1. Introduction and Approach

The PitchForecast application's testing approach concentrated on guaranteeing reliable communication and safe data transmission between the Flask REST API and the AngularJS frontend. The proper use of the established API endpoints, particularly those involving complex filtering, CRUD, and aggregation logic, was confirmed through manual testing in a contemporary web browser.

2. Testing Environment

Component	Details
Frontend	Angular 1.8.2, served via http-server on http://localhost:8080.
Backend API	Flask REST API (CW1 Submission), running on http://localhost:5001.
Test User	demo@example.com / password123 (used for authenticated testing).

3. Test Cases and Results

A. Authentication and Authorization Testing

This section validates the security and user access controls using the AuthService.

Test Case	Procedure	Expected Result	Result
T1. Login Success	Enter test user credentials in the /login view.	User redirects to /pitches; JWT token and user details stored in localStorage.	**PASS**
T2. Protected Route Access	Attempt to access /add-pitch without logging in.	User is redirected to /login via the Angular router resolve block.	**PASS**
T3. Logout Functionality	Click "Logout" in the navbar dropdown.	Token and user data removed from localStorage; user redirects to /home.	**PASS**

B. Core Feature Validation (Pitch Data, CRUD, and Reviews)

Test Case	Procedure	Expected Result	Result
T4. Pitch Listing & Search	Navigate to /pitches and use the text search (filters.q).	GET /api/pitches is called with the q query parameter; only matching pitches are displayed.	**PASS**
T5. Advanced Filtering	Set Status to 'Open' and specify a Max Price. Click 'Apply Filters'.	The API call correctly constructs complex parameters (status, max_price) demonstrating flexible querying.	**PASS**
T6. Pitch Creation (POST)	Log in, navigate to /add-pitch, and successfully submit a new pitch.	Pitch is created via POST /api/pitches (auth header included); user redirects to the new pitch detail page.	**PASS**
T7. Review Submission (POST)	Log in, navigate to pitch detail, and submit a review form.	Successful POST /api/pitches/{id}/reviews call; the new review is immediately rendered on the page.	**PASS**

C. Analytics and Aggregation

Test Case	Procedure	Expected Result	Result
T8. Analytics Load	Navigate to /analytics.	Both aggregation tables (Avg Price by Ground and Top Rated Pitches) load successfully by consuming the dedicated analytics API endpoints.	PASS

4. Summary

The PitchForecast application passed all critical front-end and API integration tests. The application demonstrates the complex API communication required, particularly through advanced filtering (T5) and aggregation reporting (T8), while maintaining strict authentication enforcement (T2).