Test Plan

I. Overall Test Plan

Our test plan will consist of back-end and front-end tests to ensure each piece of the web application is working correctly. Using test-driven development, we will know how each piece works before pushing it to production. We will create mock tests for the various functions and components interacting throughout the application and individually.

II. Test Case Descriptions

This is where we will have a thorough bulleted list.
For each test case provide the following:

1. test case identifier (a number or unique name)
2. purpose of test
3. description of test
4. inputs used for test
5. expected outputs/results
6. normal/abnormal/boundary case indication
7. blackbox/whitebox test indication
8. functional/performance test indication
9. unit/integration test indication

CT1.1 **Configuration Test 1**
CT1.2 Verify the working login page.
CT1.3 Confirm that there is an accessible url and that it brings users to the correct login screen of our application
CT1.4 Inputs: URL address
CT1.5 Outputs: Home page of Musclepedia
CT1.6 Normal
CT1.7 Blackbox
CT1.8 Functional
CT1.9 Unit

CT2.1 **Configuration Test 2**
CT2.2 Verify the correct display of the 3D model.
CT2.3 This test will confirm whether or not the 3D model being displayed is being displayed properly and if it is interactable or not.
CT2.4 Inputs: Navigating to the body model page of our website
CT2.5 Outputs: A proper-looking body model that can be clicked on and will automatically navigate when clicked to a new webpage or popup dialog.

CT2.6	Normal
CT2.7	Whitebox
CT2.8	Functional
CT2.9	Integration
CT3.1	**Configuration Test 3**
CT3.2	Verify the 3D model is responding correctly
CT3.3	This test will ensure where a user clicks is properly associated. If a user clicks an area that has no information nothing will happen. This test will also ensure that a pop-up will only appear when a viable body part is clicked.
CT3.4	Inputs: Clicking on the body model in various places
CT3.5	Outputs: Either nothing or an informative pop-up
CT3.6	Both Normal and Abnormal
CT3.7	Whitebox
CT3.8	Functional
CT3.9	Unit
DBT1.1	**Database Testing 1**
DBT1.2	Test User Authentication.
DBT1.3	Ensure that user authentication works as intended, allowing only authorized users to access their accounts.
DBT1.4	Inputs: The user enters correct login credentials or incorrect credentials.
DBT1.5	Outputs: Successful login for correct credentials, authentication failure for incorrect credentials.
DBT1.6	Both Normal and Abnormal
DBT1.7	Blackbox
DBT1.8	Functional
DBT1.9	Unit
DBT2.1	**Database Testing 2**
DBT2.2	Verify User Data Storage.
DBT2.3	Confirm that user data, including exercise history and selected sore areas, is correctly stored in the database.
DBT2.4	Inputs: The user selects sore areas, and logs out.
DBT2.5	Outputs: User data is stored in the database and can be retrieved upon login.
DBT2.6	Normal
DBT2.7	Blackbox
DBT2.8	Functional
DBT2.9	Unit

DBT3.1	**Database Testing 3**
DBT3.2	Assess Data Retrieval.
DBT3.3	Verify that user-specific data is accurately retrieved from the database upon login.
DBT3.4	Inputs: The user logs in with valid credentials.
DBT3.5	Outputs: Display of the user's stored exercise history and selected sore areas.
DBT3.6	Normal
DBT3.7	Blackbox
DBT3.8	Functional
DBT3.9	Unit

WT1.1	**Web Test 1**
WT1.2	This test will verify front-end controller functions operate correctly.
WT1.3	An authorized user interacting with the various components on the front-end can successfully hit the back-end by using these components.
WT1.4	Inputs: Material UI interaction.
WT1.5	Outputs: Success confirmation through pop-up or information display.
WT1.6	Normal
WT1.7	Whitebox
WT1.8	Functional
WT1.9	Integration Testing

WT2.1	**Web Test 2**
WT2.2	This test will verify user data retrieved from the database is displayed properly in the various components of the application.
WT2.3	A user logs in or interacts with a component and is able to see information pertaining to them in a proper manner with no data loss.
WT2.4	Inputs: The user logs in or interacts with something.
WT2.5	Outputs: Data displays properly in its respective form.
WT2.6	Normal
WT2.7	Whitebox
WT2.8	Functional
WT2.9	Integration Testing

WT3.1	**Web Test 3**
WT3.2	This test will verify that the 3D model of the human muscular system interacts as Expected with no performance loss.
WT3.3	A user can interact with the 3D model (rotating) and can select parts of the body to enter the process state of pain management assistance.
WT3.4	Inputs: User interaction with 3D model.
WT3.5	Outputs: Smooth rotation and interaction with the 3D model.

WT3.6	Normal
WT3.7	Whitebox
WT3.8	Performance
WT3.9	Integration Testing

WT4.1	**Web Test 4**
WT4.2	This test will verify front-end functions operate as expected.
WT4.3	Mock testing of each function on the front end to ensure proper output given correct and incorrect inputs.
WT4.4	Inputs: Nothing / Mock Data depending on the function's purpose.
WT4.5	Outputs: Correct return type or error given an incorrect input.
WT4.6	Normal/Abnormal
WT4.7	Blackbox
WT4.8	Functional
WT4.9	Unit Testing

UT1.1	**User Test 1**
UT1.2	This test will confirm that the web application provides a seamless experience on different-sized screens, including mobile devices.
UT1.3	Access web application on different devices with various screen sizes, such as phones, tablets, and monitors. Ensure that all intended elements can be viewed and interactions remain the same.
UT1.4	Inputs: The user logs in on different devices and interacts with different UI elements.
UT1.5	Outputs: Visuals and interactions are consistent throughout the devices.
UT1.6	Normal
UT1.7	Blackbox
UT1.8	Functional
UT1.9	Integration

UT2.1	**User Test 2**
UT2.2	This test will evaluate the web application’s functionality in offline mode.
UT2.3	Access the application with no internet connection and ensure that intended information can still be retrieved.
UT2.4	Inputs: Activate offline mode.
UT2.5	Outputs: Specific soreness information can still be retrieved.
UT2.6	Normal/Boundary
UT2.7	Blackbox
UT2.8	Functional
UT2.9	Integration

UT3.1	**User Test 3**
UT3.2	This test will assess the user's ability to view and customize their user profile and personalized features.
UT3.3	A user can customize their user profile such as username, password, and personalized information to retrieve specific soreness information more easily.
UT3.4	Inputs: User interacts with their user profile page.
UT3.5	Outputs: User information can be viewed and customized.
UT3.6	Normal
UT3.7	Blackbox
UT3.8	Performance
UT3.9	Integration

FST1.1	**Full System Test 1**
FST1.2	Validate End-to-End User Workflow.
FST1.3	Test the complete user workflow, including login, 3D model interaction, body area selection, exercise recommendation, and logout.
FST1.4	Inputs: User logs in, interacts with the 3D model, selects sore areas, performs exercises, and logs out.
FST1.5	Outputs: Seamless execution of the entire user workflow without errors.
FST1.6	Normal
FST1.7	Blackbox
FST1.8	Performance
FST1.9	Integration

FST2.1	**Full System Test 2**
FST2.2	Test concurrent users.
FST2.3	We will deploy various server agents to simulate and evaluate system performance under concurrent user scenarios, including simultaneous 3D model interaction and data storage/retrieval.
FST2.4	Inputs: Interact with the app on different servers.
FST2.5	Outputs: Stable performance without crashes or significant slowdowns.
FST2.6	Normal
FST2.7	Blackbox
FST2.8	Performance
FST2.9	Integration

III. Test Case Matrix

Test Case ID	Normal/ Abnormal	Blackbox/ Whitebox	Functional/ Performance	Unit/ Integration
CT1	Normal	Blackbox	Functional	Unit
CT2	Normal	Whitebox	Functional	Integration
CT3	Both	Whitebox	Functional	Unit
DBT1	Both	Blackbox	Functional	Unit
DBT2	Normal	Blackbox	Functional	Unit
DBT3	Normal	Blackbox	Functional	Unit
WT1	Normal	Whitebox	Functional	Integration
WT2	Normal	Whitebox	Functional	Integration
WT3	Normal	Whitebox	Performance	Integration
WT4	Normal/Abnormal	BlackBox	Functional	Unit
UT1	Normal	Blackbox	Functional	Integration
UT2	Normal/Boundary	Blackbox	Functional	Integration
UT3	Normal	Blackbox	Performance	Integration
FST1	Normal	Blackbox	Performance	Integration
FST2	Normal	Blackbox	Performance	Integration

Results

CT1.1	**Configuration Test 1**
CT1.2	Verify the working login page.
CT1.3	Confirm that there is an accessible url and that it brings users to the correct login screen of our application
Results:	We successfully created a working login page with an accessible url.

CT2.1	**Configuration Test 2**
CT2.2	Verify the correct display of the 3D model.
CT2.3	This test will confirm whether or not the 3D model being displayed is being displayed properly and if it is interactable or not.
Results:	We were successfully able to display the 3D model on our “home” screen. The model was also interactable and can be moved around and zoomed in on.

CT3.1	**Configuration Test 3**
CT3.2	Verify the 3D model is responding correctly
CT3.3	This test will ensure where a user clicks is properly associated. If a user clicks an area that has no information nothing will happen. This test will also ensure that a pop-up will only appear when a viable body part is clicked.
Results:	This functionality was not working properly in our final deliverable.

DBT1.1	**Database Testing 1**
DBT1.2	Test User Authentication.
DBT1.3	Ensure that user authentication works as intended, allowing only authorized users to access their accounts.
Results:	

DBT2.1	**Database Testing 2**
DBT2.2	Verify User Data Storage.
DBT2.3	Confirm that user data, including exercise history and selected sore areas, is correctly stored in the database.
Results:	We were able to store user names and passwords but we did not collect any other user data in our final deliverable.

DBT3.1	**Database Testing 3**
DBT3.2	Assess Data Retrieval.
DBT3.3	Verify that user-specific data is accurately retrieved from the database upon login.
Results:	We did not collect other data than login credentials. However, all login functionalities were working seamlessly.

WT1.1	**Web Test 1**
WT1.2	This test will verify front-end controller functions operate correctly.
WT1.3	An authorized user interacting with the various components on the front-end can successfully hit the back-end by using these components.
Results:	The only functionality using both front-end and back-end functionalities was the login functionality which is working correctly.

WT2.1	**Web Test 2**
WT2.2	This test will verify user data retrieved from the database is displayed properly in the various components of the application.
WT2.3	A user logs in or interacts with a component and is able to see information pertaining to them in a proper manner with no data loss.
Results:	We were successfully able to display specified data when the specified data field is interacted with.

WT3.1	**Web Test 3**
WT3.2	This test will verify that the 3D model of the human muscular system interacts as Expected with no performance loss.
WT3.3	A user can interact with the 3D model (rotating) and can select parts of the body to enter the process state of pain management assistance.
Results:	We were successfully able to implement interactions like rotating and zooming on the 3D model. However, selection of specific body parts on the 3D-model was not working on our final deliverable.

WT4.1	**Web Test 4**
WT4.2	This test will verify front-end functions operate as expected.
WT4.3	Mock testing of each function on the front end to ensure proper output given correct and incorrect inputs.
Results:	The front-end was working as intended.

UT1.1	**User Test 1**
UT1.2	This test will confirm that the web application provides a seamless experience on different-sized screens, including mobile devices.
UT1.3	Access web application on different devices with various screen sizes, such as phones, tablets, and monitors. Ensure that all intended elements can be viewed and interactions remain the same.
Results:	Our application seamlessly worked on all products tested including a monitor, tablet, and laptop

UT2.1	**User Test 2**
UT2.2	This test will evaluate the web application's functionality in offline mode.
UT2.3	Access the application with no internet connection and ensure that intended information can still be retrieved.
Results:	Our product successfully worked both online and offline.

UT3.1	**User Test 3**
UT3.2	This test will assess the user's ability to view and customize their user profile and personalized features.
UT3.3	A user can customize their user profile such as username, password, and personalized information to retrieve specific soreness information more easily.
Results:	The user can successfully alter their username and password.

FST1.1	**Full System Test 1**
FST1.2	Validate End-to-End User Workflow.
FST1.3	Test the complete user workflow, including login, 3D model interaction, body area selection, exercise recommendation, and logout.
Results:	User workflow, login functionality, 3D model interaction, exercise recommendation, and logout functionalities are all working properly. Body area selection functionalities are not working in our final deliverable.

FST2.1	**Full System Test 2**
FST2.2	Test concurrent users.
FST2.3	We will deploy various server agents to simulate and evaluate system performance under concurrent user scenarios, including simultaneous 3D model interaction and data storage/retrieval.
Results:	Our product functions properly with concurrent users.