1. Introduction and Application Domain

The PitchForecast System is a full-stack application designed as a location-aware cricket pitch discovery and review platform. It is tailored for players, organizers, and sports clubs across London. The system enables users to evaluate pitch conditions, availability, and user feedback in real-time.

Key Features

- **Pitch Management:** All accessible pitches may be browsed, filtered, searched, and comprehensive information seen.
- **Reviews System:** To evaluate the quality of pitches, logged-in users can provide descriptive evaluations and star ratings.
- **User Authentication:** For safe login and secured routes, JWT token-based authentication is used.
- **Data Insights:** The program has an Analytics Dashboard that offers data-driven insights like top-rated pitches and average pricing by ground.
- **Content Management:** By using the protected route /add-pitch, authorised users can add new pitches to the system.

2. Technologies Used and Architecture

Frontend (AngularJS 1.8.2)

- **Framework:** AngularJS 1.8.2 and Angular Route.
- **Styling:** Bootstrap 5.1.3 is used for a responsive design and grid system, complemented by Font Awesome 6.0 for icons.
- **Client Logic:** Application logic, including state management and form validation, is handled by custom controllers and services.

Backend (Flask + MongoDB)

- The application communicates with a Flask REST API which uses MongoDB for persistence.
- The API base URL is configured in the frontend constant API_URL as http://localhost:5001/api.

3. Application Structure

The front-end application is organized to separate concerns, making development and maintenance straightforward:

Directory	Purpose	Key AngularJS Components
index.html	Main entry file, loading all dependencies and defining the global application scope.	Navbar, ng-app, ng-view.
app/app.js	Configures the Angular module (pitchBookingApp) and defines all application routes.	Route definitions, Auth resolve block.
app/services/	Abstracts API communication, token handling, and data fetching.	authService.js, pitchService.js, analyticsService.js.
app/controllers/	Contains the business logic, scope initialization, and user interaction handlers for each view.	PitchListController, LoginController, AnalyticsController, etc..
app/directives/	Reusable UI component for displaying pitches in a standardized format.	pitchCard.js.
views/	HTML templates for the application's different pages.	pitch-list.html, pitch-detail.html, analytics.html, etc..

4. Installation and Running

This process requires Node.js for the http-server package.

1. **Start Backend API:** Ensure the Flask backend is running on http://localhost:5001.
2. **Install HTTP Server:** Install the global server dependency:
    - Bash
    - npm install -g http-server
3. **Start Frontend Server:** Navigate to the root directory and start the server:

    - Bash
    - http-server -p 8080 -c-1

4. **Access:** Open your web browser and go to http://localhost:8080.