Interface Design and Development

Distinction and High Distinction Task 6.2
Custom Web Application

Quarklift Project Report

Overview

Quarklift is a VueJS-driven workout tracking website that allows users to log exercises and monitor their fitness progression. Integrating with the wger Workout Manager API for robust exercise data, this platform offers a comprehensive tool for fitness enthusiasts to track their workouts and see their performance enhancements over time.

Key Features

- **Exercise Logging:** Users can log various exercises from their sessions, tracking repetitions, sets, and weights.
- **Progress Tracking:** A dashboard displays personal progress charts, helping users visualise their performance improvements.
- **Leaderboards:** Competitive leaderboards show top performers for each exercise, fostering a motivational community environment.
- **Exercise Database:** Leveraging the wger API to provide detailed exercise descriptions and classifications.
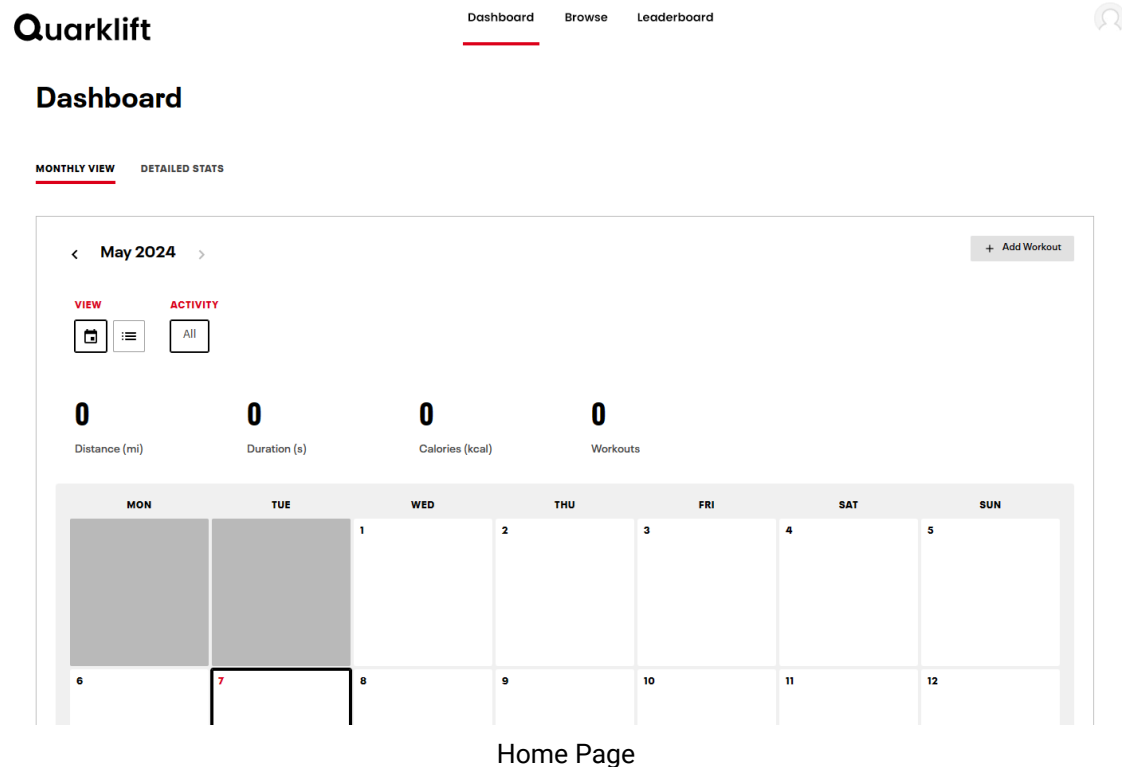
Development Plan

1. Design Phase: Mockup the UI/UX design, focusing on a mobile-first approach. Create wireframes and prototypes.
2. Setup Development Environment: Set up VueJS, Bootstrap for responsive design. Setup the frontend based on the UI design, setup routing and pages
3. Core Functionality Development:
   - Develop the user authentication system for logging and tracking workouts.
   - Build exercise log page
   - Create browsing exercise page.
   - Implement data visualization for progress tracking.
   - Build the leaderboard system.

4. API Integration: Implement and test integration with the wger API: https://wger.de/en/software/api. If in anycase the API fail to work, the website will use a JSON dataset from this repository: https://github.com/yuhonas/free-exercise-db

1. Design Phase

- **UI/UX Design**: Created mockups focusing on a mobile-first approach.
- **Wireframes and Prototypes**: Developed to visualise the layout and functionality of the application.

Home Page

Log In

Don't have an account? <u>Sign Up</u>

Email

Enter Email

Password

Enter Password

<u>Forgot Password?</u>

LOG IN

Login Page

Welcome to Quarklift

Already a member? <u>Log In</u>

First Name

Enter First Name

Last Name

Enter Last Name

Email

Enter Email

Password

Enter Password

Birthdate

mm/dd/yyyy

Gender

Select Gender

Country/Region

Australia

SIGN UP

Sign up Page

2. Setup Development Environment

- **Frameworks and Tools**: Set up Vue.js and Bootstrap for responsive design.
- **Frontend Development**: Implemented the initial structure based on the UI design, including routing and page setup.
- **Backend Development**: Setting up Express for backend, handling data between the interfaces and the database
- **Database setup**: Setting up MySQL for persistent data.

3. Core Functionality Development

- **Exercise Logging Page**: Built to allow users to log their workouts, including repetitions, sets, and weights.
- **Browsing Exercise Page**: Implemented for users to search and filter exercises.
- **Leaderboard System**: Developed to foster a competitive environment by showcasing top performers.
- **User Authentication**: Developed a system for user registration and login, essential for personalized workout tracking.

4. API Integration

- **wger API**: Integrated to provide detailed exercise descriptions and classifications.

Technical Aspects

1. Responsive Design

- Used the row-column from Bootstrap grid system with polishing with CSS to organize content and layout effectively.
- Ensured the application is fully responsive across at least three device sizes, following a mobile-first approach.
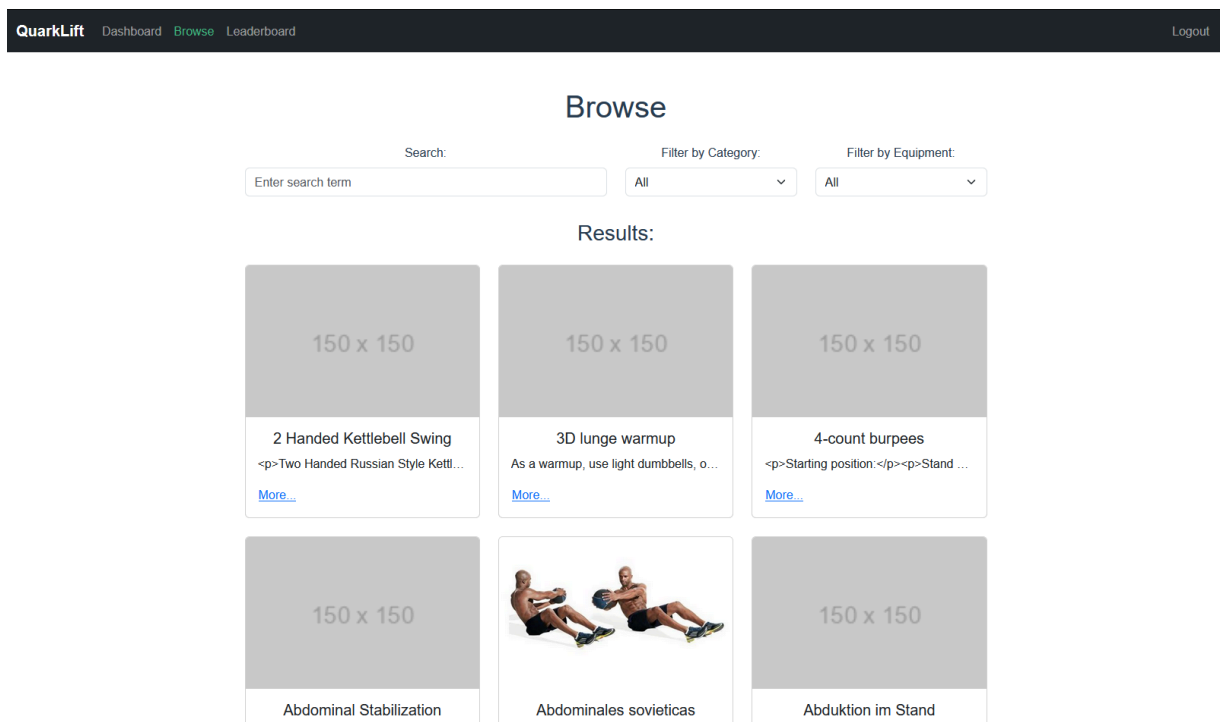
Website on Desktop

Browse

Search:

Enter search term

Filter by Category:

All ⌄

Filter by Equipment:

All ⌄

Results:

150 x 150

2 Handed Kettlebell Swing

<p>Two Handed Russian S…

More...

150 x 150

3D lunge warmup

As a warmup, use light du…

More...

150 x 150

4-count burpees

<p>Starting position:</p><…

More...

150 x 150

Abdominal Stabilization

More...

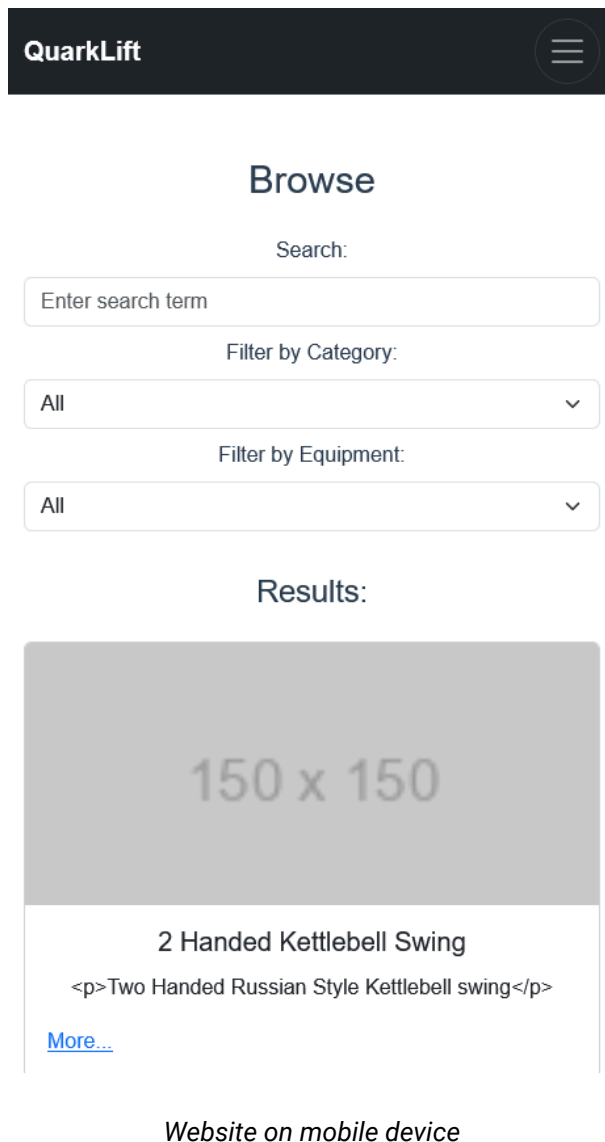### Abdominales sovieticas

sentado en el suelo agarra…

More...

150 x 150

Abduktion im Stand

Das Training des stabilen S…

More...

Website on Tablet

Website on mobile device

2. Vue.js Components and Directives

- Utilised Vue.js components, routers, and custom directives for a modular codebase, enhancing the user experience by creating a Single Page Application webpage.
- Implemented core Vue.js directives such as v-bind, v-model, v-if, v-for, and v-on to create interactive and reactive UIs.

3. Data Handling and Forms

● Using arrays for handling tables in the Leaderboard page.

Leaderboard

Filter by Category:

| All | ⌄ |

Sort by:

| 1RM: Biggest to Smallest | ⌄ |

#	Name	1 Rep Max	Category	Likes	
1	admin	192	Deadlift	2	↑
2	Rox	134	Deadlift	0	↑
3	Rox	86	Squat	12	↑
4	Wilson	80	Bench Press	1	↑
5	Rox	56	Bench Press	2	↑

Leaderboard table

● Utilised forms with data validation to ensure accurate user input. Using methods in Vue to validate form element, prevent the wrong format of data from inserting in the database.

Add Workout   Close

Exercise

Dumbbell Curl

Reps

one

Reps must be a positive integer.

Sets

two

Sets must be a positive integer.

Weight

three

Weight must be a positive integer.

Add Workout

Add Workout Modal View
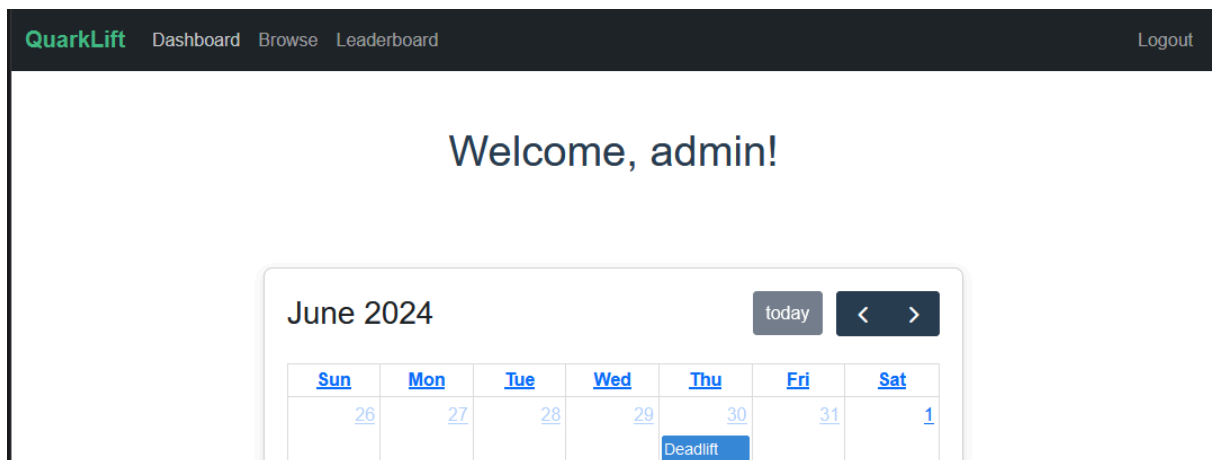
Functional Aspects

1. User Interaction

- Implemented features for user registration, login, and differentiation in content visibility between authenticated and unauthenticated users. Users that are not login or register should not see the Dashboard, Browse and Leaderboard page of the web, once they are logged in they can view it.

View when not login

View when user login

- Enabled capabilities for all users to search for content and use filters to refine results. Users can filter exercises to search for an exercise they want to know, or they can sort the list of other users workout on the leaderboard.

Filter in Browse Page

Filter in Leaderboard

2. Social Functionalities

- Integrated features such as liking or voting on content to enhance user interaction and engagement. Users can like the workout that they find impressive, to pay some respect to the user who did the workout as well as create motivation for them.

Like button

3. Content Management

- Allowed authorized users to create, edit, and delete content. Users can log, alternate, or even delete their workout in the dashboard.
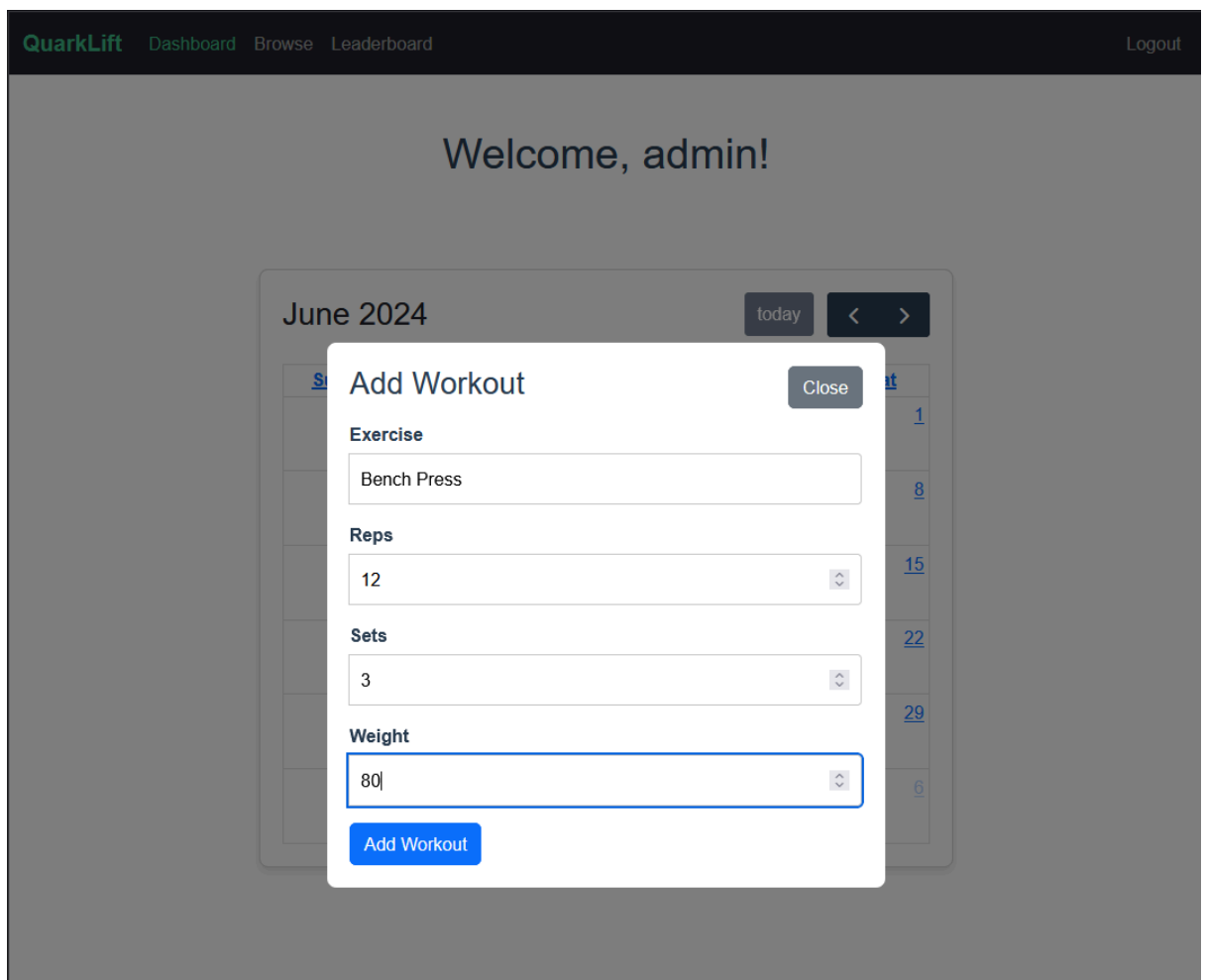
View when user adding workout from the calendar

Exercise added to the calendar

- Maintained persistent data through a backend database. Users' data will not disappear when they refresh the webpage, it is backed by a database for the web page to fetch.

Challenges and Solutions

- **API Reliability**: The API from wger is lack of polishness, users often time could not find an image for the exercise, and the request is also taking long to fetch.

Conclusion

Quarklift is a comprehensive workout tracking application that using modern web technologies like Vue.js, Express, Bootstrap to provide a robust and user-friendly experience. The project successfully integrates various technical and functional aspects, demonstrating proficiency in web development.

Appendix

Database schema:

users

int	id	PK	Primary Key, Auto Increment
varchar(50)	username	UK	Unique Key
varchar(255)	password		
timestamp	created_at		Not Null, Default current_timestamp()

has

workouts

int	id	PK	Primary Key, Auto Increment
int	user_id	FK	Foreign Key
date	date		Not Null
varchar(100)	exercise		Not Null
int	reps		Not Null
int	weight		Default Null
int	likes		Default 0
int	sets		Default Null