect." and the total number of experiences added are displayed.
CombatUI	Exit the combat	Click on "Back to Map" button	Pass	Redirected to MapUI	MapUI
EnterPageUI	Enter scene display	Enter scene	Pass	Enter page UI will be shown as well as a start button.	Enter page UI will be shown as well as a start button.
EnterPageUI	Enter Login page	Click on "START" button	Pass	Enter Login page	Enter login page
LoginUI	Enter scene display	Enter scene	Pass	Input fields and labels displayed for user's input, login button is displayed for user's action	Input fields and labels displayed for user's input, login button is displayed for user's action
LoginUI	Enter User's home page	Click on 'Login' button	Pass	Student/Administrator's home page is displayed according to user account's	Student/Administrator's home page is displayed according to user

				type.	account's type.
LoginUI	Failed to enter user's home page	Click on 'Login' button	Pass	An alert window will show up on the screen.	An alert window will show up on the screen.
SignUpUI	Enter scene display	Enter scene	Pass	Input fields and labels displayed for user's input, sign up button is displayed for user's action	Input fields and labels displayed for user's input, sign up button is displayed for user's action
SignUpUI	Sign up successful	Click on 'Sign Up' button	Pass	An information window will show up "Successfully entered"	An information window will show up "Successfully entered"
SignUpUI	Sign up failed	Click on 'Sign Up' button	Pass	An alert window will show up "Invalid input"	An alert window will show up "Invalid input"
SignUpOptionUI	Enter scene display	Enter scene	Pass	2 sign up options buttons will show up	2 sign up options buttons will show up
SignUpOptionUI	Sign up with student	Click on 'Sign up with student' button	Pass	Enter student sign up page	Enter student sign up page
SignUpOptionUI	Sign up with Administrator	Click on 'Sign up with Admin' button	Pass	Enter administrator sign up page	Enter administrator sign up page
Module	Scenarios	Test Data (Action)	Status (Pass/Fail)	Expected Result	Actual Result
Student Mode UI	Enter student mode(main page)	A new user enters	Pass	Alert window prompts out and suggests the user to choose a new world to unlock: the unlocked worlds will be displayed. 4 Buttons, namely "Leaderboard", "Profile", "Report", "Question" are displayed on the left.	Alert window prompts out and suggests the user to choose a new world to unlock: the unlocked worlds will be displayed. 4 Buttons, namely "Leaderboard", "Profile", "Report", "Question" are displayed on the left.
Student Mode UI	Enter student mode(main page)	An existing user whose unlocked worlds' conquered territories are over 5 and who still has unlocked worlds.	Pass	Alert window prompts out and suggests the user to choose a new world to unlock: the unlocked worlds will be displayed. 4 Buttons, namely "Leaderboard", "Profile", "Report", "Question" are displayed on the left.	Alert window prompts out and suggests the user to choose a new world to unlock: the unlocked worlds will be displayed. 4 Buttons, namely "Leaderboard", "Profile", "Report", "Question" are displayed on the left.
Student Mode UI	Enter student mode(main page)	A user who has reached the unlocking	Pass	4 world buttons will display and all are active. 4 Buttons, namely	4 world buttons will display and all are active. 4 Buttons, namely

	page)	condition(the above two test cases) and clicks the "OK" on the Prompt window.		"Leaderboard", "Profile", "Report", " Question" are displayed on the left.	"Leaderboard", "Profile", "Report", " Question" are displayed on the left.
Student Mode UI	Enter student mode(main page)	An existing user whose one of unlocked worlds' conquered territories are less than 6 and who still has unlocked worlds.	Pass	The locked world button will be gray and inactive, while the unlocked world's buttons are active and in normal color. 4 Buttons, namely "Leaderboard", "Profile", "Report", " Question" are displayed on the left.	The locked world button will be gray and inactive, while the unlocked world's buttons are active and in normal color. 4 Buttons, namely "Leaderboard", "Profile", "Report", " Question" are displayed on the left.
Student Mode UI	Check leaderboard	The user clicks on the "Leaderboard" button	Pass	Move to the Leaderboard Scene.	Move to the Leaderboard Scene.
Student Mode UI	Check Profile	The user clicks on the "Profile" button	Pass	Move to the Profile Scene and display the user's profile	Move to the Profile Scene and display the user's profile
Student Mode UI	Check profile data for each world	The user clicks the columns on the left hand side of the profile	Pass	The content on the table of the right hand of the profile changes with the user's choice and displays the content related to the selected world	The content on the table of the right hand of the profile changes with the user's choice and displays the content related to the selected world
Student Mode UI	Check report	The user clicks on the "Report" button	Pass	Move to the Individual Report Scene. The system displays all the report data.	Move to the Individual Report Scene. The system displays all the report data
Student Mode UI	Add a new question	The user clicks on the "Questions" button	Pass	Move to the Add Question Scene.	Move to the Add Question Scene.
Student Mode UI	Explore an unlocked world	The user clicks on the button which represents that specific world(e.g. Software Engineer) and that world is unlocked	Pass	Move to that specific world (e.g. Software Engineer)	Move to that specific world (e.g. Software Engineer)
Student Mode UI	Explore a locked world	The user clicks on the button which	Pass	Cannot move to that specific world (e.g. Software Engineer) and	Cannot move to that specific world (e.g. Software Engineer) and

		represents that specific world(e.g. Software Engineer) and that world is locked		remains in Student Main Page	remains in Student Main Page
Leaderboard UI	Enters Leaderboard	The user/admin clicks on the "Leaderboard"	Pass	The leaderboard for the overall four worlds is displayed in the middle. The top 10 students are ranked by experience points(the accumulated points in four worlds). 5 buttons will display on the left.	The leaderboard for the overall four worlds is displayed in the middle. The top 10 students are ranked by experience points(the accumulated points in four worlds). 5 buttons will display on the left.
Leaderboard UI	Check Leaderboard for specific world	The user/admin clicks on the button for a specific world (e.g. software engineering). (the first four buttons)	Pass	The leaderboard for the software engineer world is displayed in the middle. The top 10 students are ranked by experience points(the points in that specific world. E.g. software engineering). 5 buttons will display on the left.	The leaderboard for the software engineer world is displayed in the middle. The top 10 students are ranked by experience points(the points in that specific world. E.g. software engineering). 5 buttons will display on the left.
Leaderboard UI	Check Leaderboard for overall 4 worlds world	The user/admin clicks on the fifth button.	Pass	The leaderboard for the overall four worlds is displayed in the middle. The top 10 students are ranked by experience points(the accumulated points in four worlds). 5 buttons will display on the left.	The leaderboard for the overall four worlds is displayed in the middle. The top 10 students are ranked by experience points(the accumulated points in four worlds). 5 buttons will display on the left.
Leaderboard UI	Check the Leaderboard special case.	The number of users in that world/ all four worlds is less than 10.	Pass	The leaderboard for that world(all four worlds) is displayed in the middle. The top students (less than 10) are ranked by experience points(the accumulated points in four worlds). 5 buttons will display on the left.	The leaderboard for that world(all four worlds) is displayed in the middle. The top students (less than 10) are ranked by experience points(the accumulated points in four worlds). 5 buttons will display on the left.
Leaderboard UI	Return to main page	The user/admin clicks on the return button on the top left corner.	Pass	Return back to student mode/admin mode	Return back to student mode/admin mode
Add Question UI	Enter add question	The user/admin clicks on the	Pass	5 input fields will display: Question, OptionA,	5 input fields will display: Question, OptionA,

		"Question" / "Add Question" button		OptionB, OptionC, OptionD. 3 dropdowns will display: Type, Level, Answer.	OptionB, OptionC, OptionD. 3 dropdowns will display: Type, Level, Answer.
Add Question UI	Add question successfully	The user/admin inputs the question and all input fields are filled. Then the user/admin clicks on the "add" button	Pass	A prompt window will display saying: "Question added. Problem" + the first 20 characters of that question.	A prompt window will display saying: "Question added. Problem" + the first 20 characters of that question.
Add Question UI	Add a question successfully and keep adding questions.	The user/admin inputs the question and all input fields are filled. Then the user/admin clicks on the "add" button. Then click the "ok" on that prompt window.	Pass	All input fields will be cleared just like when the user firstly enters the Add Question page.	All input fields will be cleared just like when the user firstly enters the Add Question page.
Add Question UI	Add a question wrongly.	The user/admin inputs the question and some input fields are not filled. Then the user/admin clicks on the "add" button.	Pass	An alert window will display saying: "Invalid field" + the unfilled field name.	An alert window will display saying: "Invalid field" + the unfilled field name.
Add Question UI	Add a question wrongly but want to keep adding that question.	The user/admin inputs the question and some input fields are not filled. Then the user/admin clicks on the "add" button. After that, click the "ok" on that alert window.	Pass	The previous inputs will not be cleared so that the user/admin keep editing the unfilled input fields.	The previous inputs will not be cleared so that the user/admin keep editing the unfilled input fields.
Add Question UI	Return to main page	The user/admin clicks on the return button on the top left corner.	Pass	Return back to student mode/admin mode	Return back to student mode/admin mode

Module	Scenarios	Test Data	Status (Pass/Fail)	Expected Result	Actual Result
Profile UI	Enter the Profile Page	The user clicks on one of the the columns on the left hand side	Pass	<p>On the left hand side, experience points of the user for different worlds are displayed, with a bar chart.</p> <p>Data on the table of the right hand side is updated based on the user's selection.</p> <p>If the user clicks the first column, data for overall gaming progress would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Software Architecture world would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Software Engineering world would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Product Management world would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Quality Assurance world would be displayed.</p>	<p>On the left hand side, experience points of the user for different worlds are displayed, with a bar chart.</p> <p>Data on the table of the right hand side is updated based on the user's selection.</p> <p>If the user clicks the first column, data for overall gaming progress would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Software Architecture world would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Software Engineering world would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Product Management world would be displayed.</p> <p>If the user clicks the second column, data for the user's gaming progress in the Quality Assurance world would be displayed.</p>
Report UI	Enter the Report Page	The user clicks on one of the columns on the left hand side	Pass	<p>On the left hand side, accuracy of the user for different worlds are displayed, with a bar chart.</p> <p>Header of the report changes with the user's selection.</p> <p>When the user taps on the first column, the header changes to Overall</p> <p>When the user taps on the second column, the header</p>	<p>On the left hand side, accuracy of the user for different worlds are displayed, with a bar chart.</p> <p>Header of the report changes with the user's selection.</p> <p>When the user taps on the first column, the header changes to Overall</p> <p>When the user taps on the second column, the header</p>

				<p>changes to Software Architecture</p> <p>When the user taps on the third column, the header changes to Software Architecture</p> <p>When the user taps on the fourth column, the header changes to Product Management</p> <p>When the user taps on the fifth column, the header changes to Quality Assurance</p>	<p>changes to Software Architecture</p> <p>When the user taps on the third column, the header changes to Software Architecture</p> <p>When the user taps on the fourth column, the header changes to Product Management</p> <p>When the user taps on the fifth column, the header changes to Quality Assurance</p>
Question Details UI	Enter Question Details Page	A user enters the question details page	Pass	Question id, question category, question level of difficulty, question description, 4 options of the question, correct option of the question and accuracy of the question are displayed	Question id, question category, question level of difficulty, question description, 4 options of the question, correct option of the question and accuracy of the question are displayed
Admin Mode UI	Enter Admin Mode (Main Page)	A user enters the admin mode	Pass	5 Buttons, namely "Leaderboard", "Individual Report", "Overall Report", "Question Tank", "Add Question" are displayed	5 Buttons, namely "Leaderboard", "Individual Report", "Overall Report", "Question Tank", "Add Question" are displayed
Admin Mode UI	Check leaderboard	The user clicks on the "Leaderboard" button	Pass	Move to the Leaderboard Scene	Move to the Leaderboard Scene
Admin Mode UI	User enters the leaderboard page and would like to check the profile of a student listed on the leaderboard	The user clicks on one entry of the leaderboard	Pass	Move to the Profile Scene showing the selected student's profile and would be able to check data for each world by selecting different columns on the left hand side	Move to the Profile Scene showing the selected student's profile and would be able to check data for each world by selecting different columns on the left hand side
Admin Mode UI	Check individual student's report	The user clicks on the "Individual Report" button	Pass	Move to the Individual Report page	Move to the Individual Report Page
Report List UI	Sort report list	The user selects the sorting method he prefers from the dropdown menu	Pass	The report list is sorted based on the selected criteria	The report list is sorted based on the selected criteria

Individual Report UI	The user enters the Individual's report page and selects a student's report entry	The user clicks the report entry from the report list	Pass	Move to the Individual Report Details page showing the report of the selected student	Move to the Individual Report Details page showing the report of the selected student
Admin Mode UI	Check overall report	The user clicks on the "Overall Report" button	Pass	Move to the overall report page and display the content	Move to the overall report page and display the content
Question Tank UI	Check question tank	The user clicks on the "Question Tank" button	Pass	Move to the question tank page and all questions are listed	Move to the question tank page and all questions are listed
Question Tank UI	Sort questions	The user selects the sorting method he prefers from the dropdown menu	Pass	The questions are sorted based on the selected criteria	The questions are sorted based on the selected criteria
Question Details UI	Check question details	The user clicks on the question entry which he would like to see the details	Pass	Move to the question details page showing the details of the selected question	Move to the question details page showing the details of the selected question
Admin Mode UI	Enter add question	The admin clicks on the "Question" /"Add Question" button	Pass	Move to the "Add Question" UI	Move to the "Add Question" UI