Team:
Team Gryffindor

Team Members:
Eric Meyer
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Executive Summary:

At the onset of our project, we set out to set up a system for a business to manage trainers, athletes, workouts, and the exercises in the workouts. Our original plan was for the Workouts entity to contain everything that was "important" for the athlete to include the athlete, the trainer associated with the workout, the primary muscle, the secondary muscle, reps, weights, and exercise names. The Exercises entity would hold a name and muscle groups and the Athlete entity would contain all the personal information. When we implemented our first iteration, and got feedback from our peers, it became evident that we needed a better way to store the reps and weights. If we didn't change our implementation there would be a significant potential for duplicating data or accidental deletions when the DBM tries to perform queries on a particular rep or weight. The solution was to use the transaction table Workouts_has_Exercises and add the weights and reps there for each exercise in workout.

Other feedback we received was to implement Cascade operations, add a Navbar, and implement additional CRUD operations for the pages. The reason Cascading was recommended was so deletions and updates carried through to other entities and keep data current. We also originally listed exercise names in the Workouts Details and Workouts displays on the front end, but opted instead to use the actual IDs of the exercises.

Our final project has useful CRUD operations for various entities, an easy to use UI complete with a navbar, and a backend that communicates with the MySQL server hosted on the school's flip server.

Updated Project and Database Outline:

Project Outline:

Recently Coach Harry Potter's online training business has exploded. He is finding it difficult to track his athlete's workouts successfully, and without the ability to track workouts, he cannot track his athlete's progress. To give you an idea of the volume of data Coach Potter needs to record he has 25 athletes that average 3 workouts per week and 6 exercises per workout. That is 750 data points that Coach Potter needs to record and accurately display to ensure his athletes are progressing properly. This database combined with a user-friendly frontend will create an easy way for Coach Potter to record exercises within workouts completed by athletes. Coach Potter is still a small business with just a handful of athletes, but he wants to

expand his business by hiring new trainers and acquiring new athletes. To solve his problems and fulfill his post-Hogwarts dreams, he needs the ability to create, read, update, and delete athletes, trainers, and the information pertaining to their workouts. This information will include the athlete's starting weight, current weight, and repetition and weight used for each exercise in a workout.
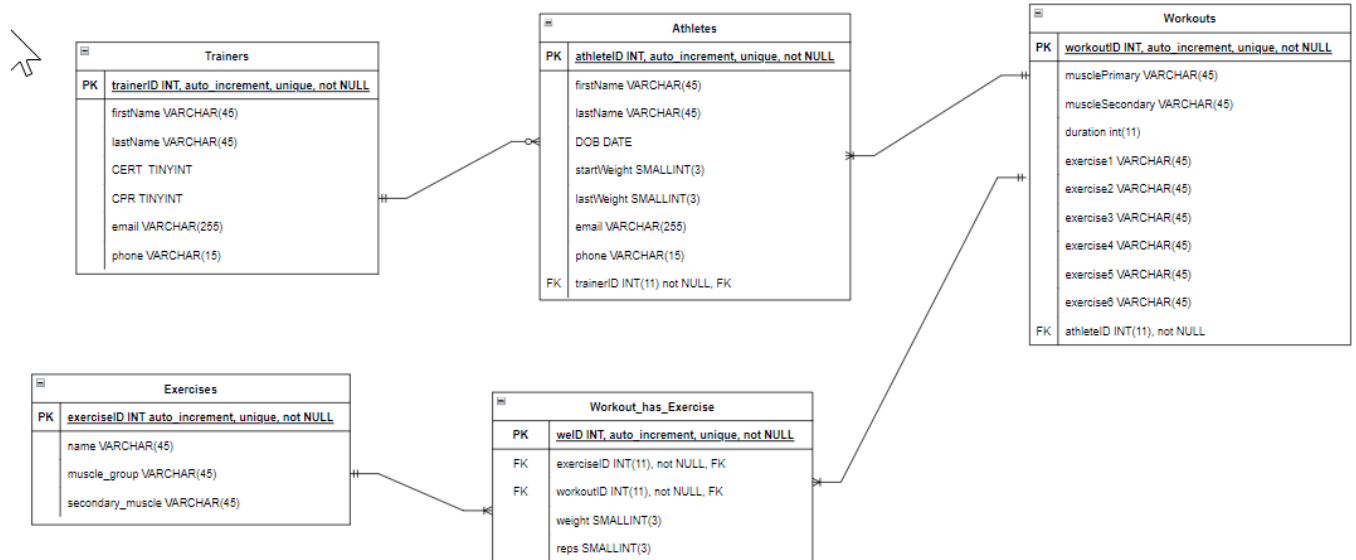
Database Outline:

- **Trainers:** records the trainer details we have available at Coach Potter's business
  - trainerID: INT, auto_increment, unique, not NULL, PK
  - firstName: VARCHAR(45), not NULL
  - lastName: VARCHAR(45), not NULL
  - CERT: TINYINT(4), not NULL
  - CPR: TINYINT(4), not NULL
  - email: VARCHAR(255), not NULL
  - phone: VARCHAR(15)
  - **Relationship:** 1:M optional relationship with **Athlete** implemented as a FK inside of **Athlete**, not every **Athlete** required to have a **Trainer**, but every **Trainer** must have at least one **Athlete.**

- **Athletes:** records the athlete's contact information as well as their progress via weight. DOB for tracking age.
  - athleteID: INT, auto_increment, unique, not NULL, PK
  - firstName: VARCHAR(45), not NULL
  - lastName: VARCHAR(45), not NULL
  - DOB: DATE
  - startWeight: SMALLINT(3)
  - currentWeight: SMALLINT(3)
  - email: VARCHAR(255), not NULL
  - phone: VARCHAR(15)
  - trainerID: INT(11) not NULL, FK
  - **Relationship:** 1:M optional relationship with **Trainer** implemented as a FK inside of **Athlete**, 1:M required relationship with **Workout** implemented as a FK inside of **Workout.** One athlete will have many workouts.

- **Workouts:** records workouts for the athletes, allows for 6 exercises in a workout, but only 1 exercise is required.
  - workoutID: INT, auto_increment, unique, not NULL, PK
  - musclePrimary: VARCHAR(45), not NULL
  - muscleSecondary: VARCHAR(45)
  - duration: TIME, not NULL
  - exercise1:VARCHAR(45), not NULL
  - exercise2:VARCHAR(45)
  - exercise3:VARCHAR(45)
  - exercise4:VARCHAR(45)
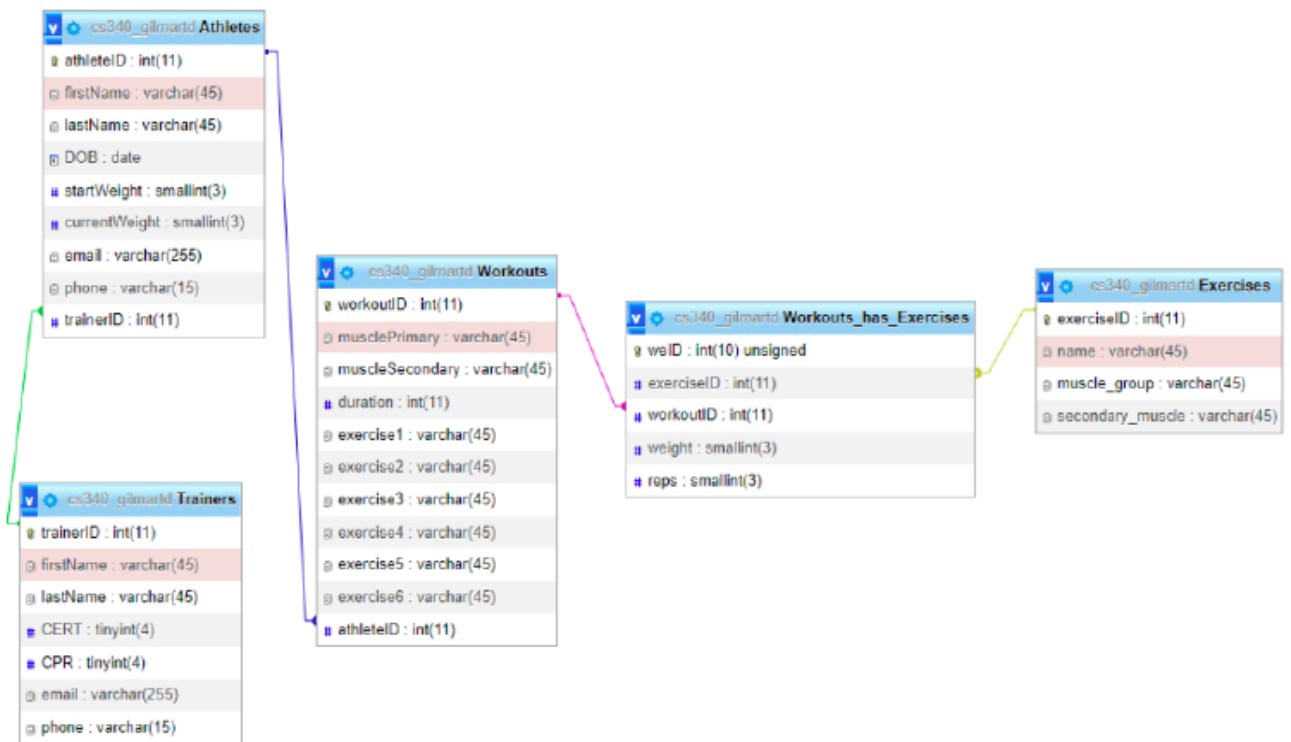
- ○ exercise5:VARCHAR(45)
- ○ exercise6:VARCHAR(45)
- ○ athleteID INT(11) not NULL, FK
- ○ **Relationship:** N:M with **Exercise** implemented through intersection table **Workout_has_Exercise,** 1:M relationship with **Athlete** implemented as a FK inside of **Workout.** One athlete will have many workouts.

- ● **Exercises:** records the list of exercises Coach Potter has his athletes do
    - ○ exerciseID: INT, auto_increment, unique, not NULL, PK
    - ○ name: VARCHAR(45), not NULL
    - ○ muscle_group: VARCHAR(45), not NULL
    - ○ secondary_muscle: VARCHAR(45)
    - ○ **Relationship:** N:M relationship with **Workout** implemented through intersection table.

- ● **Workouts_has_Exercises:** intersection table between Workouts and Exercises. Keeps track of the weight and reps for an individual workout. we(workout/exercise)ID is the ID for a unique workout for the reps and weight attributes.This table is displayed as Workout Details on the front end for user simplicity.
    - ○ weID: INT, auto_increment, unique, not NULL, PK
    - ○ exerciseID: INT(11) not NULL, FK
    - ○ athleteID: INT(11) not NULL, FK
    - ○ weight: smallint(13)
    - ○ reps: smallint(13)
    - ○ **Relationship:** 1:M with Workouts implemented as a FK inside Workouts_has_Exercises. 1:M with Exercises implemented as a FK inside Workouts_has_Exercises.

ERD:

- Attributes were kept in this ERD to allow us another way of visualizing the data and structure of the database.

Trainers

PK	trainerID INT, auto_increment, unique, not NULL
	firstName VARCHAR(45)
	lastName VARCHAR(45)
	CERT TINYINT
	CPR TINYINT
	email VARCHAR(255)
	phone VARCHAR(15)

Athletes

PK	athleteID INT, auto_increment, unique, not NULL
	firstName VARCHAR(45)
	lastName VARCHAR(45)
	DOB DATE
	startWeight SMALLINT(3)
	lastWeight SMALLINT(3)
	email VARCHAR(255)
	phone VARCHAR(15)
FK	trainerID INT(11) not NULL, FK

Workouts

PK	workoutID INT, auto_increment, unique, not NULL
	musclePrimary VARCHAR(45)
	muscleSecondary VARCHAR(45)
	duration int(11)
	exercise1 VARCHAR(45)
	exercise2 VARCHAR(45)
	exercise3 VARCHAR(45)
	exercise4 VARCHAR(45)
	exercise5 VARCHAR(45)
	exercise6 VARCHAR(45)
FK	athleteID INT(11), not NULL

Exercises

PK	exerciseID INT auto_increment, unique, not NULL
	name VARCHAR(45)
	muscle_group VARCHAR(45)
	secondary_muscle VARCHAR(45)

Workout_has_Exercise

PK	weID INT, auto_increment, unique, not NULL
FK	exerciseID INT(11), not NULL, FK
FK	workoutID INT(11), not NULL, FK
	weight SMALLINT(3)
	reps SMALLINT(3)

Schema:

UI SCREENSHOTS:

HOME PAGE
Welcome to Harry Potter's Fitness Tracking System • Browse Athletes • Browse Trainers • Edit Exercises • Manage Workouts

Athletes Page, Create and Read

BROWSE ATHLETES

First Name	Last Name	DOB	Start Weight	Last Weight	Email	Phone	Trainer ID
Hermione	Granger	1992-05-28	140	130	hermiong@gmail.com	5415558745	1
Ron	Weasley	1992-06-02	180	189	weasleT@yahoo.com	5415558963	2
Emma	Watson	1991-07-23	145	125	levyohsuh@hotmail.com	5035554561	3
Rupert	Grant	1991-02-15	205	195	realliferedhead@gmail.com	5415551234	1
Draco	Malfoy	1993-05-07	165	170	icecreamtruck@att.net	5418675309	None
Cristiano	Ronaldo	1985-02-05	185	183	cr7@business.com	134313454	None
sdlghls	sdl;jg	0001-12-23	56	56	purplepecesign101@gmail.	54adsgjslfk	None
sdlghls	sdl;jg	0001-12-23	56	56	purplepecesign101@gmail.	54adsgjslfk	None
Nearly Headless	Nick	1871-01-01	0	0	nhn@spector.com	0012020000	None
sf	sdf	2022-08-17	34	344	sdf@sf.cin	5555555555	None

ADD ATHLETE:

First Name: [First Name] Last Name: [Last Name] DOB: [mm/dd/yyyy]
Start Weight: [ ] Current Weight: [ ] Email: [example@gmail.com] Phone: [3198675309]
[Add Athlete]

SEARCH Athlete:

First Name: [First Name] [Search Athlete]

Trainers Page, Create and Read

BROWSE TRAINERS

First Name	Last Name	CERT	CPR	Email	Phone
Harry	Potter	123	127	harryP@gmail.com	5415554567
Gandalf	Grey	127	127	ishouldhavebeenDumbldore@yahoo.com	5551237899
Jk	Rowling	127	127	thestoryisaboutRon@hotmail.com	5415554569
lksajfdh	sdlkghlk	127	127	skdghsk	ksdgh
jon	Mac	7	4	j.mac@gmail.com	345-345-3444

ADD Trainer:

First Name: [First Name] Last Name: [Last Name] CERT: [ ] CPR: [ ]
Email: [example@gmail.com] Phone: [3198675309]
[Add Trainer]

Exercises Page, Create, Read, Update, Delete

Browse Athletes || Browse Trainers || Home || Manage Workouts

BROWSE Exercises

Exercise ID	Name	Primary Muscle Group	Secondary Muscle Group
2	eric	muscle	group
3	inclineBenchPress	chest	shoulders
6	deadlift	back	legs
7	latpulldown	back	bicep
11	planting mandrakes	hand	arm
12	wand work	finger	wrist
13	walk from dementor	legs	head

ADD Exercise:

Name: [Name] Primary Muscle Group: [Primary Muscle Group] Secondary Muscle Group: [Secondary Muscle Group]
[Add Exercise]

DELETE Exercise:

Name: [Name] [Delete Exercise]

UPDATE Exercise:

Exercise ID: [2 ▾] Name: [Name] Primary Muscle Group: [Primary Muscle Group] Secondary Muscle Group: [Secondary Muscle Group] [Update Exercise]

Workouts Page, Create Workout, Create Workout Details

Browse Athletes || Browse Trainers || Edit Exercises || Home

BROWSE WORKOUTS

Workout Overview

Workout ID	Primary Muscle Group	Secondary Muscle Group	Duration	Exercise 1	Exercise 2	Exercise 3	Exercise 4	Exercise 5	Exercise 6	Athlete ID
1	abdominals	None	70	1	2	None	None	None	None	1
2	cardio	None	50	5	None	None	None	None	None	2
3	legs	None	60	4	5	None	None	None	None	3
4	fullBody	None	90	1	2	3	4	5	None	4
5	back	legs	90	5	6					1
6	slihfe	dskgh	6	sdkgh	sdkgh	dskgh	sdklgh	dsgkh	skfhg	3
7	leg	hand	90	run from dementor	wand work	plant mandrakes				1
8	leg	arm	20	quidditch	wand work					2
9	back	arm	56	3	3	3	3	3	3	9

ADD WORKOUT OVERVIEW:

Primary Muscle Group: [Primary Muscle Group] Secondary Muscle Group: [Second Muscle Group] Duration: [ ]
Exercise 1: [Exercise 1] Exercise 2: [Exercise 2] Exercise 3: [Exercise 3] Exercise 4: [Exercise 4] Exercise 5: [Exercise 5] Exercise 6: [Exercise 6] Athlete: [Hermione Granger ▾]
[Add Workout Summary]

Workout Details

Workout ID	Exercise	Weight	Reps
1	2	None	100
4	2	None	75
4	3	125	10
5	6	10	15
1	2	0	0
1	11	15	1
7	6	179	23

ADD WORKOUT DETAILS

Workout ID: [1 ▾] Exercise: [eric ▾] Weight: [weight] Reps: [reps] [Add Workout Details]

SAMPLE DATA:

Athletes:

	athleteID	firstName	lastName	DOB	startWeight	currentWeight	email	phone	trainerID FK
☐ 🖉 Edit ⬈ Copy ⊝ Delete	1	Hermione	Granger	1992-05-28	140	130	hermiong@gmail.com	5415558745	1
☐ 🖉 Edit ⬈ Copy ⊝ Delete	2	Ron	Weasley	1992-06-02	180	189	weasleT@yahoo.com	5415558963	2
☐ 🖉 Edit ⬈ Copy ⊝ Delete	3	Emma	Watson	1991-07-23	145	125	levyohsuh@hotmail.com	5035554561	3
☐ 🖉 Edit ⬈ Copy ⊝ Delete	4	Rupert	Grant	1991-02-15	205	195	realliferedhead@gmail.com	5415551234	1
☐ 🖉 Edit ⬈ Copy ⊝ Delete	5	Draco	Malfoy	1993-05-07	165	170	icecreamtruck@att.net	5418675309	NULL

Exercises:

	exerciseID	name	muscle_group	secondary_muscle
☐ 🖉 Edit ⬈ Copy ⊝ Delete	1	latPulldown	back	bicep
☐ 🖉 Edit ⬈ Copy ⊝ Delete	2	situp	abdominal	NULL
☐ 🖉 Edit ⬈ Copy ⊝ Delete	3	inclineBenchPress	chest	shoulders
☐ 🖉 Edit ⬈ Copy ⊝ Delete	4	squat	quadricep	calves
☐ 🖉 Edit ⬈ Copy ⊝ Delete	5	run	cardio	NULL

Trainers:

	trainerID	firstName	lastName	CERT	CPR	email	phone
☐ 🖉 Edit ⬈ Copy ⊝ Delete	1	Harry	Potter	123	127	harryP@gmail.com	5415554567
☐ 🖉 Edit ⬈ Copy ⊝ Delete	2	Gandalf	Grey	127	127	ishouldhavebeenDumbldore@yahoo.com	5551237899
☐ 🖉 Edit ⬈ Copy ⊝ Delete	3	Jk	Rowling	127	127	thestoryisaboutRon@hotmail.com	5415554569

Workouts:

	workoutID	musclePrimary	muscleSecondary	duration	exercise1	exercise2	exercise3	exercise4	exercise5	exercise6	athleteID
☐ 🖉 Edit ⬈ Copy ⊝ Delete	1	abdominals	NULL	70	1	2	NULL	NULL	NULL	NULL	1
☐ 🖉 Edit ⬈ Copy ⊝ Delete	2	cardio	NULL	50	5	NULL	NULL	NULL	NULL	NULL	2
☐ 🖉 Edit ⬈ Copy ⊝ Delete	3	legs	NULL	60	4	5	NULL	NULL	NULL	NULL	3
☐ 🖉 Edit ⬈ Copy ⊝ Delete	4	fullBody	NULL	90	1	2	3	4	5	NULL	4

Workouts_has_Exercises:

			weID	exerciseID	workoutID	weight	reps
☐	🖊 Edit	📋 Copy ⊖ Delete	1	1	1	50	10
☐	🖊 Edit	📋 Copy ⊖ Delete	2	2	1	NULL	100
☐	🖊 Edit	📋 Copy ⊖ Delete	3	5	2	NULL	NULL
☐	🖊 Edit	📋 Copy ⊖ Delete	4	4	3	150	30
☐	🖊 Edit	📋 Copy ⊖ Delete	5	5	3	NULL	NULL
☐	🖊 Edit	📋 Copy ⊖ Delete	6	1	4	100	10
☐	🖊 Edit	📋 Copy ⊖ Delete	7	2	4	NULL	75
☐	🖊 Edit	📋 Copy ⊖ Delete	8	3	4	125	10
☐	🖊 Edit	📋 Copy ⊖ Delete	9	4	4	50	100
☐	🖊 Edit	📋 Copy ⊖ Delete	10	5	4	NULL	NULL

HTML URL:

http://flip1.engr.oregonstate.edu:9114/