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Course: Dynamic Web Applications
Course Code: IS53076A

DWA Final Lab Assignment

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Outline

FitTrackr is a web-based health and fitness application designed to help users log, track, and review their workouts. Users can register and log in securely, add new workouts including type, duration, calories burned, and notes, and search through their previously logged workouts. The system ensures each user can only access their own data. The application focuses on simplicity, usability, and responsive design, providing a dashboard to view recent workouts and a search interface for easy filtering. FitTrackr consolidates knowledge of Node.js, Express, EJS, MySQL, session management, and form validation into a fully functional web application.

Architecture

FitTrackr follows a **two-tier architecture**:

- **Application Tier**: Node.js with Express serves dynamic pages using EJS templates, handles routing, session management, and form validation. Middleware such as express-session, express-validator, and bcrypt ensures secure and validated user interactions.
- **Data Tier**: MySQL stores user and workout data. The application queries the database using mysql2 and maps relational data to user sessions for dynamic content rendering.

Data Model

The system has two main tables:

- **Users**: Stores id, username, firstName, lastName, email, and hashedPassword.
- **Workouts**: Stores workoutid, user_id (foreign key), date, type, duration, calories, and notes.

User Functionality

1. **Registration & Login**: Users can create an account with validation and hashed passwords.
2. **Dashboard**: Displays a list of logged workouts in reverse chronological order.
3. **Add Workout**: Users can log a new workout with date, type, duration, calories, and notes. Validation prevents invalid data.
4. **Search Workouts**: Users can search their workouts by type or notes keywords.
5. **Session Management**: Users must log in to access workouts; logged-in state persists using sessions.
6. **Flash Messages**: Confirmation or error messages appear on login, logout, and adding workouts.

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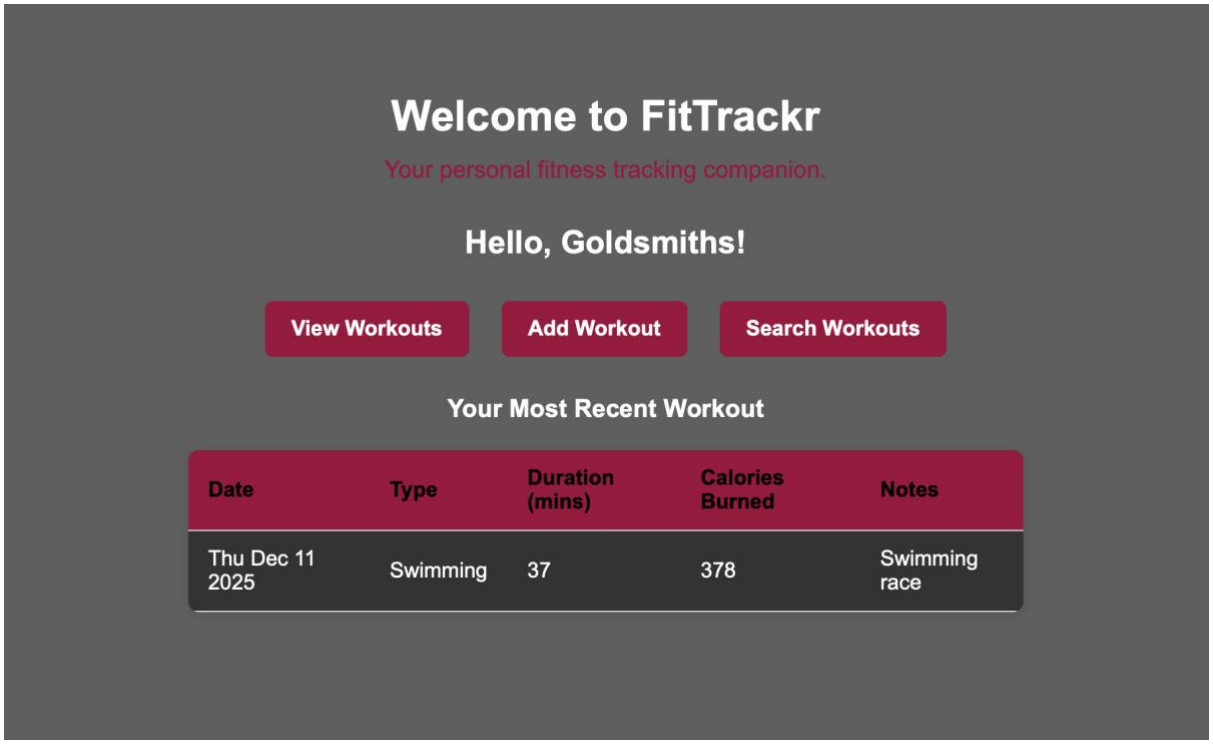
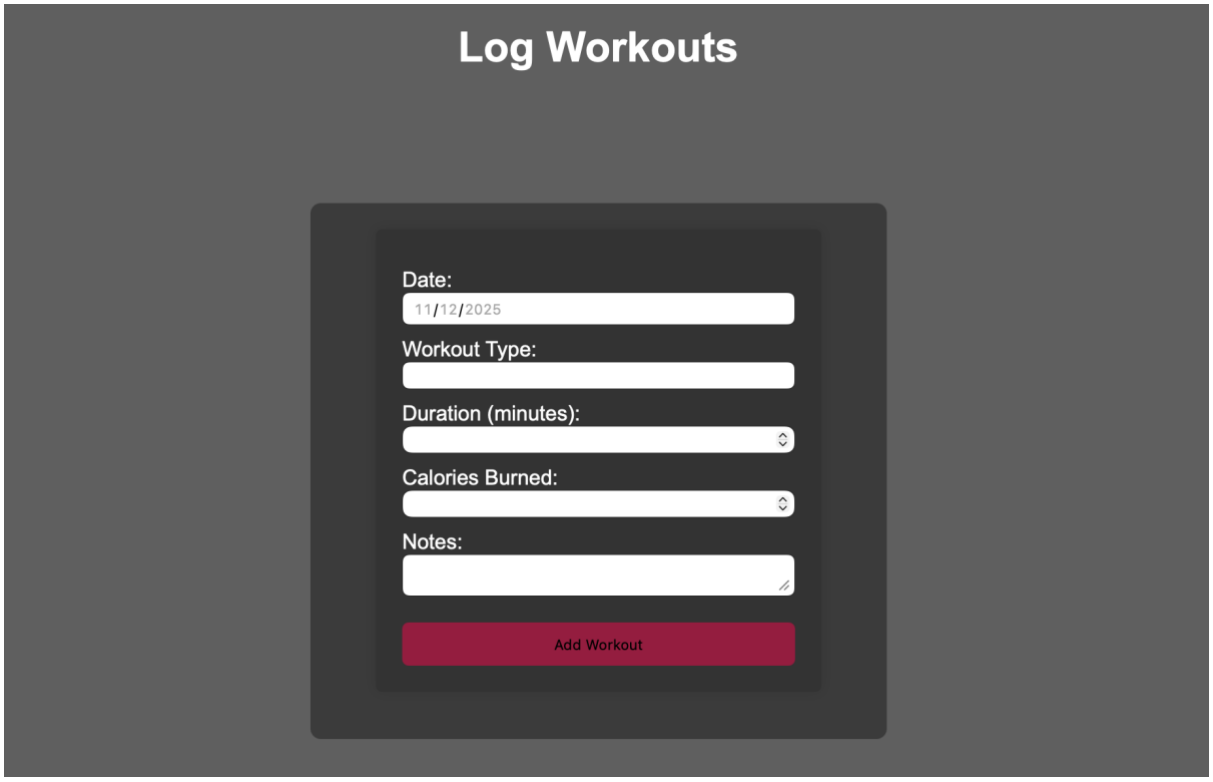


Home page/Dashboard when user is logged in.



Log Workouts form

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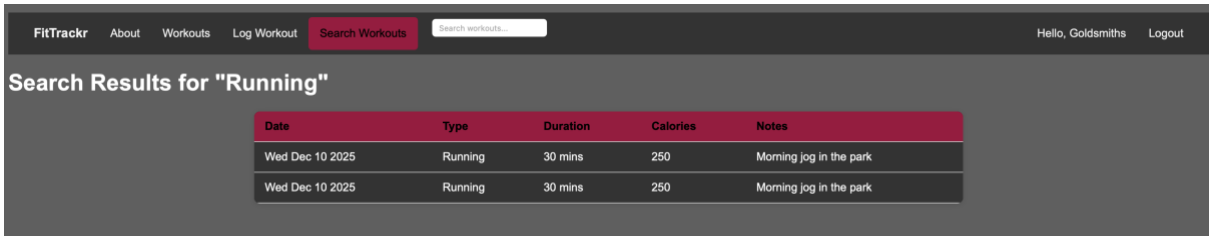

Search Results page

Advanced Techniques

The application uses session-based authentication implemented with express-session. Upon successful login, the user's username and name are stored in the session and made available to all routes and templates using Express middleware. Protected routes require authentication through custom middleware, ensuring access control across the application.

The application uses session-based flash messages to provide user feedback for authentication events such as login, logout and registration. Messages are stored temporarily in the session and exposed globally to all views using Express middleware, ensuring that each message is displayed once and then removed.

The application uses a user session-based system so certain features such as the workouts page are specific to the user, enabling a much more user-focused system, while also saving user progress.

AI Decleration

AI (ChatGPT) was used to help guide me on what features to include that would cover the mark scheme.