Proposed Testing Plan for Customer Approval

Unit Testing Plan:

Test ID	Method/Class	Inputs	Expected Outputs	Type
UT-01	User Creation	id=1, username='test'	User retrievable from DB	Clear Box
UT-02	User Height Update	height="6'0"	Height updated in DB	Clear Box
UT-03	User Weight Update	weight="90kg"	Weight updated in DB	Clear Box
UT-04	Exercise Creation	id=1, name='Push-ups'	Exercise created in DB	Clear Box
UT-05	Save Exercise	user_id=1, exercise_id=101	Exercise saved in DB	Translucent Box
UT-06	Retrieve Exercise by ID	id=1	Correct exercise details returned	Opaque Box
UT-07	Retrieve Exercise by Toughness	'Medium'	Exercises filtered correctly	Opaque Box

UT-08	User Data Retrieval	user_id=1	Correct user data returned	Opaque Box
UT-09	Exercise Reps Update	suggested_reps=30	Reps updated correctly in DB	Translucent Box
UT-10	Invalid Exercise Retrieval	id=999	Appropriate error response	Translucent Box

Integration Testing Plan:

Test ID	Components	Test Steps	Expected Result	Type
IT-01	Login API & DB	Submit login request	JWT token issued successfully	Translucent Box
IT-02	User Data API & DB	Retrieve user details	User details fetched correctly	Clear Box
IT-03	Exercise API & DB	Create new exercise entry	Exercise entry created successfully	Clear Box
IT-04	Exercise Filter API & DB	Filter exercises by toughness	Correct filtered results returned	Opaque Box

IT-05	Save Exercise API & DB	Save user exercise	Exercise saved correctly	Translucent Box
IT-06	Auth Middleware & API	Access protected endpoint	Secure access granted with valid token	Translucent Box

System Testing Plan:

Test ID	Scenario	Steps	Expected Outcome	Type
ST-01	User Login & Exercise Save	Login → Save exercise	Exercise saved to profile	Opaque Box
ST-02	New User Workflow	Register → Login	Registration & login successful	Translucent Box
ST-03	Update User Profile	Update profile details	Details correctly updated in UI	Clear Box
ST-04	Access Control	Admin/User access	Admin granted, user denied access correctly	Opaque Box
ST-05	Logout Session	Logout → Attempt protected access	Session properly terminated	Translucent Box

Testing Responsibility & Strategy:

- **Clear Box Testing (White Box)**
  - Responsible: Aryan Patel, Devarsh Joshi
  - Approach: Perform code-level logic tests, verify internal logic flow and complete path coverage.

- **Translucent Box Testing (Gray Box)**
  - Responsible: Mihir Ghosh, Jolly Soni
  - Approach: Conduct functional testing combined with analysis of internal states, such as memory usage and database integrity post-operation.

- **Opaque Box Testing (Black Box)**
  - Responsible: Mansi Kandoi
  - Approach: Execute tests focused on input-output validations without inspecting internal structures or code logic.

Proposed Additional Feature (Customer Decision):

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Documentation Plan:

- **Developer Documentation:**
  - **Responsible:** Aryan Patel, Jolly Soni, Mansi Kandoi
  - **Content:**
    - Comprehensive API documentation including endpoints, methods, request and response formats, and error codes.
    - Detailed system architecture diagrams illustrating the interactions between system components.
    - Extensive inline source code comments explaining key functions and logic.
    - Step-by-step technical setup guides for setting up the development environment and deployment procedures.
    - Troubleshooting guidelines and best practices.

- ○ **Form & Location:** Documentation will be created in Markdown format and stored in the `/docs` directory within the project's GitHub repository, providing easy access and version control.

- ● **User/Application Documentation:**
  - ○ **Responsible:** Mihir Ghosh, Devarsh Joshi
  - ○ **Content:**
    - ■ Step-by-step user guides covering all key functionalities, including registration, login, managing user profiles, and interacting with exercises.
    - ■ Interactive in-app tooltips offering quick help and contextual guidance within the application interface.
    - ■ A detailed downloadable PDF user manual addressing common user tasks, typical scenarios, and troubleshooting strategies.
    - ■ Frequently Asked Questions (FAQs) addressing common inquiries and issues users might encounter.
    - ■ Visual walkthroughs and screenshots demonstrating typical user interactions and workflows.
  - ○ **Form & Location:**
    - ■ Interactive tooltips integrated directly within the application interface.
    - ■ A comprehensive PDF manual accessible via the application's help menu and downloadable from the project website.