

As of 04/28, some of the features are still not implemented yet; however, they should be done by 05/05 and the test cases can be run on them by then.

Summary of Test Plan Discussion with Colleagues:

- + Gargi
 - Make sure your landing page describes the game, so that people can understand what the product is about before trying it out.
 - Incentivise users to sign up on the landing page as well, rather than only giving options to play with no account or play as a user.
 - Having navbar options separately also available on the user dashboard may be a little confusing to users; consider one universal navbar across the site.
- + Areebah:
 - Prevent an admin user from deleting other admin accounts
 - It might be helpful to put a range on the numbers, so that users don't put extremely huge or small values

Testing Instructions for Expert Users:

- + *Setup:*
 - Frontend:
 - `cd dev/frontend`
 - `npm i`
 - `npm run build`
 - `npm run start`
 - Interact with the frontend via localhost:3000
 - Docker setup:
 - `cd dev`
 - `docker compose build`
 - `docker compose up -d`
 - Backend:
 - `cd dev/backend`
 - `pip3 install Flask flask_cors flask_sqlalchemy jsonify`
 - Interact with the backend via localhost:4000
- + *Requirements for hardware/software/password key:*
 - Hardware: computer/laptop, keyboard, mouse/trackpad
 - Software: command line interface (in order to use git, npm, and docker commands)

Automation (Complexity) of Testing Instructions:

- + *Time and effort to set up the test plan for execution:*
 - Download/setup time for all requirements/testing tools: 20 min (max)
 - Testing time for test cases: ~ 1 hr
 - Testing time for backend: TBD
- + *Testing tools:*

- Frontend: PyTest + Selenium
- Backend: Postman

Amount of Time to Finish the Tests:

Refer to the 'Expected Time' column in **Test Cases**; however, keep in mind all these times are estimated and the exact duration cannot be properly determined until features are complete.

Test Cases:

<i>Feature</i>	<i>Description</i>	<i>Test Case(s)</i>	<i>Expected Time (max)</i>	<i>Expected Result</i>	<i>Actual Test Result</i>
Landing page	http://localhost:3000/ When users land on the site, they'll be greeted by the home screen. There is a navigation menu at the top where users have the option to log in, sign up, or go to the game. There is a description of the game. Users will have the option to 'Play Now!'.	User scrolls from top to bottom.	< 1 min	User should be able to scroll and see the navigation menu at the top and the game description, as well as the 'Play Now!' option. All buttons/link should redirect to the correct pages.	Pass/Fail
		User clicks on the Navbar link and selects 'Log In'.	< 1 min	User is shown the Login modal.	Pass/Fail
		User clicks on the Navbar link and selects 'Log In' and selects the 'Create Account' at the bottom.	< 1 min	User is shown the Signup modal.	Pass/Fail
		User clicks on the 'Play Now!' option.	< 1 min	User is redirected to the Game page.	Pass/Fail
Account creation	Users can create an account through the navigation menu at the top by clicking 'Log In' and then clicking on the 'Create Account' option, and then creates an account by inputting a valid username, email, and password.	User leaves one of the form fields blank.	< 1 min	The form doesn't submit. User is prompted to fill out the fields they left incomplete.	Pass/Fail
		User tries to create an account with an already existing username.	1 min	The form doesn't submit. User is alerted that the entered username is associated with another account.	Pass/Fail
		User tries to create an account with an	1 min	The form doesn't submit. User is alerted that the	Pass/Fail

		already existing email.		entered email is associated with another account.	
		User tries to create an account with a password that doesn't meet password requirements	1 min	The form doesn't submit. User is alerted to create a password that meets the requirements.	Pass/Fail
		User tries to create an account when both password fields don't match.	1 min	The form doesn't submit. User is alerted that both password fields must match.	Pass/Fail
		User tries to create an account with a valid username, email, and password.	1 min	The form submits. User is redirected to the login modal.	Pass/Fail
Password hashing	When an account is being created, users' passwords will be hashed before it's stored in the database for security purposes.	Use Postman to test the 'create_user' route with a body that contains a test username, email, and password.	1 min	The password shouldn't be visible in plaintext in the database or in the API call	Pass/Fail
Login	Users can login to a pre-existing account through the navigation menu at the top by clicking 'Log In' and providing the correct credentials associated with said account.	User enters an incorrect username.	1 min	User is alerted that they entered an incorrect username.	Pass/Fail
		User enters an incorrect password.	1 min	User is alerted that they entered an incorrect password.	Pass/Fail
		User enters the correct username and password.	1 min	User is redirected to the User Dashboard.	Pass/Fail
		User enters the correct username and password for an admin account.	1 min	User is redirected to the Admin Dashboard.	Pass/Fail
User Authentication	The user's identity will be verified after they login on the Login modal and before they can access certain pages on the site. If authentication fails, the user will be asked to enter their	User enters the incorrect credentials on the Login page.	1 min	User is alerted they entered incorrect credentials. They will not be able to go to the User/Admin Dashboard.	Pass/Fail

	credentials again.	User enters the correct credentials on the Login page.	1 min	User is redirected to the User/Admin Dashboard.	Pass/Fail
Logout	Users can logout of their account using the 'Log Out' button in the navigation menu.	User clicks the 'Log Out' button in the navigation menu.	< 1 min	User is redirected to the landing page. Their session ends, and they cannot access the User/Admin Dashboard without logging in again.	Pass/Fail
Game	http://localhost.com/3000/graph Users can choose from many possible puzzles. Each puzzle is a diagram of interconnected nodes. User has to type in positive whole numbers in each node such that each node's number is the sum of the digits of all the numbers connected to it	User clicks on each node and enters a number. After all nodes have been filled, user clicks 'Submit Solution' button to check whether their answer is correct.	~10 min	User is notified whether their solution is correct and incorrect. If correct, user sees the game end modal. If incorrect, user is prompted to go back to their answers and fix it.	Pass/Fail
Get hints	While playing a puzzle, users can click the 'Get Hint' option if they are stuck.	User clicks on the 'Get Hint' option.	< 1 min	User gets a popup that suggests a number they can use to fill in a particular node.	Pass/Fail
Get solution	While playing a puzzle, users can click the 'Get Solution' option if they are stuck	User clicks on the 'Get Solution' option.	< 1 min	User gets one of the possible solutions for the puzzle.	Pass/Fail
Game end screen	After users complete a level, they will see a screen displaying how long it took them to complete the game, as well as options to either continue to the next puzzle or to go to the landing page.	User completes a puzzle.	< 1 min	User sees how long it took them to complete the game.	Pass/Fail
		User clicks on the 'Yes [to proceed to next level]' option.	< 1 min	User is redirected to the next puzzle.	Pass/Fail
		User clicks on the 'No [to proceed to next level]' option.	< 1 min	User is redirected to the landing page.	Pass/Fail
		User clicks on the 'View all Graphs' option.	< 1 min	User is redirected to the Graph menu page.	Pass/Fail

User dashboard	http://localhost:3000/dashboard Users have a dashboard where they can view their account settings, and gameplays.	User scrolls through the User Dashboard and views the button to the Account Settings, and gameplays.	1 min	User sees the button to the Account Settings, and their gameplays.	Pass/Fail
User gameplays	Users can view their gameplays about the games they played and how long it took them to complete that game.	User plays a new puzzle, goes to the User Dashboard, and goes to the Game History section.	Time to play a game + < 1 min	User sees all of their previously played games, as well as the new game.	Pass/Fail
Admin dashboard	http://localhost:3000/admin-dashboard Admins have a dashboard where they can view their admin features such as user account removal and password reset, as well as statistics from the overall recorded data.	Admin scrolls through the Admin Dashboard and views the button to the Account Settings, the User Account Removal feature, the Password Reset feature, and statistics generated from the data.	< 1 min	Admin sees the button to the Account Settings, the User Account Removal feature, the Password Reset feature, and statistics generated from the data.	Pass/Fail
Admin user account removal	Admins have the ability to permanently delete user accounts on the Admin Dashboard.	Admin scrolls through the user list and select the user they want to delete.	1 min	Admin will be alerted that they are trying to delete an account and that the action will be permanent. Once the admin confirms the decision, the user's account will be deleted, along with all the data that is associated with their account.	Pass/Fail
Admin password reset	Admins have the ability to reset the password of a user account on the Admin Dashboard.	Admin scrolls through the user list and selects the user they want to change the password for.	1 min	Admin gets a popup where they enter the new user password. Once the admin confirms the decision, they will get a confirmation that the user account information was updated.	Pass/Fail
Account settings	http://localhost:3000/dashboard Users can access the Account Settings through the User/Admin Dashboard,	User clicks the 'Edit Username' option.	1 min	If user enters a valid username, their account information will be updated with the new username.	Pass/Fail

	where they can change their username, email, and/or password. User can also delete their account.	User clicks the 'Edit Email' option.	1 min	If user enters a valid email, their account information will be updated with the new email.	Pass/Fail
		User clicks the 'Edit Password' option.	1 min	If user enters a valid password, their account information will be updated with the new password.	Pass/Fail
		User clicks the 'Delete Account' option.	1 min	User will be alerted that they are trying to delete their account and that the action will be permanent. Once the user confirms the decision, their account will be deleted, along with all the data that is associated with their account. User will be redirected to the landing page.	Pass/Fail