System Testing

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Compatibility Testing

Test Case Name	Windows 10 compatibility
Test Case Description	Check compatibility with the Windows 10 operating system
Test Steps	1. Launch the game on Win 10 2. Log in 3. Play at least one stage 4. Exit the game 5. Launch and log in again 6. Continue saved game
Pre-Requisites	Device with Windows 10 installed
Expected Results	Game started at the correct stage
Test Category	System test
Requirement	Non-functional requirements 3f. The application will be executable on a Windows 10 system and will be executable on any system that has Eclipse downloaded.
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	
Remarks	

Test Case Name	Mac OS compatibility
Test Case Description	Test for mac OS compatibility
Test Steps	1. Launch the game on Mac OS 2. Log in 3. Play at least one stage 4. Exit the game 5. Launch and log in again 6. Continue saved game
Pre-Requisites	Mac OS device
Expected Results	Game started at the correct stage
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass

Test Results	
Remarks	

Recovery Testing

Test Case Name	Error Log
Test Case Description	Check if errors are logged
Test Steps	1. Try login without a username 2. Check error log
Pre-Requisites	Game launched
Expected Results	Error message is printed to the console and logged in log file
Test Category	System test
Requirement	Functional Requirement 10. c. The game logs errors to a log file named game_errorlog.txt
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	
Remarks	

Test Case Name	Kill process
Test Case Description	Check if the game ends its own process when it closes
Test Steps	1. Try to exit the game via the x button 2. Try exiting the game via the exit button on the main menu
Pre-Requisites	The game is already running
Expected Results	Program closes
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	Game closes
Remarks	

Test Case Name	Save data
Test Case Description	Check if the game saves data when exiting normally

Test Steps	
	1. Load a user's data 2. Make changes to any level 3. Exit game normally 4. Launch and log in again 5. Continue saved game
Pre-Requisites	Logged in as an existing user
Expected Results	Progress is saved
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Fail
Test Results	Progress not saved
Remarks	

Test Case Name	Save Interruption
Test Case Description	Attempt to exit the game without saving
Test Steps	1. Load any level 2. Make changes to the action chain or run the action chain 3. Exit the game during execution without saving
Pre-Requisites	User save exists before testing
Expected Results	Changes are lost, but the User file is still able to load
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	Changes lost but successfully logged in
Remarks	

Stress Testing

Test Case Name	Action Chain infinite loop
Test Case Description	Test program behaviour when an action chain is set to run indefinitely
Test Steps	1. Load any level 2. Create an action chain that loops indefinitely 3. Monitor system resources
Pre-Requisites	Logged in
Expected Results	Memory usage and CPU usage stays constant during execution
Test Category	System test
Requirement	

Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	CPU and memory usage was constant during a 30 minute session
Remarks	

Test Case Name	Long username/password
Test Case Description	Enter a really long username and/or password
Test Steps	1. On the login screen, enter a really long username or password by pressing down on a key 2. Click login
Pre-Requisites	Game launched
Expected Results	Game does not crash
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	Main menu displayed
Remarks	

Performance Testing

Test Case Name	Launch speed
Test Case Description	Check the launch speed of the program
Test Steps	1. Launch the program 2. Observe the amount of time it takes to load the login screen
Pre-Requisites	Program installed
Expected Results	Game launches within a few seconds
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	Launched in about a second
Remarks	

Test Case Name	Gameplay speed
Test Case Description	Check if the robot moves quickly

Test Steps	
	1. Build the action chain 2. Click play 3. Observe the speed of the robot and the action chain
Pre-Requisites	Logged in and in gameplay screen
Expected Results	Each step in the chain takes a second at most
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	Each step seemed to take less than a second
Remarks	

Functional Testing

Test Case Name	Button functionality
Test Case Description	Clicks buttons to see if they work
Test Steps	
	1. Try clicking a bunch of buttons
Pre-Requisites	Logged in
Expected Results	The buttons respond
Test Category	System test
Requirement	
Automation	Manual
Date Run	01 Apr 2024
Pass/Fail	Pass
Test Results	All buttons functional
Remarks	

Test Case Name	Complete game
Test Case Description	Complete all levels of the game
Test Steps	
	1. Start a new game 2. Successfully finish the first level 3. Finish the next level 4. Continue until all levels complete
Pre-Requisites	Logged in
Expected Results	All levels can be completed without bugs
Test Category	System test
Requirement	
Automation	Manual
Date Run	

Pass/Fail	
Test Results	
Remarks	

Usability Testing

Test Case Name	Target age level
Test Case Description	Check if the game is easily understandable and usable for early high school students
Test Steps	1. Ideally, consult a teen in the target age range 2. If not, imagine yourself as the teenager and use the program
Pre-Requisites	A teen, or ability to imagine yourself as one
Expected Results	The teen enjoys the game
Test Category	System test
Requirement	Non-functional requirements 4. c. The instructions must be understandable by the target age group of middle school students. e. The puzzles must be solvable by the target age group.
Automation	Manual
Date Run	
Pass/Fail	
Test Results	
Remarks	