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2.1 Conceptual Design

Explanation

We decided to make a simplified version of the project requirements.

- There are two types of users: members and trainers. They both have personal details and have unique usernames and passwords required to sign into their account.
- Members can also have loyalty points, achievements, fitness goals, health metrics and routines.
    a. Achievements: Achievements are assigned by the admin and given a date and description
    b. Fitness goals: Fitness goals are created by the member. They give a starting date (calculated automatically as the current date), ending date and description. The system assigns a status by comparing the start and end dates and when the member feels that they've reached the goal, they can change the status to *complete*.
    c. Health metrics: Members can update their health metrics by changing their weight or height. The system calculates their bmi based on the information given
    d. Routines: Members can create a new routine with pre-set exercises and assign number of reps to each exercise
- Admin create new trainers and assign pre-set certifications to them.
- A member can join two types of sessions with trainers:
    a. Personal training sessions: the member can search for the type of workout they want and the system returns trainers that have the certifications that match. They can then put in the time they want and the duration. The system returns all available rooms with quality assured equipments and the member creates the session
    b. Group training sessions: Members can see current group training sessions and choose to sign up for them.
- A trainer can participate in two types of sessions with members:
    a. Personal training sessions: once a member tries to create a personal training session, the trainer receives a notification about the new session. If they do not want to do the session, they can delete the record. If they want to but are not available at that specific time, they can alter the date or duration.
    b. Group training sessions: When admin creates a group training session, the trainer can confirm the details. If not, they can alter the time or duration.
- Admin oversees:
    a. Rooms: Some rooms have equipment in them. The equipment needs to be up to date. If the equipment status is not no standard, the room is not available for use.
    b. Group training sessions: Admin sets up a group training session with a time and duration. They check for an available room (time, equipment) and create and send the trainer the notification about a new item in their schedule.
    c. Trainers: Admin creates a profile for a new trainer and adds their certifications.
    d. ?Achievements: Admin assigns achievements to members

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Assumptions

- Each member has one profile
- Each trainer has oner profile
- Each member can have multiple fitness goals
- Each fitness goal is associated with one member
- Each member can have multiple sessions
- Each session is led by one trainer
- Each fitness class is led by obe trainer
- Each member must register in at least one group class
- Each trainer must teach at least one group class
- Each class has at least 1 participant

2.2 Reduction to relational schemas

Relations:

- Admins
- Members
- Trainers
- Users
- Room
- Goals
- Routines
- Achievement
- Metrics
- Exercise
- Certifications
- Equipment

2.3 Normalization of relation schemas

Functional Dependencies:

USERS

{user_id}→ first_Name,last_Name, email, dob, phone_num, sex, address (FULL DEPENDENCY)

- This relation is in good 1NF
- This relation is in good 2NF
- This relation is in good 3NF

ROOM

{room_id}→max_people

- This relation is in good 1NF
- This relation is in good 2NF
- This relation is in good 3NF

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GOALS

{member_id}→ date_start,date_end, goal_description, goal_status
- This relation is in good 1NF
- This relation is in good 2NF
- This relation is in good 3NF

METRICS, CERTIFICATIONS, ROUTINES, ACHIEVEMENT are multivalued attributes from members and trainers just like GOALS.

Therefore, they all show good 1,2 and 3NFs

MEMBERS, ADMIN, TRAINERS
- These relations are all in good 1,2 and 3NFs

GROUP TRAINING

{session_id}→ train_date, start_time, end_time, room_id,trainer_id
- This relation is in good 1NF
- This relation is in good 2NF
- This relation is in good 3NF

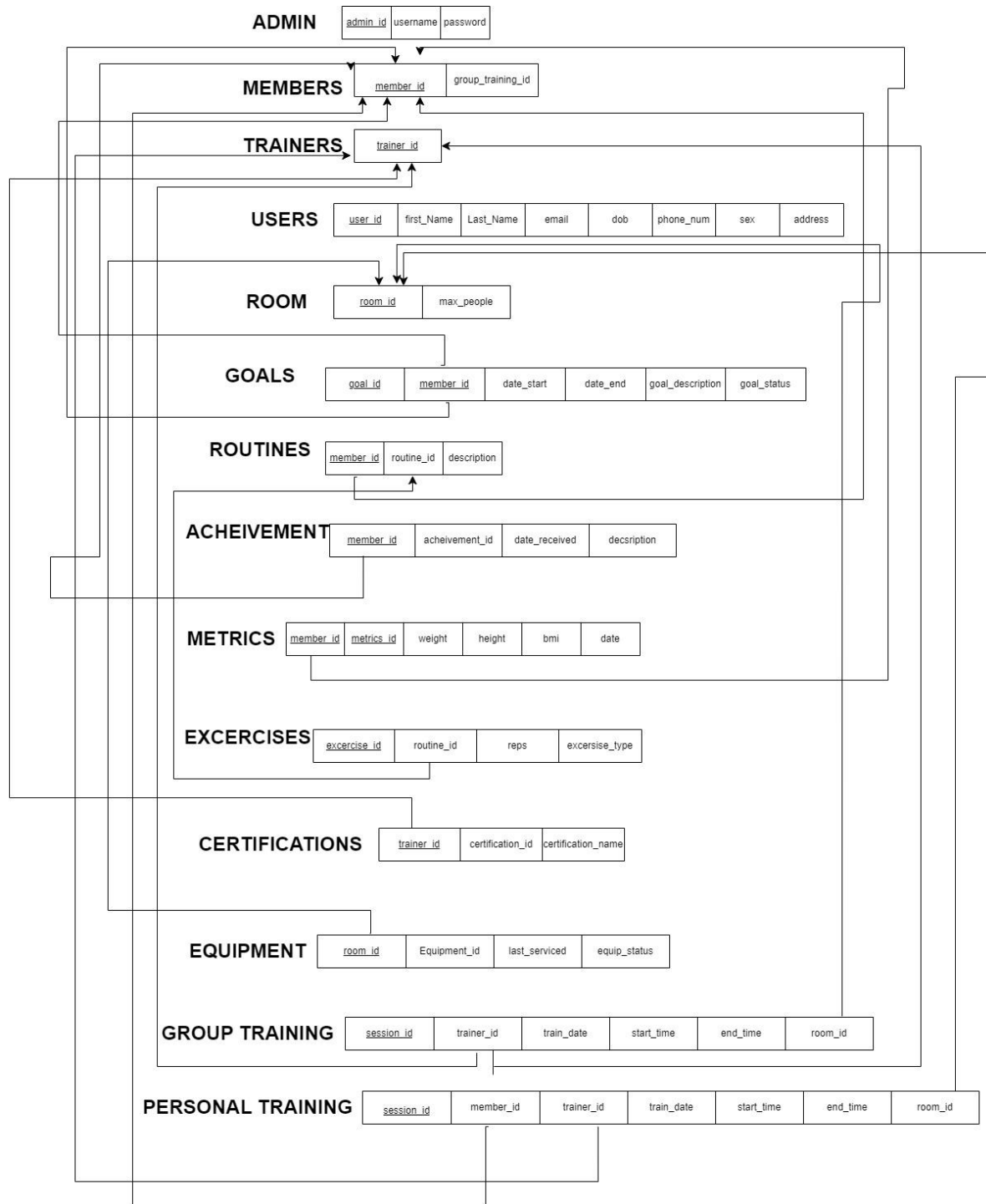PERSONAL TRAINING

{session_id}→ train_date, start_time, end_time, room_id,member_id,trainer_id
- This relation is in good 1NF
- This relation is in good 2NF
- This relation is in good 3NF

All the relations turned out to be in perfect 2NF and 3NF form so therefore the current schema is the final schema as well.

2.4 Database Schema Diagram

ADMIN | admin_id | username | password |

MEMBERS | member_id | group_training_id |

TRAINERS | trainer_id |

USERS | user_id | first_Name | Last_Name | email | dob | phone_num | sex | address |

ROOM | room_id | max_people |

GOALS | goal_id | member_id | date_start | date_end | goal_description | goal_status |

ROUTINES | member_id | routine_id | description |

ACHEIVEMENT | member_id | acheivement_id | date_received | decsription |

METRICS | member_id | metrics_id | weight | height | bmi | date |

EXCERCISES | excercise_id | routine_id | reps | excersise_type |

CERTIFICATIONS | trainer_id | certification_id | certification_name |

EQUIPMENT | room_id | Equipment_id | last_serviced | equip_status |

GROUP TRAINING | session_id | trainer_id | train_date | start_time | end_time | room_id |

PERSONAL TRAINING | session_id | member_id | trainer_id | train_date | start_time | end_time | room_id |

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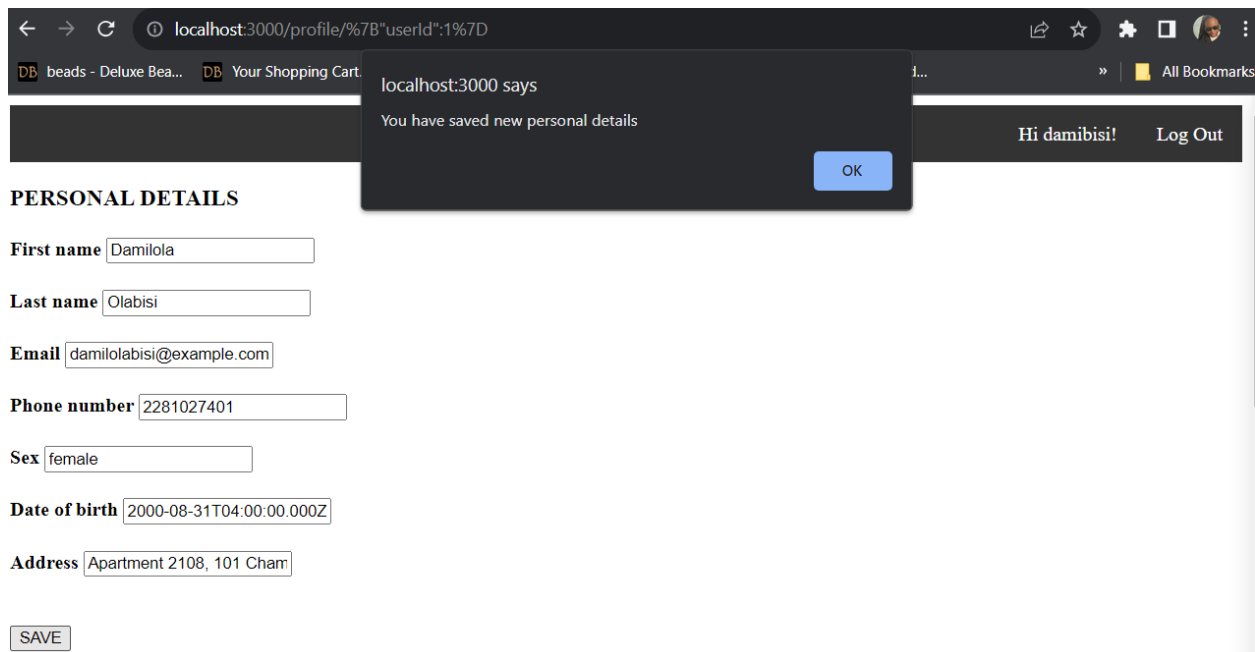Victor Kolawole   101201377

2.5 Implementation

We decided to use a mixture of javascript and html to create a web-based application. There was a client and server that communicated with each other using AJAX calls and node.js. A SQL database was used and a .sql files were provide to create tables and populate the tables. These are the tasks that the application are capable of:

- Login as a member with username = damibisi and password = damispassword
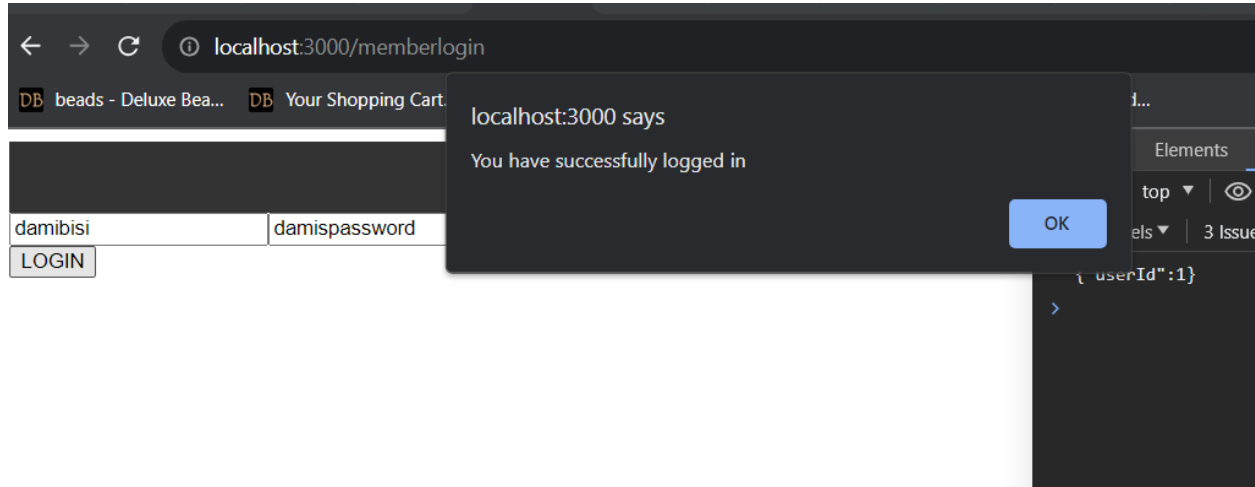
- Change and save personal details

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- Add new health metric

HEALTH METRICS

Fri Nov 24 2023 00:00:00 GMT-0500 (Eastern Standard Time)

WEIGHT:

95.50

HEIGHT:

170.00

BMI:

33.04

Thu Sep 21 2023 00:00:00 GMT-0400 (Eastern Daylight Saving Time)

WEIGHT:

99.00

HEIGHT:

170.00

BMI:

34.26

Sat Aug 26 2023 00:00:00 GMT-0400 (Eastern Daylight Saving Time)

WEIGHT:

116.00

HEIGHT:

170.00

BMI:

40.14

Sun Jul 23 2023 00:00:00 GMT-0400 (Eastern Daylight Saving Time)
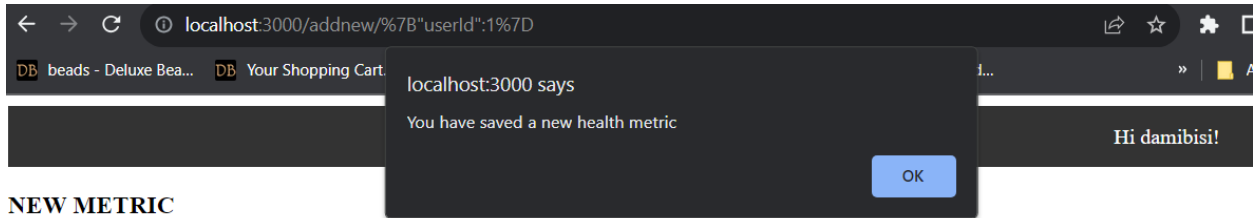
WEIGHT:

126.00

HEIGHT:

170.00

BMI:

43.60

[ADD NEW]

localhost:3000/addnew/%7B"userId":1%7D

DB beads - Deluxe Bea...   DB Your Shopping Cart...

localhost:3000 says

You have saved a new health metric

OK

Hi damibisi!

NEW METRIC

Weight 97.50

Height 172.00

ADD METRIC

HEALTH METRICS

Mon Dec 11 2023 00:00:00 GMT-0500 (Eastern Standard Time)

WEIGHT:

97.50

HEIGHT:

172.00

BMI:

32.96

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- Get exercise routine

EXERCISE ROUTINES
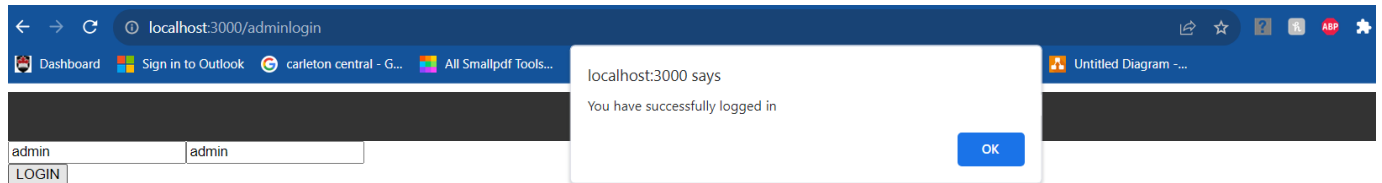
Work Those Glutes! EDIT

ADD NEW ROUTINE

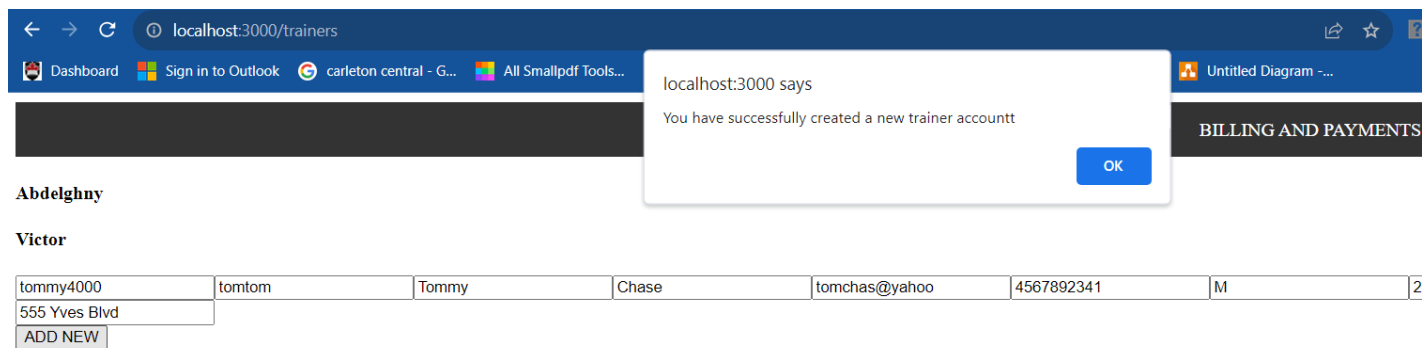# FITNESS GOALS

ADD NEW

FITNESS ACHIEVEMENTS

- Register as a new member
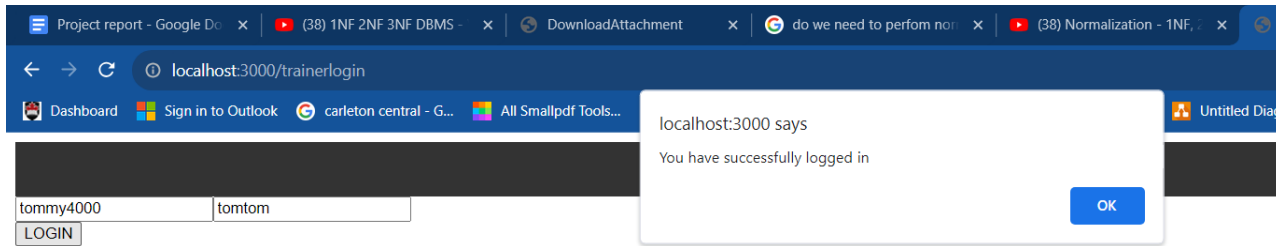- Login as admin with username = admin and password = admin

localhost:3000/adminlogin

localhost:3000 says

You have successfully logged in

OK

admin   admin
LOGIN

- Get all trainers

- Create new trainer

localhost:3000/trainers

localhost:3000 says

You have successfully created a new trainer accountt

OK

BILLING AND PAYMENTS

Abdelghny

Victor

tommy4000	tomtom	Tommy	Chase	tomchas@yahoo	4567892341	M	2
555 Yves Blvd							
ADD NEW							

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- Log in as a trainer

VIDEO LINK: https://www.youtube.com/watch?v=gaQZ5oR5ebU

GITHUB REPOSITORY: https://github.com/sayyidahakindele/project

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