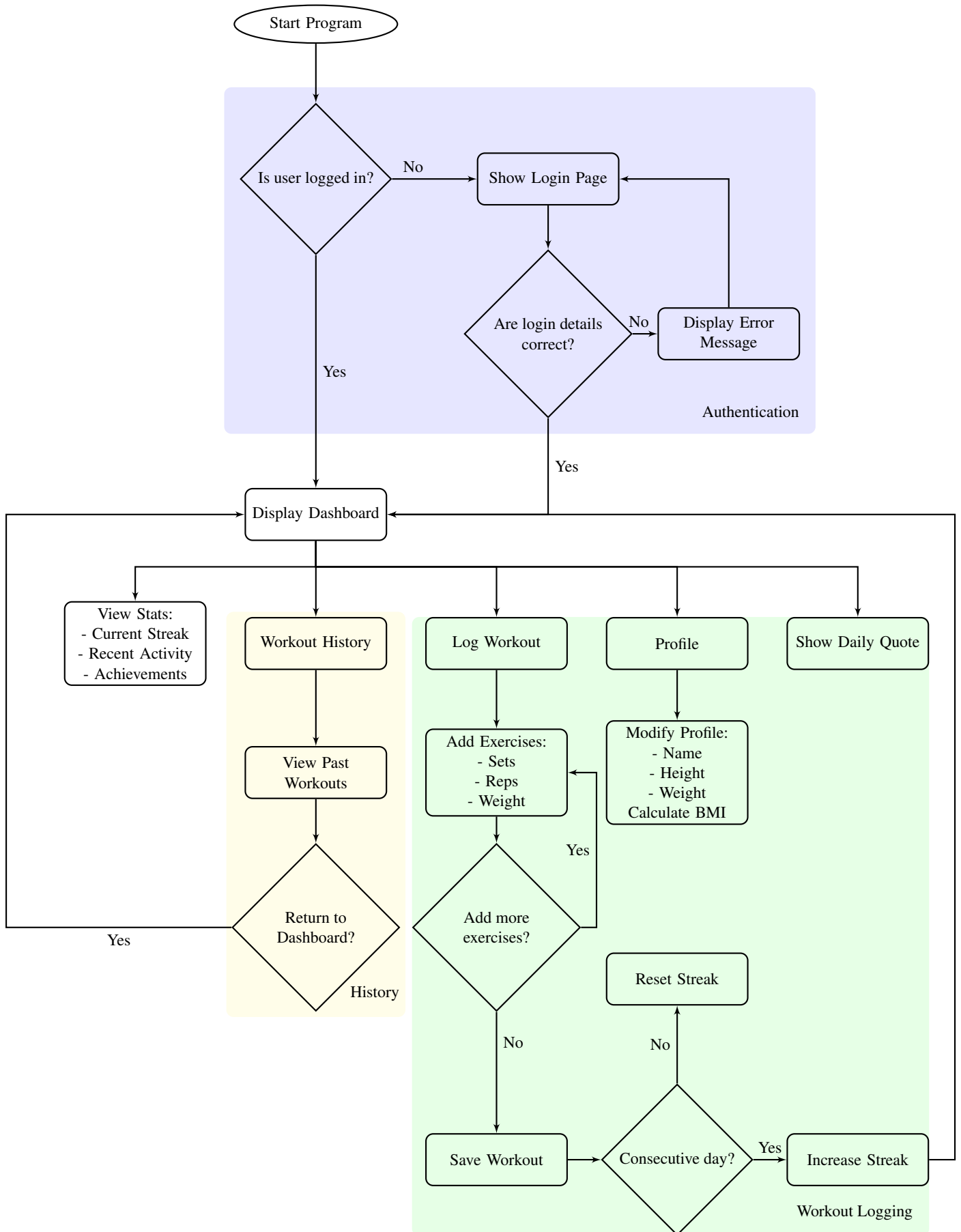
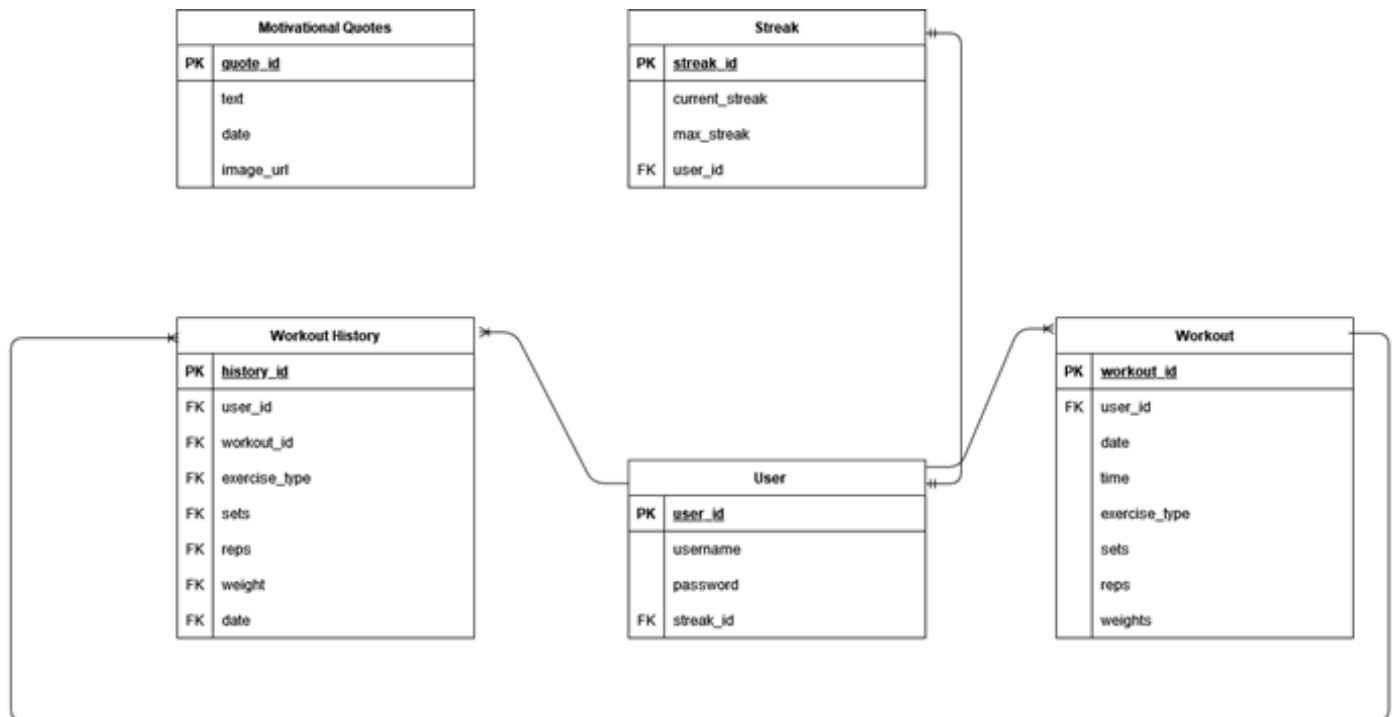


Criterion B - Design

1 Program Overview

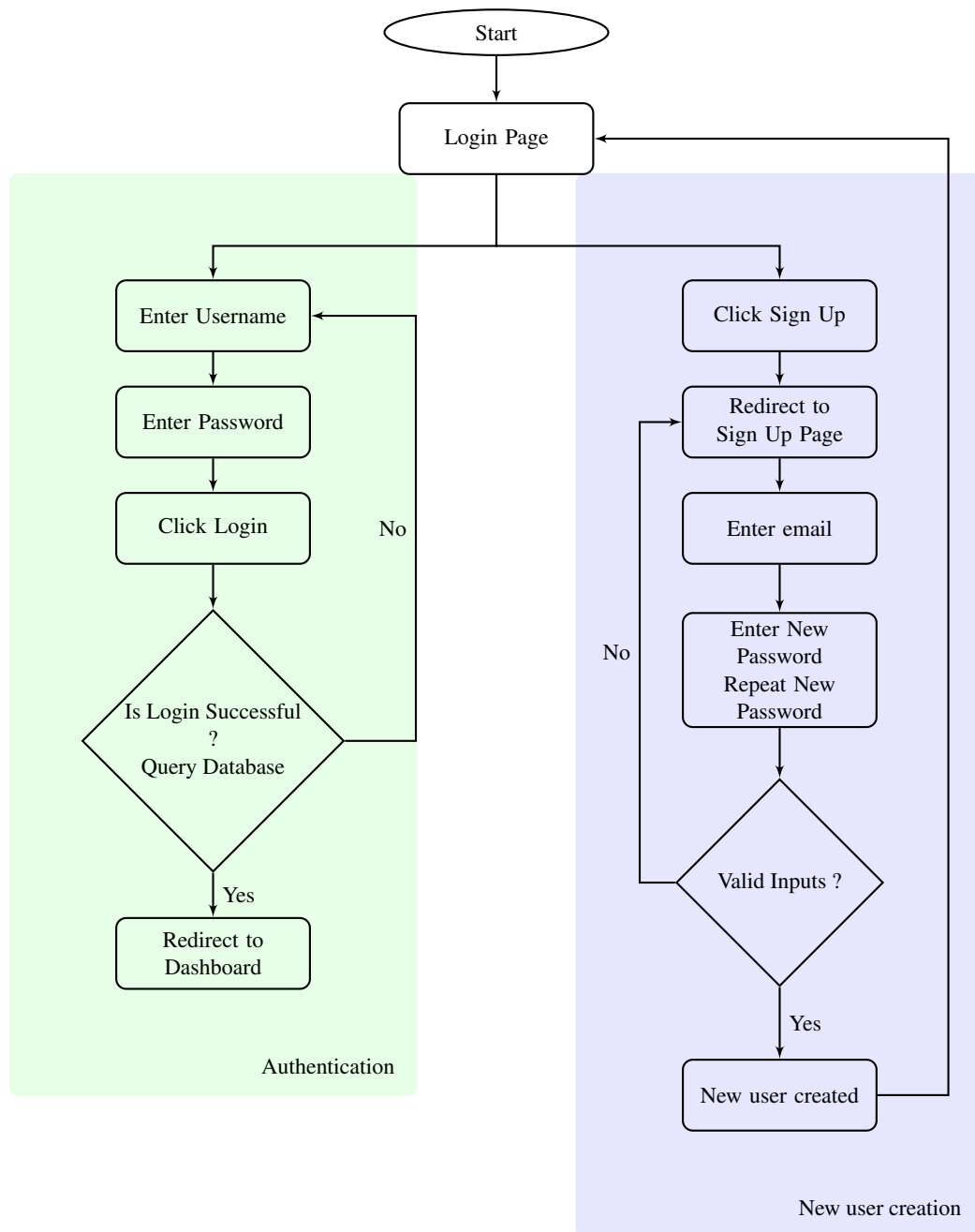


2 Entity Relation Diagram

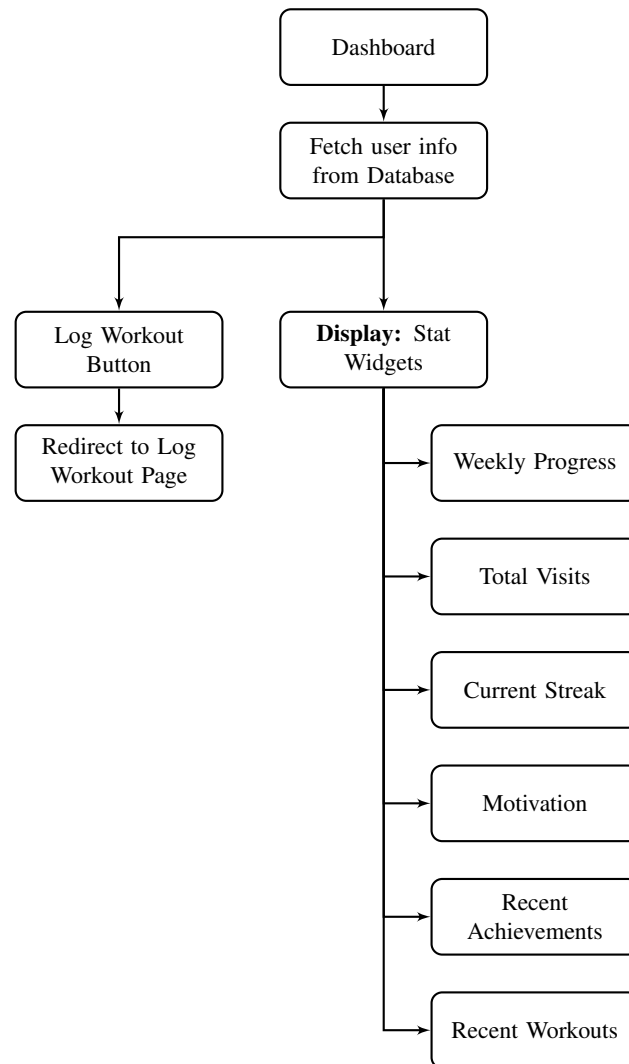


3 Flowcharts

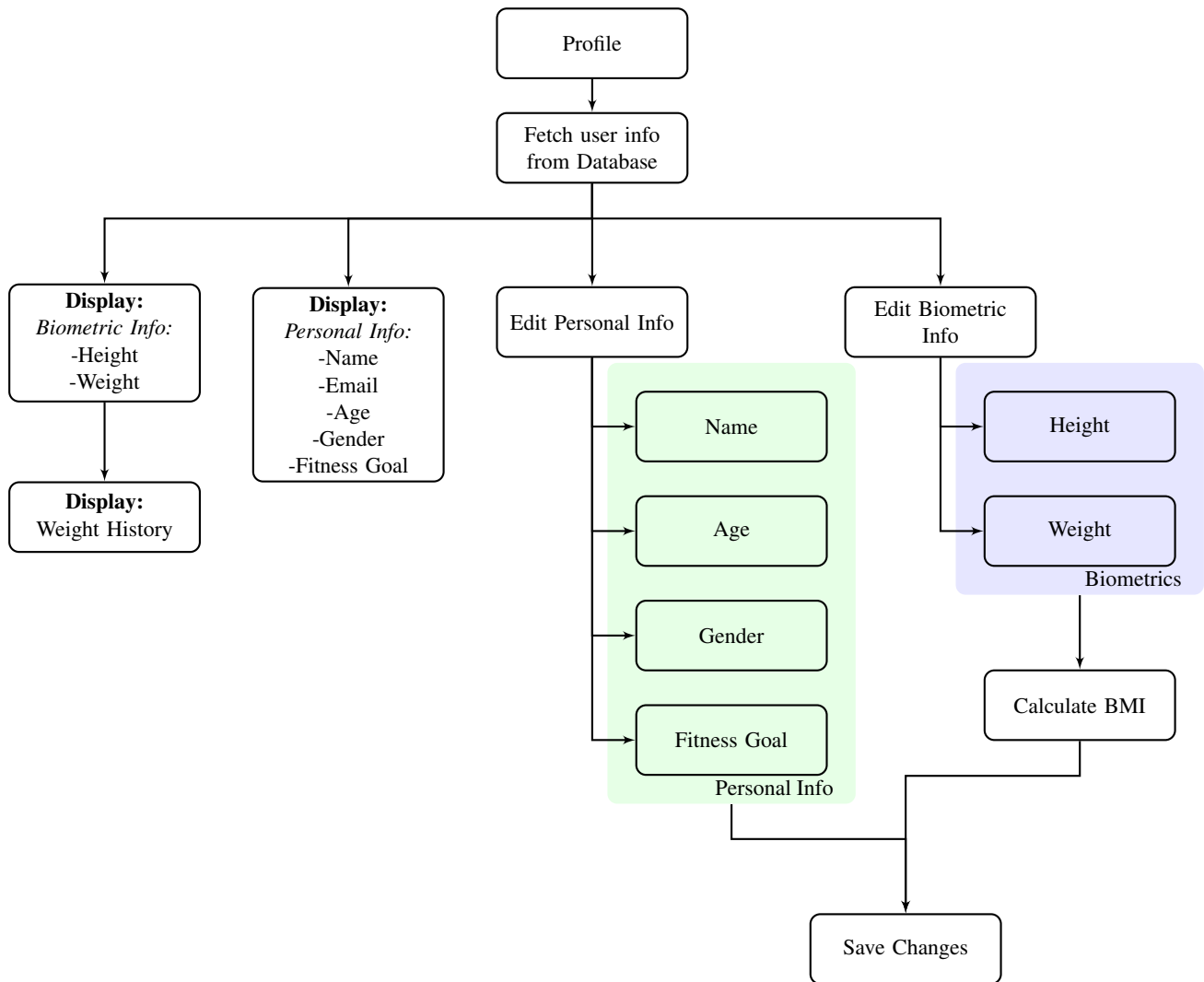
3.1 Basic Login Page



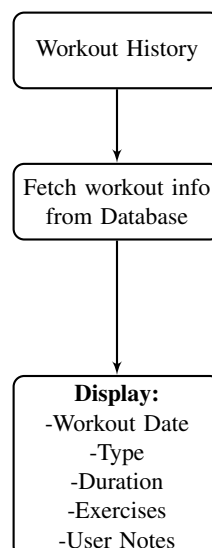
3.2 Dashboard



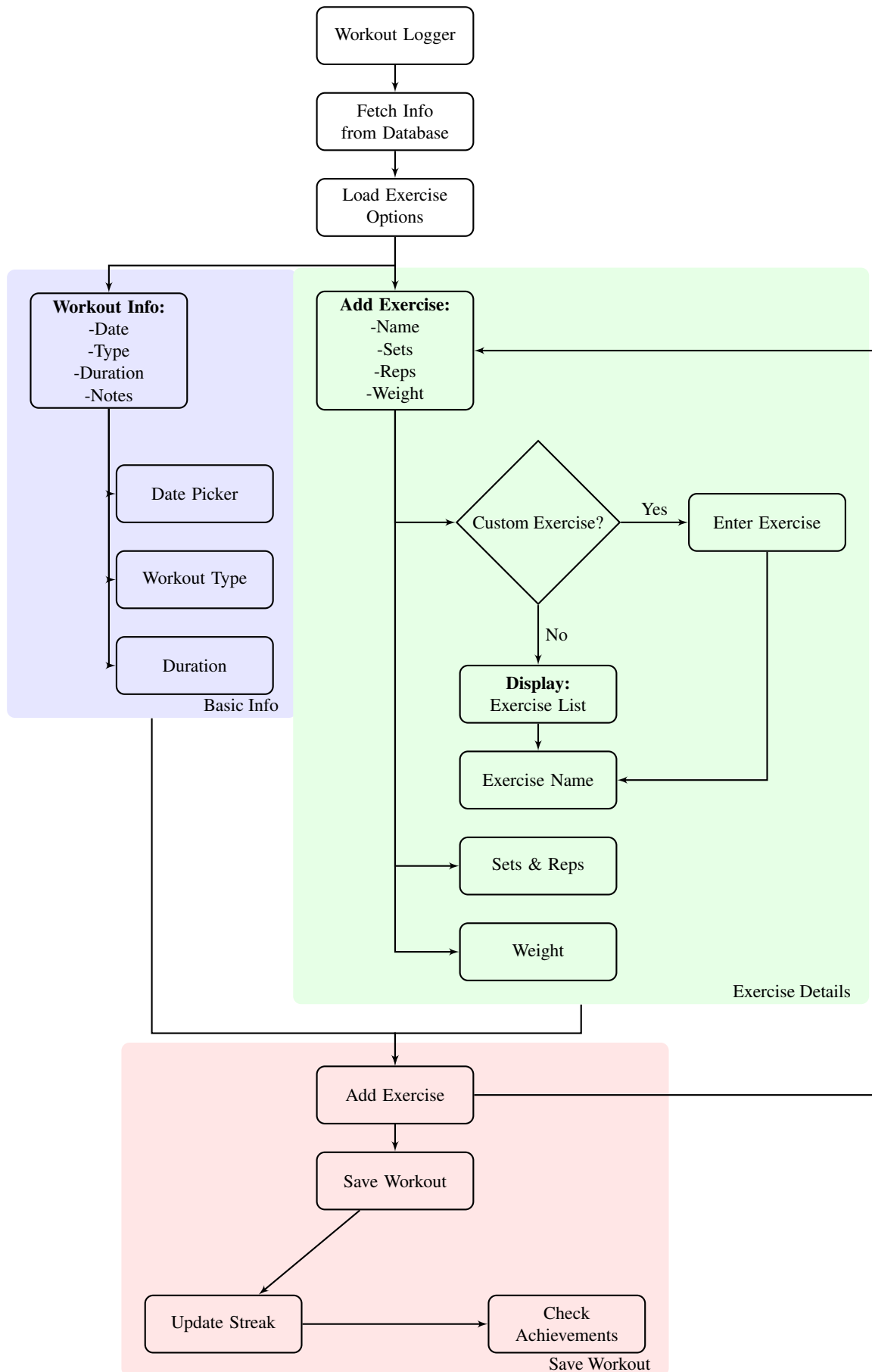
3.3 Profile Page



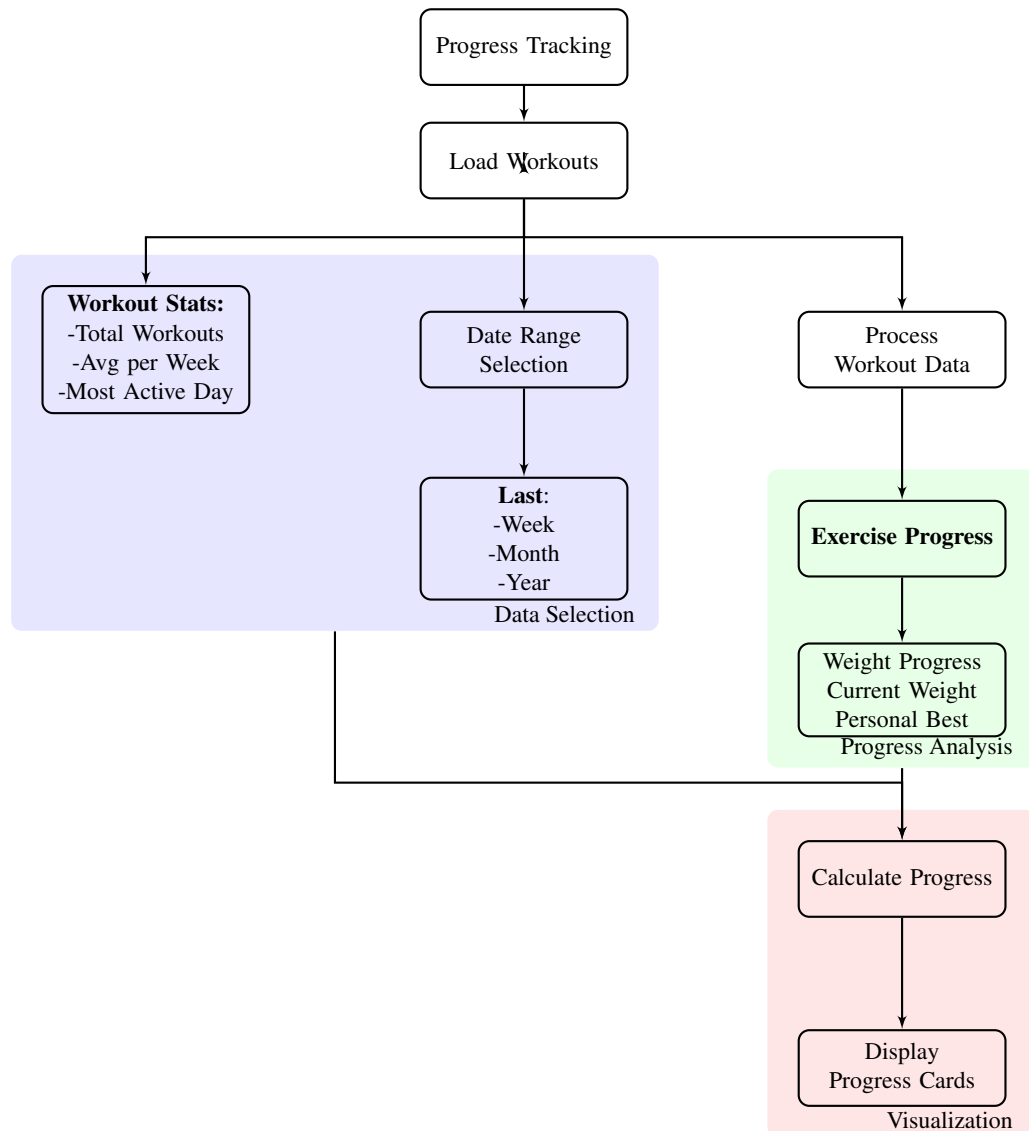
3.4 Workout History Page



3.5 Log Workout Page



3.6 Progress Tracking Page



4 Wireframes

4.1 Basic Login Page

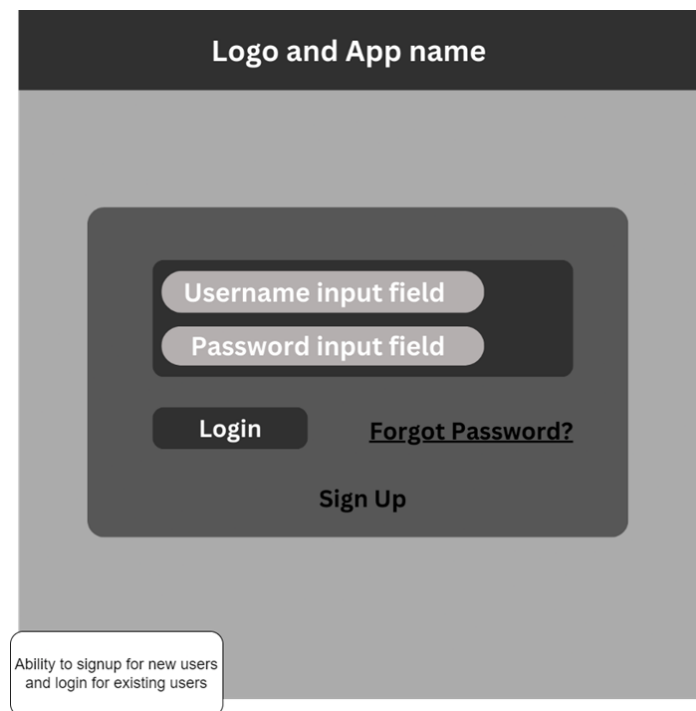


Figure 1: Basic Login Page

4.2 Dashboard



Figure 2: Dashboard

4.3 Profile Page

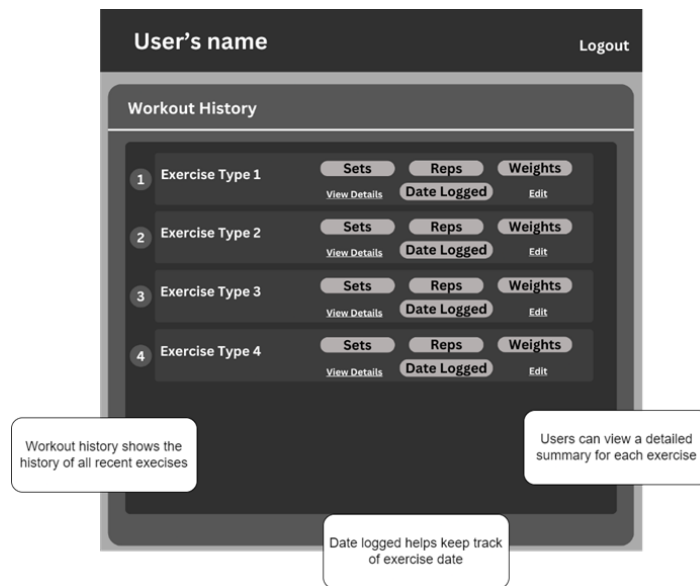


Figure 3: Profile Page

4.4 Workout History Page

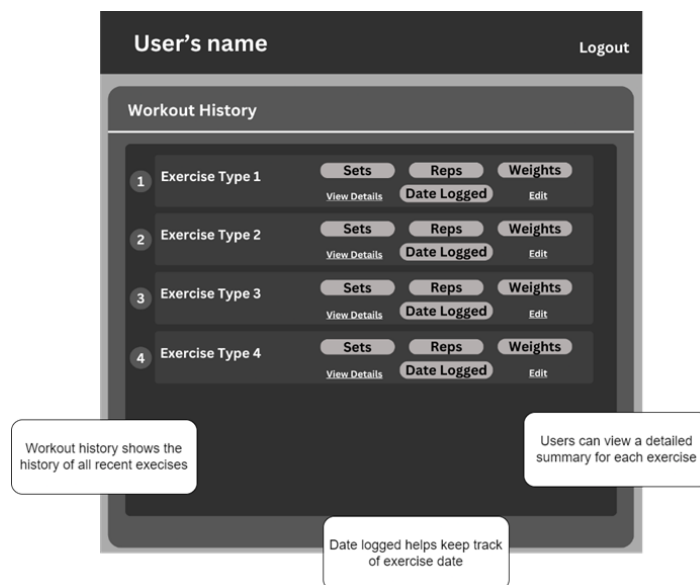


Figure 4: Workout History

4.5 Log Workout Page



Figure 5: Log Workout

5 Data Dictionaries

| User Table | Data Type |
|------------|-----------|
| userId | Int |
| email | String |
| password | String |
| name | String |
| height | Float |
| weight | Float |
| age | Int |
| gender | String |
| goal | String |

Figure 6: User Table Schema

| Workout Table | Data Type |
|---------------|-----------|
| workoutId | Int |
| userId* | Int |
| date | DateTime |
| duration | Int |
| type | String |
| notes | String |

Figure 8: Workout Table Schema

| Streak Table | Data Type |
|---------------|-----------|
| streakId | Int |
| userId* | Int |
| startDate | DateTime |
| endDate | DateTime |
| currentStreak | Int |
| longestStreak | Int |

Figure 10: Streak Table Schema

| Motivational Quote Table | Data Type |
|--------------------------|-----------|
| quoteId | Int |
| quote | String |
| author | String |
| dateDisplayed | DateTime |

Figure 12: Motivational Quote Table Schema

| Exercise Table | Data Type |
|----------------|-----------|
| exerciseId | Int |
| workoutId* | Int |
| name | String |
| sets | Int |
| reps | Int |
| weight | Float |

Figure 7: Exercise Table Schema

| Achievement Table | Data Type |
|-------------------|-----------|
| achievementId | Int |
| userId* | Int |
| title | String |
| description | String |
| dateEarned | DateTime |

Figure 9: Achievement Table Schema

| Weight Table | Data Type |
|-----------------|-----------|
| weightHistoryId | Int |
| userId* | Int |
| weight | Float |
| date | DateTime |

Figure 11: Weight History Table Schema

6 UI Interface

The image shows a login screen for 'NutriSync'. It features a light blue background. At the top, the text 'Welcome to NutriSync' is displayed in a bold, dark font. Below this, there are two input fields: 'Email' and 'Password'. The 'Password' field includes a toggle icon (an eye) to the right of the text. Below the input fields is a rounded rectangular button labeled 'Login'. Underneath the 'Login' button, there are two links: 'Sign up' and 'Forgot password?'. An orange callout box on the left, containing the text 'User can login using their personal details', has a line pointing to the 'Login' button. Another orange callout box, containing the text 'Ability to create new users using the sign up process', has an arrow pointing to the 'Sign up' link.

User can login using their personal details

Welcome to NutriSync

Email

Password 

Login

[Sign up](#) [Forgot password?](#)

Ability to create new users using the sign up process

Figure 13: Login Screen

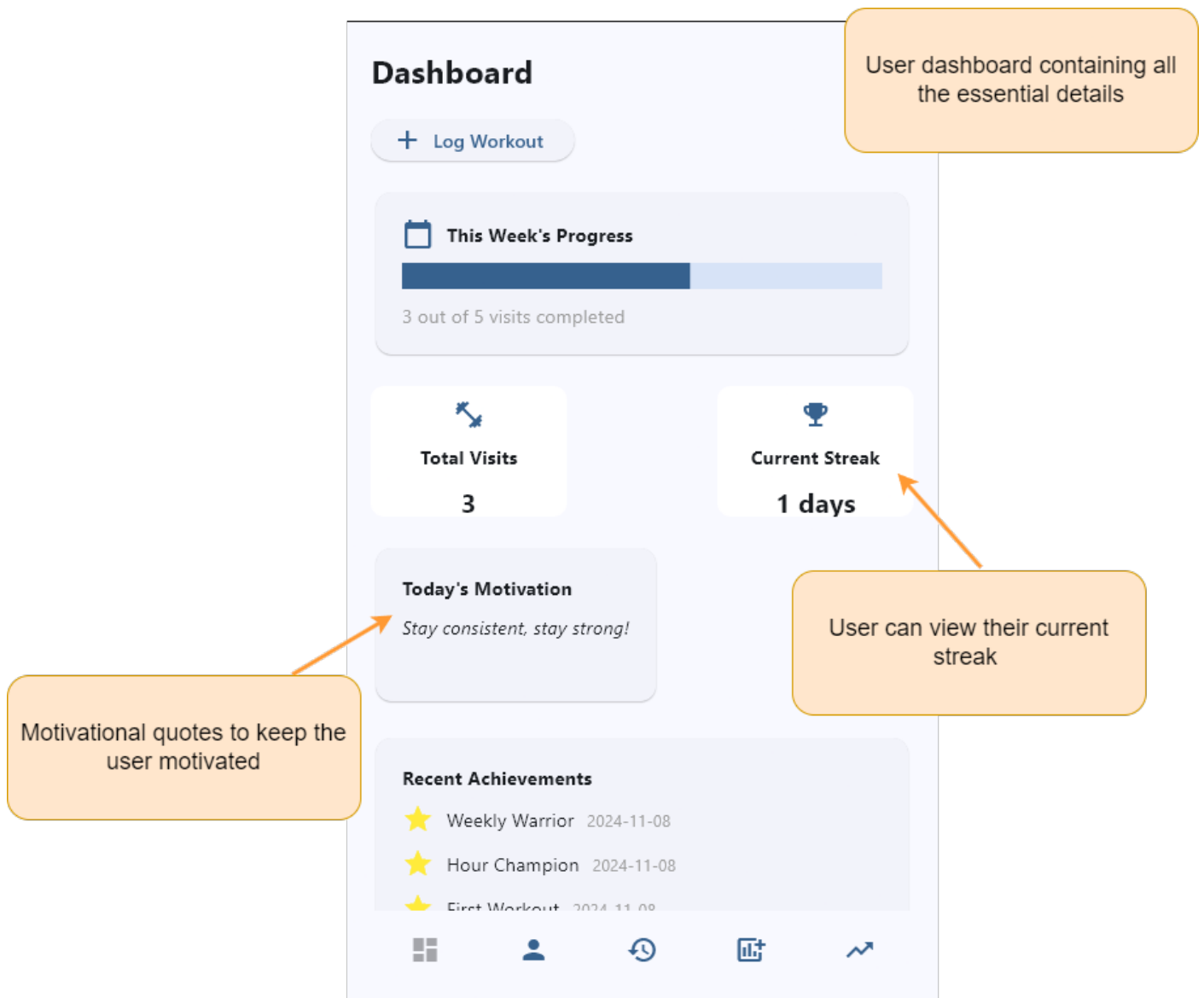


Figure 14: Dashboard Overview

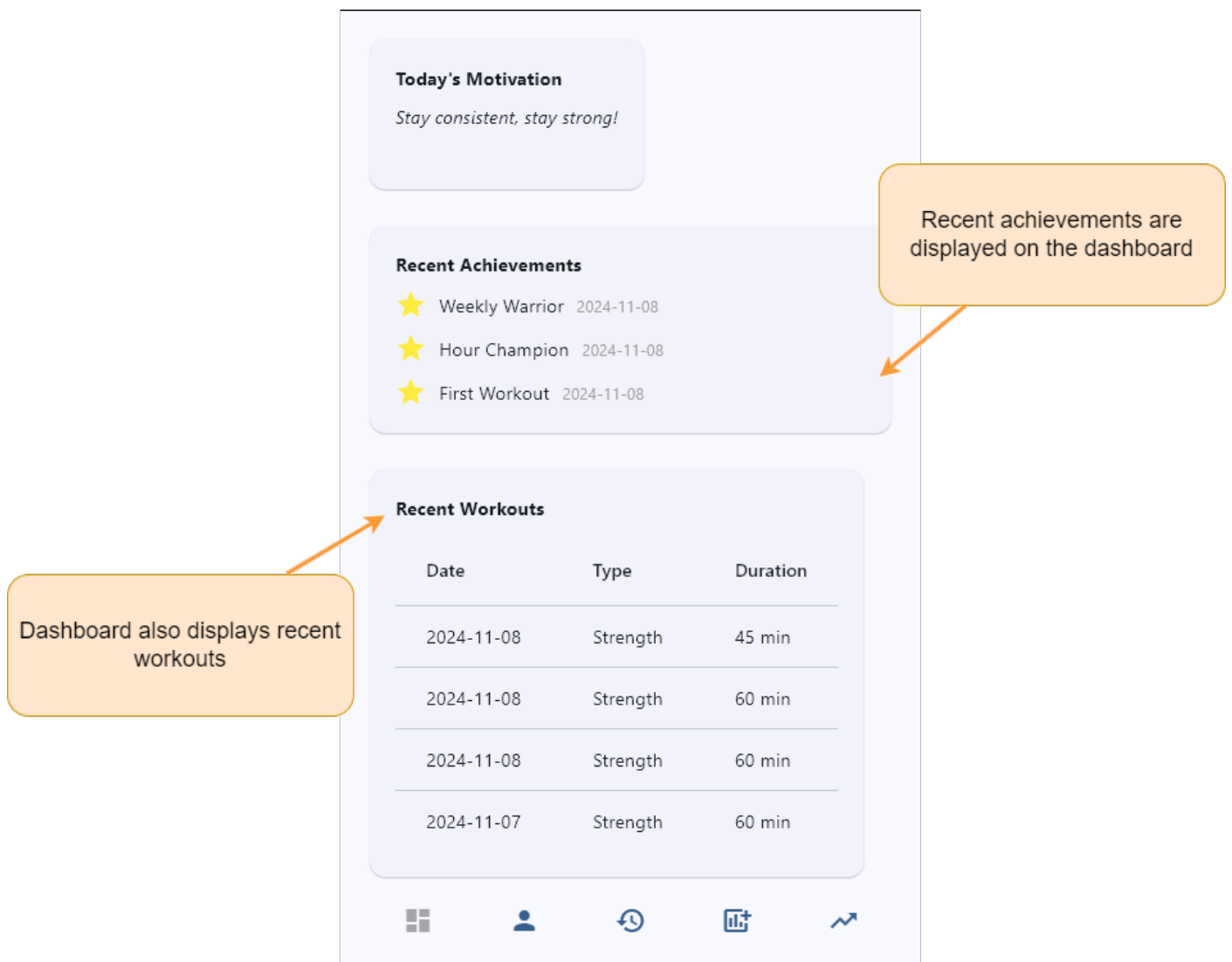


Figure 15: Dashboard Statistics

Log Workout page helps keep track of all the exercises performed in detail

Log Workout

Date

2024-11-09

Workout Type

Duration (minutes)

60

Add Exercises

Exercise

+ Add Exercise

Sets

Reps

Weight (lbs)

Exercise List

Notes

Save Workout

User can log their exercise with the exact details (sets, reps, weights)

Ability to add additional notes in case user wants a personalized workout log

Figure 16: Workout Logging Interface


16

Log Workout page example

Log Workout


Date

2024-11-09



Workout Type

Strength




Duration (minutes)

60

Add Exercises

Exercise

Bench Press



 Add Exercise

Sets

3

Reps

10

Weight (lbs)


150


Exercise List

Notes


 Save Workout







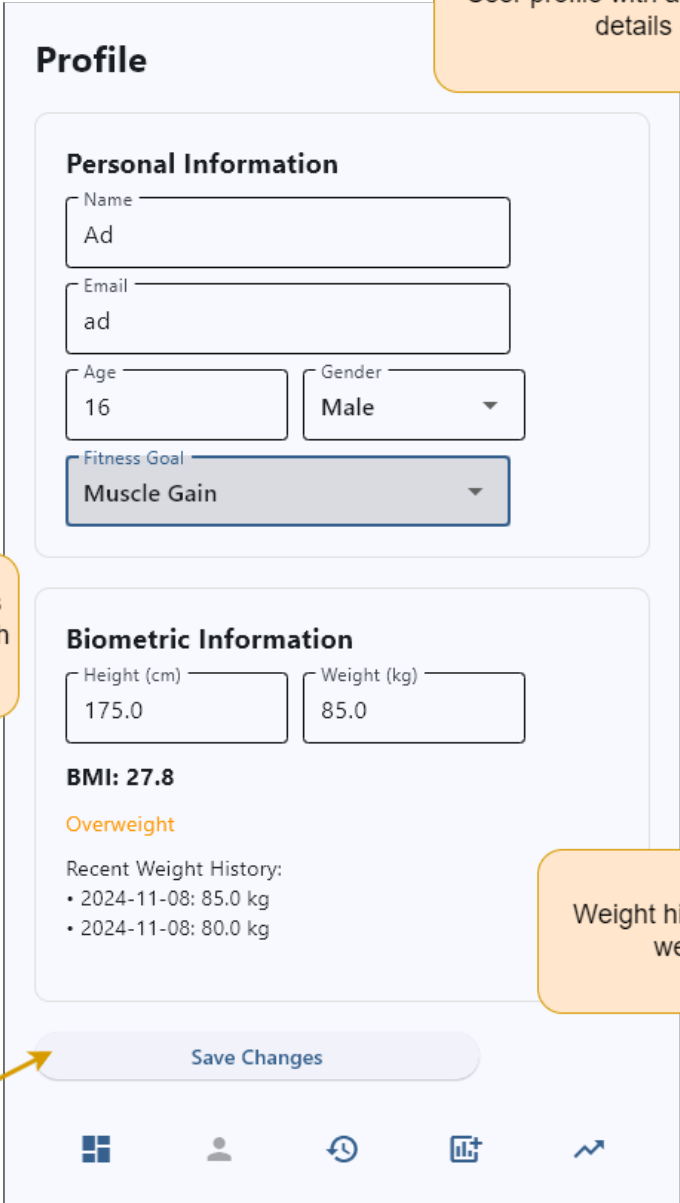




Here, the workout type along with the exercise is filled with all the necessary details

Finally, user can save the workout with all the details

Figure 17: Filled Workout Form



The image shows a user profile page with several sections and callouts. The 'Personal Information' section contains fields for Name, Email, Age, Gender, and Fitness Goal. The 'Biometric Information' section displays Height, Weight, BMI, and a weight history list. A 'Save Changes' button is at the bottom. Callouts provide context for each section.

Profile

Personal Information

Name: Ad

Email: ad

Age: 16

Gender: Male

Fitness Goal: Muscle Gain

Biometric Information

Height (cm): 175.0

Weight (kg): 85.0

BMI: 27.8

Overweight

Recent Weight History:

- 2024-11-08: 85.0 kg
- 2024-11-08: 80.0 kg

Save Changes

Callouts:

- User profile with all personal details
- Biometric information of the users which displays their BMI along with their weight status
- Weight history to keep track of weight loss/gain
- Users can personalize their profile details and save the changes

Figure 18: User Profile Page

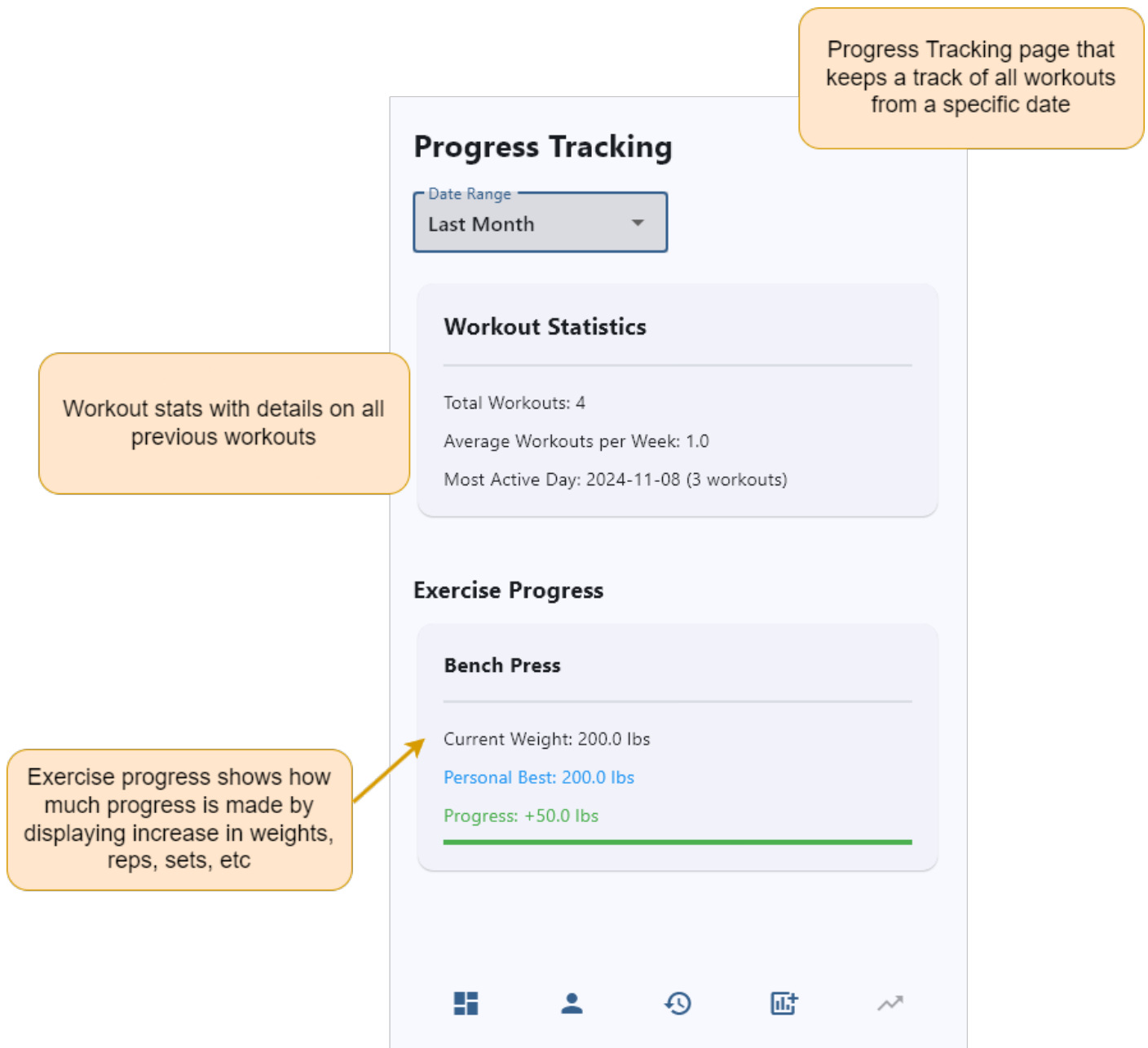


Figure 19: Progress Tracking View

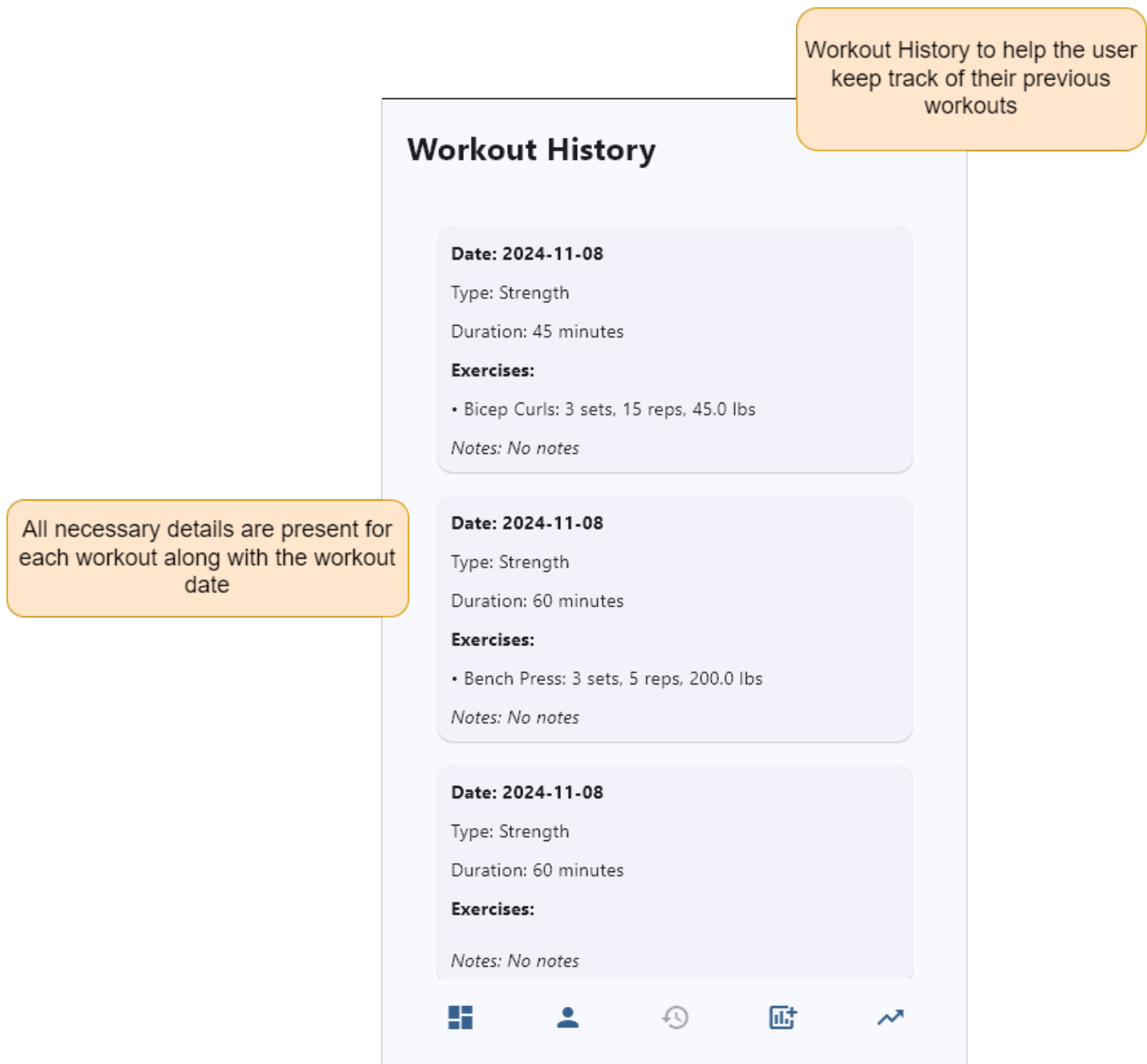


Figure 20: Workout History Display

7 Test Plan

| Action to be tested | Test Method | Expected Result |
|-----------------------------|---|---|
| User Registration | Create new account with email and password | User account is created and stored in database with hashed password |
| User Login | Login with registered email and password | User successfully logs in and is redirected to dashboard |
| Password Security | Attempt login with incorrect password | System denies access and shows appropriate error message |
| Basic Workout Logging | Log a workout with exercise type, sets, reps, and weights | Workout is logged and can be viewed in workout history with all details preserved |
| Custom Exercise Entry | Add a new exercise type not in predefined list | New exercise is saved and available for future workouts |
| Workout History Display | Access workout history from the main menu | All logged workouts are displayed in reverse chronological order with complete exercise details |
| Daily Streak Tracking | Log workouts on consecutive days | Streak counter increases by one each day a workout is logged |
| Streak Break Handling | Miss a day of workout after maintaining streak | Streak counter resets and new streak begins with next workout |
| Achievement System | Complete various workout milestones | Appropriate achievements are unlocked and displayed in user profile |
| Dashboard Statistics | View dashboard after logging several workouts | Dashboard shows accurate workout frequency, streak, and recent activity |
| Progress Visualization | Track workout performance over time | Charts show progress trends for weights, frequency, and duration |
| Exercise Weight Tracking | Log increasing weights for specific exercises | Progress tracking shows weight progression over time |
| Workout Duration Tracking | Log workouts with different durations | System accurately records and displays workout duration statistics |
| Workout Type Statistics | Log different types of workouts (Strength, Cardio, etc.) | Dashboard shows breakdown of workout types |
| Motivational Quotes Display | Access the daily motivational quote | A new motivational quote is displayed each day from database |
| Multiple Exercise Logging | Add multiple exercises to a single workout session | All exercises are properly saved and associated with the workout |
| Data Validation | Enter invalid data (incomplete entries) | System shows appropriate error messages and prevents invalid data entry |
| Workout Plan Creation | Create a preset workout plan | Plan is saved and can be used as template for future workouts |
| Achievement Notification | Earn a new achievement | System displays appropriate notification and updates achievement list |
| Profile Management | Update user profile information | Changes are saved and reflected throughout the application |
| Exercise History | View history of specific exercise | System shows progression and history for individual exercises |
| Date Selection | Log workout for past date | System correctly associates workout with selected date |
| UI Responsiveness | Navigate between different sections | UI updates smoothly without delays or visual artifacts |
| Error Handling | Attempt actions with poor network connection | System handles errors gracefully and preserves data |
| Data Persistence | Close and reopen application | All previously logged data is preserved and accessible |