

Planet Fitness Project

By

Hayley Leavitt & Kenny Igbechi

<https://yellow-river-074dc680f.1.azurestaticapps.net>

Executive Summary

Problem Statement

Planet Fitness now has 14.1 million customers, 2,146 stores and 40 different types of equipment with over 50,000 units distributed across several locations. The current database infrastructure is built on Microsoft Access which is not designed to handle the exponential growth of Planet fitness customer membership and new locations. To best serve our customers' digital needs, and to continue our expansion into new locations; we need to develop a good database management system that can help communicate information related to our customer transactions, product inventory, customer profiles and marketing activities.

Proposed solution

Our new database infrastructure will make use of MySQL which is a scalable, fast and reliable open source database. MySQL is one of the world's most popular databases compatible with all major hosting providers, cost-effective, and easy to manage. The new database infrastructure running on MySQL will be 20% cheaper than our current solution, with the potential to obtain over 40% data retrieval speed.

Design Process

We began the database design process by creating an ER diagram using MySQL workbench to visualize the requirement and communicate with stakeholders. We were able to resolve design issues, get a visualization of the design, and discuss what assets would be needed to produce an efficient and effective database. After all design issues were resolved, we used the Forward engineering feature of MySQL workbench to produce a working schema based on the ER design. Using this schema, we were able to create the needed tables on our MySQL database hosted on Azure. We then used NodeJS to expose the data of our database tables.

Then we produced a mock html website that showcased the general idea behind what the database's front end would look like and how it would theoretically function.

We continued developing the HTML and implemented CRUD functionality via javascript. Finally, we added search functionality and refined the looks and behavior of the website to meet all requirements.

Project & Database Outline

We have maintained that our website for PlanetFitness is a database driven website intended to be employee-facing.

- Customers: Contains the details of the members of our gym
 - Attributes
 - customerID: INT, AUTO INCREMENT, NOT NULL, PK
 - fname: VARCHAR(50) NOT NULL
 - lname: VARCHAR(50) NOT NULL
 - pronouns: VARCHAR(20) NOT NULL
 - age: INT NOT NULL
 - customerAddress: VARCHAR(100) NOT NULL
 - email: VARCHAR(50) NOT NULL
 - membershipType: VARCHAR(20) NOT NULL
 - hasActiveMembership: BOOL NOT NULL
 - **Relationships:**
 - 1:M with transactions
 - Each transaction can only be associated with one customer
 - **CRUD Functions:**
 - Create, Read, Update, Delete
 - Search functionality
- Schedules: Contains information about client and trainer's schedule of appointments and workouts
 - Attributes
 - scheduleID: INT, AUTO INCREMENT, NOT NULL PK
 - {trainerID}: FK, NULL
 - trainerName
 - activity: VARCHAR(50) NOT NULL
 - activityDays: VARCHAR(50) NOT NULL
 - startTime: TIME NOT NULL
 - duration: VARCHAR(50)
 - address: VARCHAR(50)
 - **Relationships:**

- 1:M with Trainers
 - Many schedules can share one trainer, but one schedule can only have one trainer
 - **CRUD Functions:**
 - Create, Read, Update, Delete
 - Search functionality
-
- Inventories: Intersection table for Equipment and Locations
 - Attributes
 - inventoryID: INT, AUTO INCREMENT, NOT NULL PK
 - equipmentQuantity: INT
 - {locationID}: PK
 - locationAddress
 - managerName
 - {equipmentID}: PK
 - equipmentName
 - equipmentType
 - **Relationships:**
 - 1:M with Locations
 - 1:M with Equipment
 - Allows multiple locations to each have multiple different equipment
 - **CRUD Functionality:**
 - Create, Read, Update, Delete
 - Search functionality
 - Locations: Keeps track of all gym locations
 - **Attributes:**
 - locationID: INT, AUTO INCREMENT, NOT NULL, PK
 - locationAddress: VARCHAR (100) NOT NULL UNIQUE
 - manager: VARCHAR (50)
 - **Relationships:**
 - 1:M with Inventory intersection table

- One Location can have an inventory of 0 or more of an Equipment, and an Equipment can exist at multiple Locations
- **CRUD Functionality:**
 - Create, Read, Update, Delete
- Equipment: Contains information about each equipment item in the franchise's inventory
 - **Attributes:**
 - equipmentID: INT, AUTO INCREMENT, NOT NULL, PK
 - equipmentType: VARCHAR (250) NOT NULL
 - equipmentName: VARCHAR (250) NOT NULL
 - **Relationships:**
 - 1:M with Inventory intersection table
 - Multiple copies of an Equipment can exist at multiple Locations
 - **CRUD Functionality:**
 - Create, Read, Update, Delete
 - Search functionality
- Trainers: Keeps track of all GYM instructors
 - **Attributes:**
 - trainerID: INT, AUTO INCREMENT, NOT NULL, PK
 - trainerName: VARCHAR(50) NOT NULL
 - salary: DECIMAL(10,2) NOT NULL
 - email: VARCHAR(50) NOT NULL
 - **Relationships:**
 - 1:M with Schedule
 - Trainer can have multiple schedules
 - **CRUD Functionality:**
 - Create, Read, Update, Delete
 - Search Functionality
- Transactions: Contains information about customer purchases
 - **Attributes:**
 - transactionID: INT, AUTO INCREMENT, NOT NULL, PK

- {customerID}: FK
 - customerName
- amount: DOUBLE(12, 5) NOT NULL
- transactionDate: DATETIME NOT NULL
- **Relationships**
 - 1:M with Customers, since a customer can have multiple transactions
- **CRUD Functionality**
 - Create, Read, Update, Delete
- Search Functionality

API Routes

We used Separation of concern design principle to separate the frontend and backend into distinct servers. Hence a failure on the backend or frontend should be independent. Below are the api routes serving information from our database tables.

● Customers

- **Get all customers (GET)**
https://planetfitapi.azurewebsites.net/api/customers
- **Get one customer by ID (GET)**
https://planetfitapi.azurewebsites.net/api/customers/:id
- **Update customer (PUT)**
https://planetfitapi.azurewebsites.net/api/customers/:id
- **Delete Customer (DELETE)**
https://planetfitapi.azurewebsites.net/api/customers/:id
- **Create Customer (POST)**
https://planetfitapi.azurewebsites.net/api/customers

● Transactions

- **Get all Transactions (GET)**
https://planetfitapi.azurewebsites.net/api/transactions
- **Get one transaction by ID (GET)**
https://planetfitapi.azurewebsites.net/api/transactions/:id
- **Update Transaction (PUT)**
https://planetfitapi.azurewebsites.net/api/transactions/:id
- **Delete Transaction (DELETE)**
https://planetfitapi.azurewebsites.net/api/transactions/:id

- **Create Transaction (POST)**
<https://planetfitapi.azurewebsites.net/api/transactions>

● Schedules

- **Get all Schedules (GET)**
<https://planetfitapi.azurewebsites.net/api/schedules>
- **Get one schedule by ID (GET)**
<https://planetfitapi.azurewebsites.net/api/schedules/:id>
- **Update Schedule (PUT)**
<https://planetfitapi.azurewebsites.net/api/schedules/:id>
- **Delete Schedule (DELETE)**
<https://planetfitapi.azurewebsites.net/api/schedules/:id>
- **Create Schedule (POST)**
<https://planetfitapi.azurewebsites.net/api/schedules>

● Trainers

- **Get all Trainers (GET)**
<https://planetfitapi.azurewebsites.net/api/trainers>
- **Get one Trainer by ID (GET)**
<https://planetfitapi.azurewebsites.net/api/trainers/:id>
- **Update Trainer (PUT)**
<https://planetfitapi.azurewebsites.net/api/trainers/:id>
- **Delete Trainer (DELETE)**
<https://planetfitapi.azurewebsites.net/api/trainers/:id>
- **Create Trainer (POST)**
<https://planetfitapi.azurewebsites.net/api/trainers>

● Locations

- **Get all Locations (GET)**
<https://planetfitapi.azurewebsites.net/api/locations>
- **Get one Location by ID (GET)**
<https://planetfitapi.azurewebsites.net/api/locations/:id>
- **Update Location (PUT)**
<https://planetfitapi.azurewebsites.net/api/locations/:id>
- **Delete Locations (DELETE)**
<https://planetfitapi.azurewebsites.net/api/locations/:id>
- **Create Locations (POST)**
<https://planetfitapi.azurewebsites.net/api/locations>

● Equipment

- **Get all Equipment (GET)**
<https://planetfitapi.azurewebsites.net/api/equipment>
- **Get one Equipment by ID (GET)**
<https://planetfitapi.azurewebsites.net/api/equipment/:id>
- **Update Equipment (PUT)**
<https://planetfitapi.azurewebsites.net/api/equipment/:id>
- **Delete Equipment (DELETE)**
<https://planetfitapi.azurewebsites.net/api/equipment/:id>

- **Create Equipment (POST)**

`https://planetfitapi.azurewebsites.net/api/equipment`

● **Inventory**

- **Get all Inventories (GET)**

`https://planetfitapi.azurewebsites.net/api/inventory`

- **Get one Inventory by ID (GET)**

`https://planetfitapi.azurewebsites.net/api/inventory/:locationid/:equipmentid`

- **Create Inventory (POST)**

`https://planetfitapi.azurewebsites.net/api/inventory`

- **Update Inventory EquipmentQuantity (PUT)**

`https://planetfitapi.azurewebsites.net/api/inventory/:locationid/:equipmentid`

ER Diagram

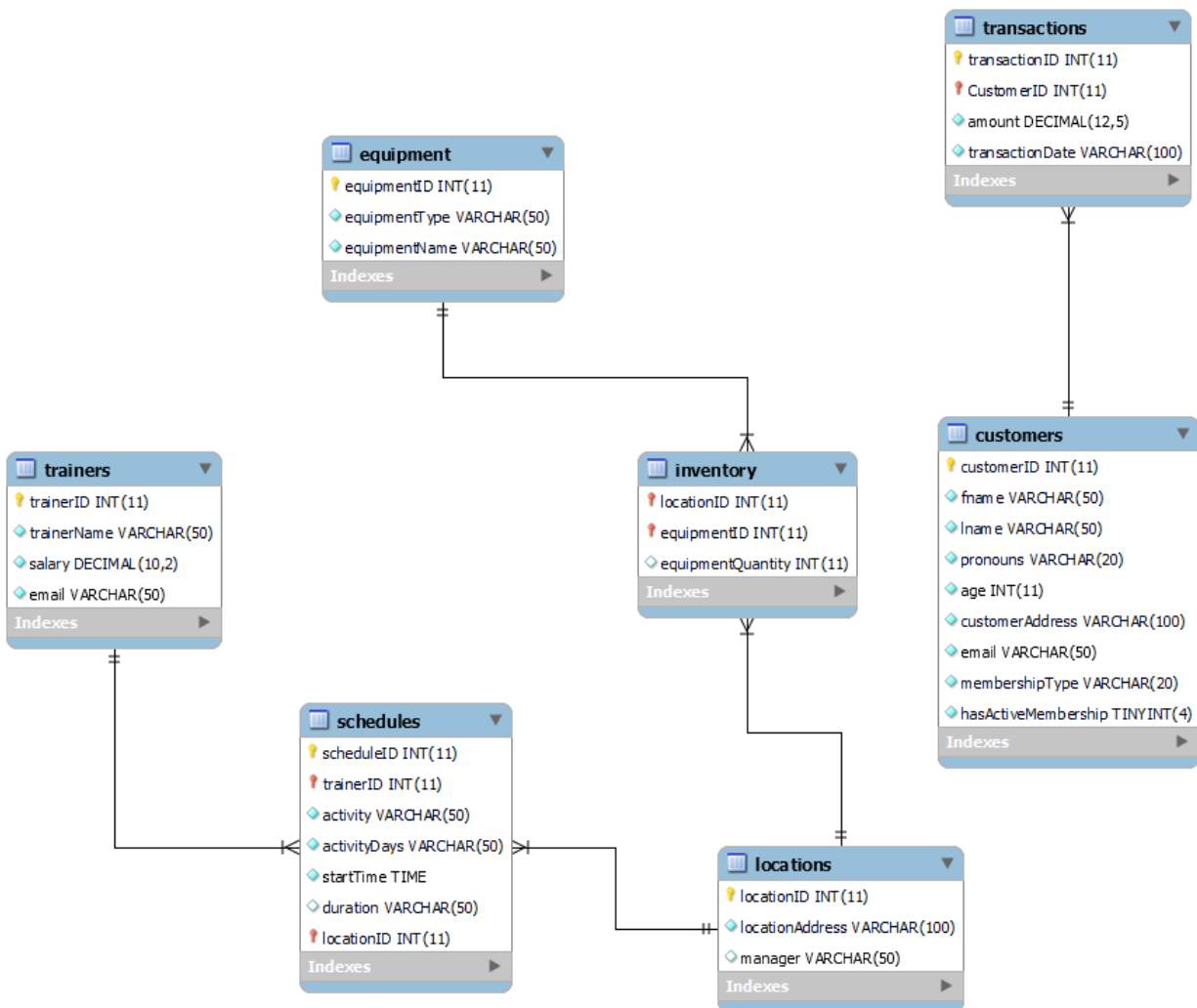


Figure 1 ER Diagram of our Database

Schema

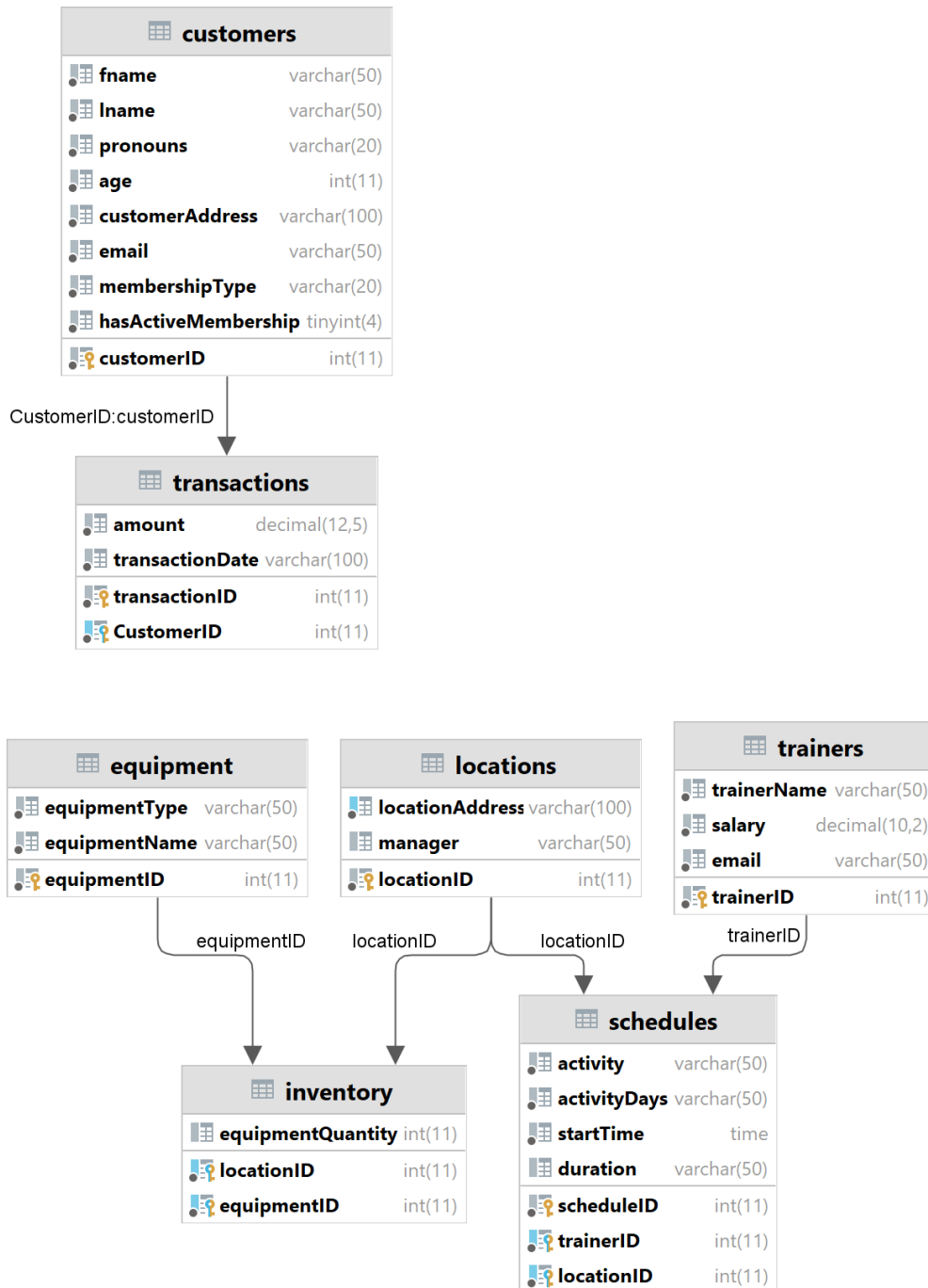


Figure 2 Visual of our Database Schema

Sample Data

Customer Sample Data

customerID	FirstName	LastName	Pronouns	Age	Address	Email	Membership Type	Active Membership
7	Aldin	Dunbleton	he/him	23	2 Kennedy Drive	adunbleton6@uol.com.br	Executive	true
11	Angelo	Kulver	Choose...	28	1457 Rowland Park	akulvera@odnoklassniki.ru	Executive	false
12	Iggy	Cranna	they/them	25	259 Columbus Parkway	icrannab@163.com	Executive	false
14	Tawsha	Greader	Polygender	26	4 Stang Crossing	tgreaderd@unesco.org	Pro	true

Figure 3 showing sample data from the Customer table

Transactions Sample Data

transactionID	Customer Name	Amount	Transaction Date
35	Linda Dudin	22.40	2022-05-27T02:41:00.025Z
41	Ross Keenleyside	40.00	2022-05-31T00:05:38.564Z
46	Harry Porter	300.00	2022-06-05T08:44:17.953Z
49	Magdalena Winspar	81.00	2022-06-05T07:35:22.524Z

Figure 4 showing sample data from the Customer table

Trainers Sample Data

trainerID	trainerName	salary	email
3	Jerry Whiteley	3500.00	jwhiteley2@creativecommons.org
4	Clive Nossent	3500.00	cnossent3@people.com.cn
5	Bartholomew Terrelly	3500.00	bterrelly4@biblegateway.com
6	Farrell Blackhurst	3500.00	fblackhurst5@phoca.cz

Figure 5 showing sample data from Trainers table

Equipment Sample Data

equipmentID	equipmentType	equipmentName
5	db 10 lbs	Fitness Gear Pro Half Rack
6	Barbells	Rogue
7	Cables and pulleys	Weights
8	Dumbbells	Weider Rubber Hex Dumbbell

Figure 6 showing sample data from Equipment table

Locations Sample Data

locationID	locationAddress	manager
2	6165 Lake Point	Pamelina Klemmt
3	43 Michigan Crossing	Loree Littell
4	14216 Monica Way	Nial Bleackly
5	0 Browning Street	Thain Edens

Figure 7 showing sample data from Locations table

Schedules Sample Data

scheduleID	Trainer Name	activity	activityDays	startTime	duration	Address
6	Jerry Whiteley	Arms & Legs	Saturday	07:54:00	1.5 Hours	6165 Lake Point
7	Clive Nossent	Dance	Wednesday & Thursday	07:08:00	2 Hours	14216 Monica Way
12	Clive Nossent	Climbing	Monday	00:08:00	2	43 Michigan Crossing

Figure 8 showing sample data from Schedules table

Inventories Sample Data

LocationAddress	Manager	EquipmentName	EquipmentType	EquipmentQuantity
6165 Lake Point	Pamelina Klemmt	Fitness Gear Pro Half Rack	db 10 lbs	100
6165 Lake Point	Pamelina Klemmt	Rogue	Barbells	105
6165 Lake Point	Pamelina Klemmt	Weights	Cables and pulleys	3
6165 Lake Point	Pamelina Klemmt	Weights	Cables and pulleys	90

Figure 9 showing sample data from Locations table

UI Screenshots with Informative Titles

Homepage

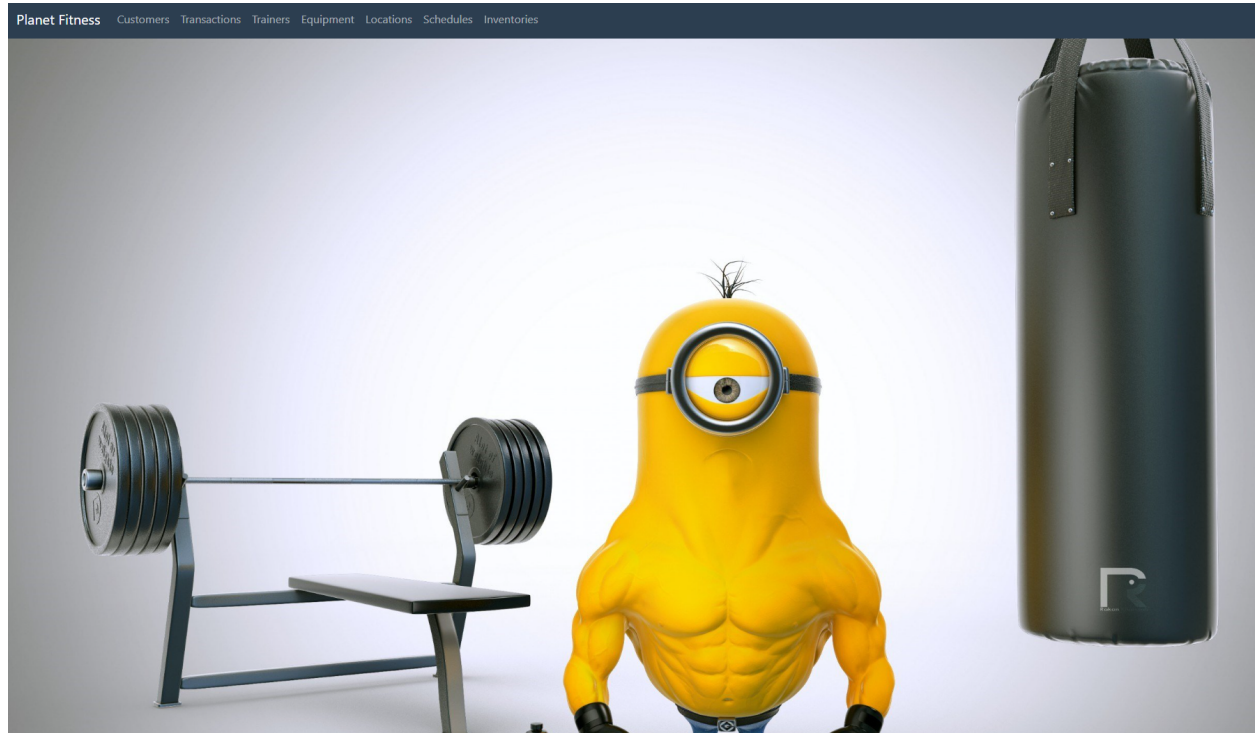


Figure 10 showing Database Homepage with Navigation

Customer Page

Planet Fitness Customers Transactions Trainers Equipment Locations Schedules Inventories

Customers [Add new Customer](#)

Search Table

customerID	FirstName	LastName	Pronouns	Age	Address	Email	Membership Type	Active Membership	Action
7	Aldin	Dunbleton	he/him	23	2 Kennedy Drive	adunbleton6@uol.com.br	Executive	true	Edit Delete
11	Angelo	Kulver	Choose...	28	1457 Rowland Park	akulvera@odnoklassniki.ru	Executive	false	Edit Delete
12	Iggy	Cranna	they/them	25	259 Columbus Parkway	icrannab@163.com	Executive	false	Edit Delete
14	Tawsha	Greader	Polygender	26	4 Stang Crossing	tgreaderd@unesco.org	Pro	true	Edit Delete
15	Jeramie	Abramovici	Male	26	09 Burrows Court	jabramovicie@phoca.cz	Pro	false	Edit Delete
16	Ross	Keenleyside	Male	27	92 Reindahl Place	rkeenleysidef@barnesandnoble.com	Pro	false	Edit Delete

Figure 11 Screenshot of customer page with CREATE/READ/UPDATE/DELETE Buttons and Search input

Planet Fitness Customers Transactions Trainers Equipment Locations Schedules Instructors

Customers

Search Table

customerID	FirstName	LastName	Pronouns	Age	Type	Active Membership	Action
7	Aldin	Dunbleton	he/him	23		true	Edit Delete
11	Angelo	Kulver	Choose...	28	14	false	Edit Delete
12	Iggy	Cranna	they/them	25	259	false	Edit Delete
14	Tawsha	Greader	Polygender	26	4	true	Edit Delete
15	Jeramie	Abramovici	Male	26	0	false	Edit Delete
16	Ross	Keenleyside	Male	27	9	false	Edit Delete
17	Selestina	Nisius	Female	27	22	true	Edit Delete

Add New Customer

FirstName* LastName*

Pronouns Age* Customer Address*

Email* Membership Type

Active Membership

Close Submit

Figure 12 showing Modal Form for adding new customers

Planet Fitness Customers Transactions Trainers Equipment Locations Schedules Instructors

Customers

Search Table

customerID	FirstName	LastName	Pronouns	Age	Type	Active Membership	Action
7	Aldin	Dunbleton	he/him	23		true	Edit Delete
11	Angelo	Kulver	Choose...	28	14	false	Edit Delete
12	Iggy	Cranna	they/them	25	259	false	Edit Delete
14	Tawsha	Greader	Polygender	26	4	true	Edit Delete
15	Jeramie	Abramovici	Male	26	0	false	Edit Delete
16	Ross	Keenleyside	Male	27	9	false	Edit Delete
17	Selestina	Nisius	Female	27	22	true	Edit Delete
18	Magdalena	Winspar	Female	27	00012 Center Plaza	Pro	true Edit Delete
20	Nike	Algeo	Female	28	20 Bunker Hill Center	Pro	false Edit Delete
24	Burna	Boy	he/him	34	23 Vine Street	Basic	false Edit Delete

Add New Customer

FirstName* LastName*

Pronouns Age* Customer Address*

Email* Membership Type

Active Membership

Close Update

Figure 13 showing Modal form for edit of already inserted customer data

Transactions Page

Planet Fitness

CustomersTransactionsTrainersEquipmentLocationsSchedulesInventories

Transactions

Add New Transaction

Search Table

transactionID	Customer Name	Amount	Transaction Date	Action	
34	Vitoria Keel	99.00	2022-05-27T02:40:53.477Z	Edit	Delete
35	Linda Dudin	22.00	2022-05-27T02:41:00.025Z	Edit	Delete
41	Ross Keenleyside	40.00	2022-05-31T00:05:38.564Z	Edit	Delete
46	Aldin Dunbleton	24.00	2022-05-31T20:53:49.446Z	Edit	Delete

Figure 14 Screenshot of Transaction page with CREATE/READ/UPDATE/DELETE Buttons and Search input

Planet Fitness

CustomersTransactionsTrainersEquipmentLocationsSchedulesInventories

Transactions

Search Table

transactionID	Customer Name	Amount	Transaction Date	Action	
34	Vitoria Keel	99.00	2022-05-27T02:40:53.477Z	Edit	Delete
35	Linda Dudin	22.00	2022-05-27T02:41:00.025Z	Edit	Delete
41	Ross Keenleyside	40.00	2022-05-31T00:05:38.564Z	Edit	Delete

Add New Transaction

Customer

Amount

Choose...

▼

TransactionDate

2022-06-05T06:47:16.905Z

Close

Submit

Figure 15 showing Modal Form for adding new Transactions

Trainers Page

[Planet Fitness](#) [Customers](#) [Transactions](#) [Trainers](#) [Equipment](#) [Locations](#) [Schedules](#) [Inventories](#)

Trainers

Add new Trainer

Search Table

trainerID	trainerName	salary	email	Action	
3	Jerry Whiteley	3500.00	jwhiteley2@creativecommons.org	Edit	Delete
4	Clive Nossent	3500.00	cnossent3@people.com.cn	Edit	Delete
5	Bartholomew Terrelly	3500.00	bterrelly4@biblegateway.com	Edit	Delete
6	Farrell Blackhurst	3500.00	fblackhurst5@phoca.cz	Edit	Delete
9	John	42999.00	jcleese@mpython.org	Edit	Delete

Figure 16 Screenshot of Trainers page with CREATE/READ/UPDATE/DELETE Buttons and Search input

Equipment Page

[Planet Fitness](#) [Customers](#) [Transactions](#) [Trainers](#) [Equipment](#) [Locations](#) [Schedules](#) [Inventories](#)

Equipment

Add new Equipment

Search Table

equipmentID	equipmentType	equipmentName	Action	
5	db 10 lbs	Fitness Gear Pro Half Rack	Edit	Delete
6	Barbells	Rogue	Edit	Delete
7	Cables and pulleys	Weights	Edit	Delete
8	Dumbbells	Weider Rubber Hex Dumbbell	Edit	Delete
9	Squat rack	Fitness Gear Pro Half Rack	Edit	Delete

Figure 17 Screenshot of Equipment page with CREATE/READ/UPDATE/DELETE Buttons and Search input

Locations Page

[Planet Fitness](#) [Customers](#) [Transactions](#) [Trainers](#) [Equipment](#) [Locations](#) [Schedules](#) [Inventories](#)

Location

Add new Location

Search Table

locationID	locationAddress	manager	Action	
2	6165 Lake Point	Pamelina Klemmt	Edit	Delete
3	43 Michigan Crossing	Loree Littell	Edit	Delete
4	14216 Monica Way	Nial Bleackly	Edit	Delete
5	0 Browning Street	Thain Edens	Edit	Delete
8	9999 Falkreath Road	Jorgen Bartner	Edit	Delete

Figure 18 Screenshot of Locations page with CREATE/READ/UPDATE/DELETE Buttons and Search input

Schedules Page

[Planet Fitness](#) [Customers](#) [Transactions](#) [Trainers](#) [Equipment](#) [Locations](#) [Schedules](#) [Inventories](#)

Schedules

Add New Schedules

Search Table

scheduleID	Trainer Name	activity	activityDays	startTime	duration	Address	Action	
6	Jerry Whiteley	Arms & Legs	Saturday	07:54:00	1.5 Hours	43 Michigan Crossing	Edit	Delete
7	Clive Nossent	Dance Class	Wednesday & Thursday	07:08:00	2 Hours	14216 Monica Way	Edit	Delete
9	John	Dance Class	Wednesday & Thursday	07:08:00	2 Hours	0 Browning Street	Edit	Delete
12	Clive Nossent	Climbing	Monday	00:08:00	2	43 Michigan Crossing	Edit	Delete

Figure 19 Screenshot of Schedules page with CREATE/READ/UPDATE/DELETE Buttons and Search input

Inventories Page

Planet Fitness

Customers

Transactions

Trainers

Equipment

Locations

Schedules

Inventories

Inventory

Add new Inventory

Search Table

LocationAddress	Manager	EquipmentName	EquipmentType	EquipmentQuantity	Action	
6165 Lake Point	Pamelina Klemmt	Fitness Gear Pro Half Rack	db 10 lbs	2	Edit	Delete
6165 Lake Point	Pamelina Klemmt	Rogue	Barbells	10	Edit	Delete
6165 Lake Point	Pamelina Klemmt	Weights	Cables and pulleys	3	Edit	Delete
43 Michigan Crossing	Loree Littell	Weights	Cables and pulleys	50	Edit	Delete
14216 Monica Way	Nial Bleackly	Weights	Cables and pulleys	4	Edit	Delete
14216 Monica Way	Nial Bleackly	Weider Rubber Hex Dumbbell	Dumbbells	30	Edit	Delete

Figure 20 Screenshot of Inventories page with CREATE/READ/UPDATE/DELETE Buttons and Search input