



Movement Gym Management System



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Introduction



- The Movement gym management system is a web based system that manages
 - Members
 - Instructor
 - Users
 - Workout program
 - Types of Admission
- The first step in the development of the Gym Management System is to start with the Entity Relationship Model.



Entity Relation

- ER model stands for Entity Relationship Model.
- Representing an object in the real world with an independent existence.
- Showing relation among tables and their attributes.
- The main components of ER model are Entity Set and Relationship Set.
- ER modeling is used in these area:
 - **Business Information System**
 - **Business Process Re-engineering (BPR)**
 - **Education**
 - **Research**
 - **Database Troubleshooting**

ER Diagram

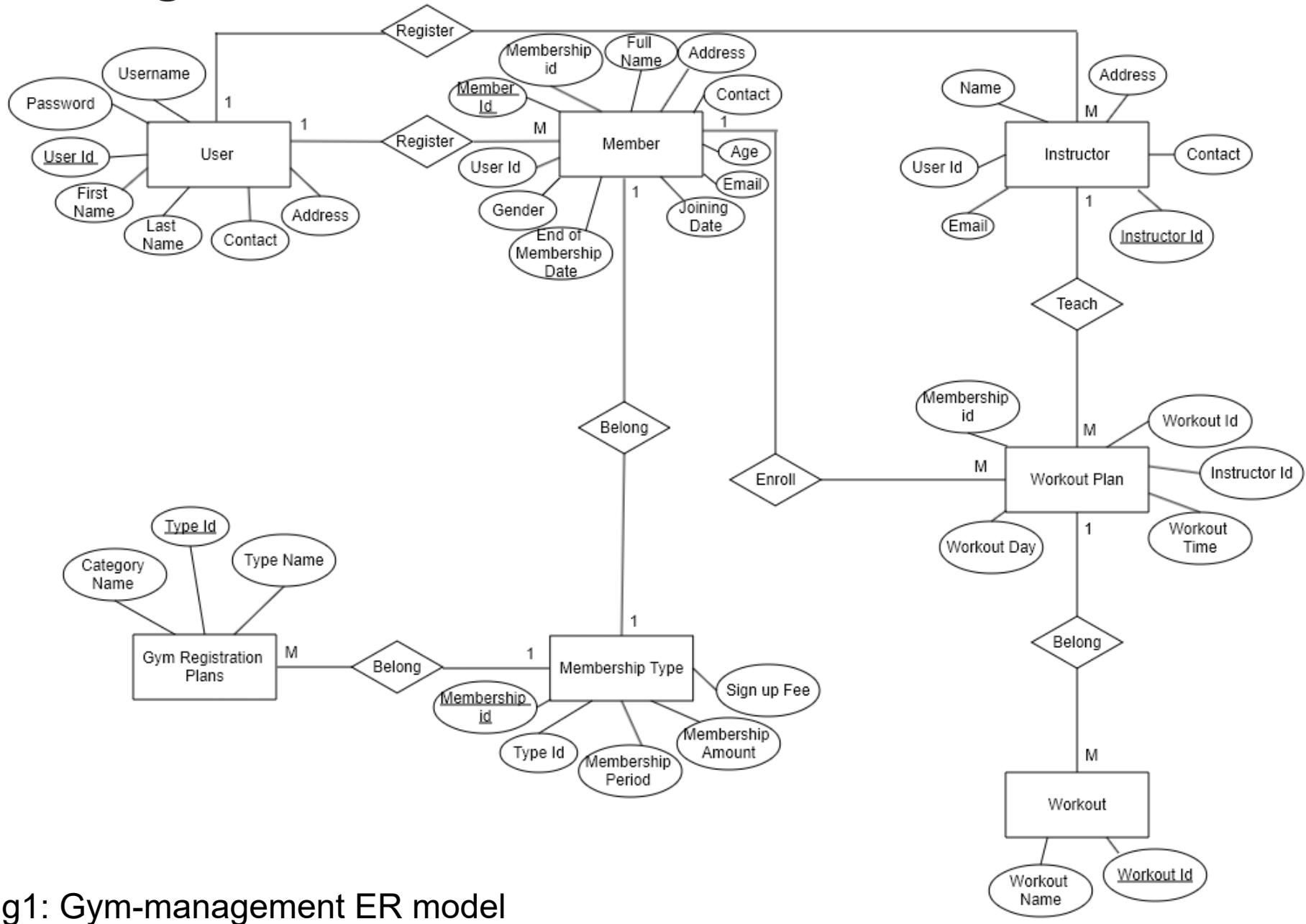


Fig1: Gym-management ER model

Legend

Entity	
Attributes	
Relation	
Key Attribute	

ER Diagram Explanation

- User encode/update/manage the member information (1 to M relationship).
- User encode/update/manage the gym instructor information (1 to M relationship).
- Member belongs to a specific type of membership plan (1 to 1 relationship).
- Member only enroll in one of the gym registration plan(1 to 1 relationship).
- Member can enroll to a many workout plan (1 to M relationship).
- Instructor teaches or guides a multiple workout plan (1 to M relationship).
- Workout plan includes multiple types of workouts (1 to M relationship).
- Member's plan includes multiple types of registration plans (1 to M relationship)

Schemas

```
MariaDB [19642mz]> select * from GymUser;
```

user_id	first_name	last_name	contact	address	user_name	password
1	Kelly	Medosina	687-657-9809	7 Trees Blvd, San Jose, CA	KellyM	123km123
2	James	Butt	408-123-1122	4 Oaks Ct, San Jose, CA	JamesB	123jb123
3	Josephine	Darakjy	408-123-1133	4 Seasons Ct, San Jose, CA	JosephD	123jod123
4	Lenna	Poprocki	408-123-2233	5 Wounds Ln, San Jose, CA	LennaP	123lep123
5	Art	Venere	408-123-1231	87 North On Ramp, San Jose, CA	ArtV	123art123
6	Minna	Amigon	408-123-1232	Aaron Ct, San Jose, CA	MinnaA	123mina123
7	Donette	Foller	408-123-1233	Abbeyfield Ct, San Jose, CA	DoneF	123don123
8	Kris	Marrier	408-123-1223	Abbeygate Ct, San Jose, CA	KrisM	123krism123

8 rows in set (0.000 sec)

```
MariaDB [19642mz]> select * from GymInstructor;
```

instructor_id	instructor_name	contact	address	email	userid
11	Ivan	508-352-6996	2203 Bridle Way, San Jose, CA	IvanB@movementgymsbayarea.com	8
22	Christian	408-123-4455	2032 Bantry Ct, Sunnyvale, CA, 94087	ChristianM@movementgymsbayarea.com	1
33	Amy	508-352-3042	152 Bright Willow Cir, San Jose, CA	AmyH@movementgymsbayarea.com	3
44	Ron	608-442-1232	5 Broadway Ave, San Jose, CA	RonM@movementgymsbayarea.com	5
55	Jennifer	4.8-525-4554	452 Brock Way, San Jose, CA	JenniferS@movementgymsbayarea.com	6

5 rows in set (0.000 sec)

Schemas

```
MariaDB [19642mz]> select * from GymPlans;
```

category_name	type_id	type_name
Individual	1101	Montly Membership
Individual	1102	Short Term Membership
Individual	1103	Annual Membership
Individual	1104	Day Pass
Individual	1105	Child Pass
Individual	1106	7 Visit Pass
Individual	1107	Active Duty/Senior
Family - of Two	2201	Montly Membership
Family - of Two	2202	Annual Membership
Student	3301	Day Pass
Student	3302	Montly Membership
Student	3303	Annual Membership

```
12 rows in set (0.000 sec)
```

```
MariaDB [19642mz]> select * from GymWorkout;
```

workout_id	workout_name
1001	Strength Bodyweight
1002	Core Circuit
1003	Prehab/Rehab
1004	H.I.I.T
1005	Climbing Training
1006	Total Body Fit
1007	Strength

```
7 rows in set (0.000 sec)
```


Schemas

```
MariaDB [19642mz]> select * from GymMembershipType;
```

membership_id	type_id	membership_period	membership_amount	signup_fee
1000001	1101	30	102	49
1000002	1103	365	1122	49
1000003	1103	365	1122	49
1000004	1102	30-S	130	0
1000005	1101	30	102	490
1000006	1103	365	1122	49
1000007	1104	1	30	0
1000008	1105	1	17	0
1000009	1104	1	30	0
1000010	1106	7	189	0
1000011	1107	1	27	0
1000012	1107	365	1122	0
1000013	1107	30	102	0
1000014	1106	7	189	0
1000015	1106	7	189	0
1000016	1107	30	102	0
1000017	2202	365	2002	49
1000018	2201	30	182	49
1000019	3301	1	24	0
1000020	3302	30	86	49
1000021	3303	365	946	49
1000022	2201	365	2002	49
1000023	3302	30	86	49
1000024	3301	1	24	0
1000025	2202	365	2002	49

25 rows in set (0.000 sec)

```
MariaDB [19642mz]> select * from GymWorkoutPlan;
```

workout_id	membership_id	workout_day	workout_time	instructor_id
1001	1000005	Tuesday	6:00am-6:45am	11
1001	1000008	Thursday	7:00am-7:45am	22
1004	1000001	Wednesday	6:15pm-7:00pm	33
1004	1000020	Monday	7:00pm-7:45pm	44
1002	1000015	Tuesday	12:00pm-12:45pm	55
1006	1000008	Monday	7:00am-7:45am	33
1006	1000005	Thursday	7:00pm-7:45pm	44
1007	1000018	Monday	6:15pm-6:45pm	44
1005	1000021	Tuesday	7:00pm-7:45pm	11
1003	1000011	Sunday	9:00am-9:45am	22
1007	1000003	Saturday	10:30am-11:00am	22
1002	1000018	Saturday	11:00am-11:30am	22

12 rows in set (0.000 sec)

Schemas

MariaDB [19642mz]> select * from GymMember;

member_id	member_name	address	contact	email	age	gender	joining_date	endOf_membershipDate	membership_id	user_id
1	Chanel Caudy	878 Harvest Dr, San Jose, CA	808-987-0990	chanelcaudy@yahoo.com	29	F	2008-01-15	2010-12-30	NULL	6
2	Rozella Ostrosky	17 Morena Blvd, San Jose, CA	808-950-1221	rozella@yahoo.com	35	F	2010-01-15	2012-01-30	NULL	8
3	Albina Glick	4 Ralph Ct, San Jose, CA	732-782-6701	albinag@yahoo.com	32	F	2020-01-01	2020-02-01	1000001	8
4	Willow Kusko	991 Tully Rd, San Jose, CA	656-255-1221	willow@gmail.com	32	M	2020-01-01	2021-01-01	1000002	4
5	Jose Stockham	231 Bransten Rd, San Jose, CA	669-255-1331	Jose@gmail.com	30	M	2020-11-15	2021-11-15	1000003	8
6	Erick Ferencz	20 Moore Blvd, San Jose, CA	669-255-3223	erik@gmail.com	28	M	2020-06-05	2020-07-05	1000004	5
7	Jina Briddick	728 Woodfield Rd, San Jose, CA	669-255-3113	jina@yahoo.com	28	F	2009-08-15	2023-01-15	NULL	5
8	Emerson Bowley	68 S Main St, San Jose, CA	669-255-1441	emerson@yahoo.com	35	M	2020-10-20	2020-11-20	1000005	3
9	Lorri Nestle	78 Internatinal St, San Jose, CA	669-255-4221	lorri@hotmail.com	18	M	2020-03-12	2021-03-12	1000006	3
10	Sabra Uyetake	323 Holly Hills Dr, San Jose, CA	669-255-4331	Sabra@hotmail.com	25	F	2020-09-25	2020-09-25	1000007	1
11	Karl	76 Brooks St, San Jose, CA	669-252-4044	Karl@gmailmail.com	32	M	2021-12-15	2021-12-15	NULL	1
12	Cishi Chan	21 Camden Ave, San Jose, CA	669-255-4441	cishi@gmail.com	40	M	2020-10-01	2020-10-01	1000008	7
13	Ali khan	5325 Cherry Ave, San Jose, CA	669-255-1124	alikhhan@gmail.com	38	M	2020-10-18	2020-10-18	1000009	6
14	Mirzai Moshi	125 Hillsvie, San Jose, CA	669-255-1143	miraza@gmail.com	35	M	2020-11-01	2020-11-07	1000010	5
15	Christy Pedramo	3323 MacLaghlin Blvd, San Jose, CA	808-454-6556	christy@hotmail.com	40	F	2020-11-05	2020-11-05	1000011	4
16	Summon Chelman	324 Sherlook Dr, San Jose, CA	808-203-6556	summon@gmail.com	28	M	2020-11-08	2021-11-08	1000012	3
17	Chen Chu	12 Colman St, San Jose, CA	503-253-1232	chen@gmail.com	33	M	2020-11-12	2020-11-12	NULL	5
18	Mike Manesh	786 Meredian St, San Jose, CA	503-253-4032	mike@hotmail.com	42	M	2020-11-15	2020-12-15	1000013	2
19	Moj Lot	3 Fox Ave, San Jose, CA	853-253-2054	moj@hotmail.com	40	F	2020-11-15	2020-11-22	1000014	7
20	Shams White	20 Chad Ave, San Jose, CA	853-253-3033	shams@gmail.com	25	M	2020-11-15	2020-11-22	1000015	1
21	Sina Kmg	3223 Jarvis way, San Jose, CA	503-253-9565	sina@gmail.com	28	F	2020-11-20	2020-12-20	1000016	6
22	Niki Tor	98 Leigh Ave, San Jose, CA	503-233-1232	niki@yahoo.com	35	F	2020-11-22	2020-11-22	NULL	2
23	Sherman Fig	53 Loope St, San Jose, CA	663-325-9856	sherman@gmail.com	36	M	2020-11-22	2021-11-22	1000017	2
24	Henry Chue	3 Galveston St, San Jose, CA	503-325-5685	henry@gmail.com	36	M	2020-11-25	2020-11-25	1000018	8
25	John Motaka	50 Snail Ave, San Jose, CA	803-123-8090	john@yahoo.com	48	M	2020-11-25	2020-11-25	NULL	1
26	Ivanka Torno	45 Sherman St, San Jose, CA	808-654-7745	ivanka@hotmail.com	40	F	2020-12-01	2020-12-01	1000019	7
27	Shima Kardan	76 Fox Worty, San Jose, CA	665-654-8088	shima@hotmail.com	29	F	2020-12-05	2021-01-05	1000020	5
28	Tina Kiam	123 Rose Ave, San Jose, CA	503-604-5448	tina@gmail.com	32	F	2020-12-05	2021-12-05	1000021	3
29	Tantan Live	20 Madagascars Ln, San Jose, CA	883-503-0231	tantan@gmail.com	26	M	2020-12-10	2021-12-10	1000022	4
30	Pesar Shoja	90 Kerman St, San Jose, CA	408-503-9098	shoja@hotmail.com	45	M	2020-12-10	2020-12-10	NULL	4
31	Ferri Sentan	21 Pingate Ave, San Jose, CA	665-245-0415	feri@yahoo.com	39	F	2021-01-15	2021-02-15	1000023	6
32	Aiko Semsemji	3 Merikh St, San Jose, CA	852-205-6459	Aiko@yahoo.com	18	F	2021-02-20	2021-02-20	1000024	7
33	Karim Shah	678 Heaven Tree, San Jose, CA	669-501-7745	Karim@gmail.com	31	M	2021-12-25	2022-12-25	1000025	8

33 rows in set (0.000 sec)

Basic Queries:

Create Table with its Attributes & Values

```
MariaDB [19642mz]> show create table GymWorkoutPlan;
```

```

GymWorkoutPlan | CREATE TABLE `GymWorkoutPlan` (
  `workout_id` int(5) NOT NULL,
  `membership_id` int(11) NOT NULL,
  `workout_day` varchar(9) NOT NULL,
  `workout_time` varchar(50) NOT NULL,
  `instructor_id` int(11) NOT NULL,
  KEY `workout_id` (`workout_id`),
  KEY `instructor_id` (`instructor_id`),
  KEY `membership_id` (`membership_id`),
  CONSTRAINT `GymWorkoutPlan_ibfk_2` FOREIGN KEY (`workout_id`) REFERENCES `GymWorkout` (`workout_id`),
  CONSTRAINT `GymWorkoutPlan_ibfk_3` FOREIGN KEY (`instructor_id`) REFERENCES `GymInstructor` (`instructor_id`),
  CONSTRAINT `GymWorkoutPlan_ibfk_4` FOREIGN KEY (`membership_id`) REFERENCES `GymMembershipType` (`membership_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 |
```

```
MariaDB [19642mz]> insert into GymWorkoutPlan values(1006,1000005,'Thursday','7:00pm-7:45pm',44);
Query OK, 1 row affected (0.003 sec)
```

```
MariaDB [19642mz]> insert into GymWorkoutPlan values(1007,1000018,'Monday','6:15pm-6:45pm',44);
Query OK, 1 row affected (0.002 sec)
```

```
MariaDB [19642mz]> select * from GymWorkoutPlan;
```

workout_id	membership_id	workout_day	workout_time	instructor_id
1001	1000005	Tuesday	6:00am-6:45am	11
1001	1000008	Thursday	7:00am-7:45am	22
1004	1000001	Wednesday	6:15pm-7:00pm	33
1004	1000020	Monday	7:00pm-7:45pm	44
1002	1000015	Tuesday	12:00pm-12:45pm	55
1006	1000008	Monday	7:00am-7:45am	33
1006	1000005	Thursday	7:00pm-7:45pm	44
1007	1000018	Monday	6:15pm-6:45pm	44
1005	1000021	Tuesday	7:00pm-7:45pm	11
1003	1000011	Sunday	9:00am-9:45am	22
1007	1000003	Saturday	10:30am-11:00am	22
1002	1000018	Saturday	11:00am-11:30am	22

12 rows in set (0.000 sec)

Select Query:

- Show the table that we are calling

```
MariaDB [19642mz]> select * from GymWorkout;
```

workout_id	workout_name
1001	Strength Bodyweight
1002	Core Circuit
1003	Prehab/Rehab
1004	H.I.I.T
1005	Climbing Training
1006	Total Body Fit
1007	Strength

```
7 rows in set (0.000 sec)
```

Alter Queries:

Alter Command Usage

- Add Column
- Drop Column
- Change Column Name
- Modify Column Database

Update Command Usage

- Modify/Change

the existing value for a
specific record by where
clause

```
MariaDB [19642mz]> alter table GymMembershipType change column membership_period mmbr_Prld varchar(30) not null;  
Query OK, 0 rows affected (0.003 sec)  
Records: 0 Duplicates: 0 Warnings: 0
```

```
MariaDB [19642mz]> select * from GymMembershipType;
```

membership_id	type_id	mmbr_Prld	mmbr_cost	signup_fee
1000001	1101	30	102	49
1000002	1103	365	1122	49
1000003	1103	365	1122	49
1000004	1102	30-s	130	0
1000005	1101	30	102	490
1000006	1103	365	1122	49
1000007	1104	1	30	0
1000008	1105	1	17	0
1000009	1104	1	30	0
1000010	1106	7	189	0
1000011	1107	1	27	0
1000012	1107	365	1122	0
1000013	1107	30	102	0
1000014	1106	7	189	0
1000015	1106	7	189	0
1000016	1107	30	102	0
1000017	2202	365	2002	49
1000018	2201	30	182	49
1000019	3301	1	24	0
1000020	3302	30	86	49
1000021	3303	365	946	49
1000022	2201	365	2002	49
1000023	3302	30	86	49
1000024	3301	1	24	0
1000025	2202	365	2002	49

```
25 rows in set (0.000 sec)
```


Update Queries:

```
MariaDB [19642mz]> update GymMember set age=15 where membership_id=1000005;  
Query OK, 1 row affected (0.003 sec)  
Rows matched: 1   Changed: 1   Warnings: 0
```

```
MariaDB [19642mz]> select * from GymMember;
```

member_id	member_name	address	contact	email	age	gender	joining_date	endOf_membershipDate	membership_id	user_id
1	Chanel Caudy	878 Harvest Dr, San Jose, CA	808-987-0990	chanelcaudy@yahoo.com	29	F	2008-01-15	2010-12-30	NULL	6
2	Rozella Ostrosky	17 Morena Blvd, San Jose, CA	808-950-1221	rozella@yahoo.com	35	F	2010-01-15	2012-01-30	NULL	8
3	Albina Glick	4 Ralph Ct, San Jose, CA	732-782-6701	albinag@yahoo.com	32	F	2020-01-01	2020-02-01	1000001	8
4	Willow Kusko	991 Tully Rd, San Jose, CA	656-255-1221	willow@gmail.com	32	M	2020-01-01	2021-01-01	1000002	4
5	Jose Stockham	231 Bransten Rd, San Jose, CA	669-255-1331	Jose@gmail.com	30	M	2020-11-15	2021-11-15	1000003	8
6	Erick Ferencz	20 Moore Blvd, San Jose, CA	669-255-3223	erik@gmail.com	28	M	2020-06-05	2020-07-05	1000004	5
7	Jina Briddick	728 Woodfield Rd, San Jose, CA	669-255-3113	jina@yahoo.com	28	F	2009-08-15	2023-01-15	NULL	5
8	Emerson Bowley	68 S Main St, San Jose, CA	669-255-1441	emerson@yahoo.com	15	M	2020-10-20	2020-11-20	1000005	3
9	Lorri Nestle	78 Internatinal St, San Jose, CA	669-255-4221	lorri@hotmail.com	18	M	2020-03-12	2021-03-12	1000006	3
10	Sabra Uyetake	323 Holly Hills Dr, San Jose, CA	669-255-4331	Sabra@hotmail.com	25	F	2020-09-25	2020-09-25	1000007	1
11	Karl	76 Brooks St, San Jose, CA	669-252-4044	Karl@gmailmail.com	32	M	2021-12-15	2021-12-15	NULL	1
12	Cishi Chan	21 Camden Ave, San Jose, CA	669-255-4441	cishi@gmail.com	40	M	2020-10-01	2020-10-01	1000008	7
13	Ali khan	5325 Cherry Ave, San Jose, CA	669-255-1124	alikhhan@gmail.com	38	M	2020-10-18	2020-10-18	1000009	6
14	Mirzai Moshi	125 Hillsvieview, San Jose, CA	669-255-1143	miraza@gmail.com	35	M	2020-11-01	2020-11-07	1000010	5
15	Christy Pedramo	3323 MacLaghlin Blvd, San Jose, CA	808-454-6556	christy@hotmail.com	40	F	2020-11-05	2020-11-05	1000011	4
16	Summon Chelman	324 Sherlook Dr, San Jose, CA	808-203-6556	summon@gmail.com	28	M	2020-11-08	2021-11-08	1000012	3
17	Chen Chu	12 Colman St, San Jose, CA	503-253-1232	chen@gmail.com	33	M	2020-11-12	2020-11-12	NULL	5
18	Mike Manesh	786 Meredian St, San Jose, CA	503-253-4032	mike@hotmail.com	42	M	2020-11-15	2020-12-15	1000013	2
19	Moj Lot	3 Fox Ave, San Jose, CA	853-253-2054	moj@hotmail.com	40	F	2020-11-15	2020-11-22	1000014	7
20	Shams White	20 Chad Ave, San Jose, CA	853-253-3033	shams@gmail.com	25	M	2020-11-15	2020-11-22	1000015	1
21	Sina Kmg1	3223 Jarvis way, San Jose, CA	503-253-9565	sina@gmail.com	28	F	2020-11-20	2020-12-20	1000016	6
22	Niki Tor	98 Leigh Ave, San Jose, CA	503-233-1232	niki@yahoo.com	35	F	2020-11-22	2020-11-22	NULL	2
23	Sherman Fig	53 Loope St, San Jose, CA	663-325-9856	sherman@gmail.com	36	M	2020-11-22	2021-11-22	1000017	2
24	Henry Chue	3 Galveston St, San Jose, CA	503-325-5685	henry@gmail.com	36	M	2020-11-25	2020-11-25	1000018	8
25	John Motaka	50 Snail Ave, San Jose, CA	803-123-8090	john@yahoo.com	48	M	2020-11-25	2020-11-25	NULL	1
26	Ivanka Torno	45 Sherman St, San Jose, CA	808-654-7745	ivanka@hotmail.com	40	F	2020-12-01	2020-12-01	1000019	7
27	Shima Kardan	76 Fox Worty, San Jose, CA	665-654-8088	shima@hotmail.com	29	F	2020-12-05	2021-01-05	1000020	5
28	Tina Kiam	123 Rose Ave, San Jose, CA	503-604-5448	tina@gmail.com	32	F	2020-12-05	2021-12-05	1000021	3
29	Tantan Live	20 Madagscar ln, San Jose, CA	883-503-0231	tantan@gmail.com	26	M	2020-12-10	2021-12-10	1000022	4
30	Pesar Shoja	90 Kerman St, San Jose, CA	408-503-9098	shoja@hotmail.com	45	M	2020-12-10	2020-12-10	NULL	4
31	Ferri Sentan	21 Pingate Ave, San Jose, CA	665-245-0415	feri@yahoo.com	39	F	2021-01-15	2021-02-15	1000023	6
32	Aiko Semsemji	3 Merikh St, San Jose, CA	852-205-6459	Aiko@yahoo.com	18	F	2021-02-20	2021-02-20	1000024	7
33	Karim Shah	678 Heaven Tree, San Jose, CA	669-501-7745	Karim@gmail.com	31	M	2021-12-25	2022-12-25	1000025	8

33 rows in set (0.000 sec)

Nested Queries:

- A query within a query
- Parenthesized query
- Can be used as a value in most of places

Retrieve those visitors that are registered as members and also registered in Gym Workout Plan

```
MariaDB [19642mz]> select member_name,age,gender,membership_id from GymMember where membership_id in (select membership_id from GymWorkoutPlan) and membership_id in (select membership_id from GymMembershipType);
```

member_name	age	gender	membership_id
Albina Glick	32	F	1000001
Jose Stockham	30	M	1000003
Emerson Bowley	35	M	1000005
Cishi Chan	40	M	1000008
Christy Pedramo	40	F	1000011
Shams White	25	M	1000015
Henry Chue	36	M	1000018
Shima Kardan	29	F	1000020
Tina Kiam	32	F	1000021

```
9 rows in set (0.001 sec)
```

Join Queries (Two Way):

Retrieve the names of the instructor and their schedule

```
MariaDB [19642mz]> select i.instructor_name,i.email,p.workout_time,p.workout_day from GymInstructor i natural join GymWorkoutPlan p;
```

instructor_name	email	workout_time	workout_day
Ivan	IvanB@movementgymsbayarea.com	6:00am-6:45am	Tuesday
Christian	ChristianM@movementgymsbayarea.com	7:00am-7:45am	Thursday
Amy	AmyH@movementgymsbayarea.com	6:15pm-7:00pm	Wednesday
Ron	RonM@movementgymsbayarea.com	7:00pm-7:45pm	Monday
Jennifer	Jennifers@movementgymsbayarea.com	12:00pm-12:45pm	Tuesday
Amy	AmyH@movementgymsbayarea.com	7:00am-7:45am	Monday
Ron	RonM@movementgymsbayarea.com	7:00pm-7:45pm	Thursday
Ron	RonM@movementgymsbayarea.com	6:15pm-6:45pm	Monday
Ivan	IvanB@movementgymsbayarea.com	7:00pm-7:45pm	Tuesday
Christian	ChristianM@movementgymsbayarea.com	9:00am-9:45am	Sunday
Christian	ChristianM@movementgymsbayarea.com	10:30am-11:00am	Saturday
Christian	ChristianM@movementgymsbayarea.com	11:00am-11:30am	Saturday

12 rows in set (0.000 sec)

Retrieve the names of those members that are registered for gym workout.

```
MariaDB [19642mz]> select m.member_name,w.workout_id from GymMember m inner join GymWorkoutPlan w using(membership_id);
```

member_name	workout_id
Emerson Bowley	1001
Cishi Chan	1001
Albina Glick	1004
Shima Kardan	1004
Shams White	1002
Cishi Chan	1006
Emerson Bowley	1006
Henry Chue	1007
Tina Kiam	1005
Christy Pedram	1003
Jose Stockham	1007
Henry Chue	1002

12 rows in set (0.000 sec)

Join Queries(Three Way):

Retrieve all the members' name who are registered with the instructor id 22

```
MariaDB [19642mz]> select m.member_name, w.workout_name, p.workout_day, p.workout_time from
GymMember m inner join GymWorkoutPlan p on m.membership_id = p.membership_id inner join
GymWorkout w on p.workout_id = w.workout_id where p.instructor_id=22;
```

member_name	workout_name	workout_day	workout_time
Cishi Chan	Strength Bodyweight	Thursday	7:00am-7:45am
Christy Pedramo	Prehab/Rehab	Sunday	9:00am-9:45am
Jose Stockham	Strength	Saturday	10:30am-11:00am
Henry Chue	Core Circut	Saturday	11:00am-11:30am

4 rows in set (0.001 sec)

Retrieve the members' name and age who are registered for specific instructor with specific user

```
MariaDB [19642mz]> select m.member_name, m.age, k.instructor_name, k.userid from GymMember m inner join (select membership_id, instructor_id, workout_id from GymWorkoutPlan where instructor_id = 44 and workout_day='Monday') s on m.membership_id = s.membership_id inner join (select instructor_id, instructor_name, userid from GymInstructor where userid = 5) k on s.instructor_id = k.instructor_id;
```

member_name	age	instructor_name	userid
Shima Kardan	29	Ron	5
Henry Chue	36	Ron	5

2 rows in set (0.000 sec)

Multiple Join:

Retrieve the :

- Members' name and membership id from GymMember table.
- With the corresponding workout plan that they are registered from GymWorkoutPlan table.
- Workout schedule from GymWorkout table.
- Relevant instructor name for that workout from GymInstructor table.

```
MariaDB [19642mz]> select m.membership_id,m.member_name,s.workout_name,s.workout_day,s.workout_time,s.instructor_name from GymMember m inner join (select w.workout_name,d.* from GymWorkout w inner join (select p.*,i.instructor_name from GymWorkoutPlan p inner join GymInstructor i on p.instructor_id = i.instructor_id) d on w.workout_id = d.workout_id) s on m.membership_id = s.membership_id;
```

membership_id	member_name	workout_name	workout_day	workout_time	instructor_name
1000005	Emerson Bowley	Strength Bodyweight	Tuesday	6:00am-6:45am	Ivan
1000021	Tina Kiam	Climbing Training	Tuesday	7:00pm-7:45pm	Ivan
1000008	Cishi Chan	Strength Bodyweight	Thursday	7:00am-7:45am	Christian
1000011	Christy Pedramo	Prehab/Rehab	Sunday	9:00am-9:45am	Christian
1000003	Jose Stockham	Strength	Saturday	10:30am-11:00am	Christian
1000018	Henry Chue	Core Circuit	Saturday	11:00am-11:30am	Christian
1000001	Albina Glick	H.I.I.T	Wednesday	6:15pm-7:00pm	Amy
1000008	Cishi Chan	Total Body Fit	Monday	7:00am-7:45am	Amy
1000020	Shima Kardan	H.I.I.T	Monday	7:00pm-7:45pm	Ron
1000005	Emerson Bowley	Total Body Fit	Thursday	7:00pm-7:45pm	Ron
1000018	Henry Chue	Strength	Monday	6:15pm-6:45pm	Ron
1000015	Shams White	Core Circuit	Tuesday	12:00pm-12:45pm	Jennifer

12 rows in set (0.000 sec)

Left Outer Join:

```
MariaDB [19642mz]> select m.membership_id,m.member_name,s.workout_name,s.workout_day,s.workout_time,s.instructor_name from GymMember m
  inner join (select w.workout_name,d.* from GymWorkout w left outer join (select p.*,i.instructor_name from GymWorkoutPlan p inner join
  n GymInstructor i on p.instructor_id = i.instructor_id ) d on w.workout_id = d.workout_id) s on m.membership_id = s.membership_id;
```

membership_id	member_name	workout_name	workout_day	workout_time	instructor_name
1000005	Emerson Bowley	Strength Bodyweight	Tuesday	6:00am-6:45am	Ivan
1000021	Tina Kiam	Climbing Training	Tuesday	7:00pm-7:45pm	Ivan
1000008	Cishi Chan	Strength Bodyweight	Thursday	7:00am-7:45am	Christian
1000011	Christy Pedramo	Prehab/Rehab	Sunday	9:00am-9:45am	Christian
1000003	Jose Stockham	Strength	Saturday	10:30am-11:00am	Christian
1000018	Henry Chue	Core Circuit	Saturday	11:00am-11:30am	Christian
1000001	Albina Glick	H.I.I.T	Wednesday	6:15pm-7:00pm	Amy
1000008	Cishi Chan	Total Body Fit	Monday	7:00am-7:45am	Amy
1000020	Shima Kardan	H.I.I.T	Monday	7:00pm-7:45pm	Ron
1000005	Emerson Bowley	Total Body Fit	Thursday	7:00pm-7:45pm	Ron
1000018	Henry Chue	Strength	Monday	6:15pm-6:45pm	Ron
1000015	Shams White	Core Circuit	Tuesday	12:00pm-12:45pm	Jennifer

12 rows in set (0.001 sec)

Mathematical Notation

$\text{InstrWor} \leftarrow \sigma_{\text{instructor_name}='Christian'}(\text{GymInstructor} \bowtie \text{instructor_id}=\text{instructor_id}$
 $\text{GymWorkoutPlan})$

$\text{Result} \leftarrow \pi_{\text{member_name}, \text{address}, \text{age}, \text{instructor_name}}(\text{GymMember}$
 $\bowtie \text{instructor_id}=\text{instructor_id} \text{ InstrWor})$

```
MariaDB [19642mz]> select m.member_name,m.address,m.age,a.instructor_name from G  
ymMember m join (select i.instructor_name,w.* from GymInstructor i join GymWorko  
utPlan w on i.instructor_id = w.instructor_id where i.instructor_name='Christian  
' ) a on m.membership_id = a.membership_id ;
```

member_name	address	age	instructor_name
Cishi Chan	21 Camden Ave, San Jose, CA	40	Christian
Christy Pedramo	3323 Maclaghlin Blvd, San Jose, CA	40	Christian
Jose Stockham	231 Bransten Rd, San Jose, CA	30	Christian
Henry Chue	3 Galveston St, San Jose, CA	36	Christian

4 rows in set (0.001 sec)

- Show all the members and their address and age who were taught by instructor Christian.

More Mathematical Notation

Table1 $\leftarrow \sigma_{\text{instructor_id} = 44} \text{GymWorkoutPlan}$

Table2 $\leftarrow \sigma_{\text{user_id} = 3 \text{ and } \text{user_id}=8} \text{GymUser}$

Result $\leftarrow \pi_{\text{member_name}, \text{membership_id}} ((\text{GymMember} \cap \text{Table2}) \cup (\text{GymMember} \cap \text{Table1}))$

```
MariaDB [19642mz]> select member_name, membership_id from GymMember where membership_id in (select membership_id from GymWorkoutPlan where Instructor_id = 44) and user_id in (select user_id from GymUser where user_id=3 or user_id= 8);
```

member_name	membership_id
Emerson Bowley	1000005
Henry Chue	1000018

```
2 rows in set (0.000 sec)
```

Retrieve the name of members:

- registered for the gym workout while its professor's id is 44
- the employees with id number 3 or 8 registered them

Conclusion

- Studying any management system requires to understand the Entity Relationship Model
- Understanding all the Entities and their attributes and variables that create relations
- Defining the primary key and foreign key for each schemas to create them

If you get the concept for one management system you can easily apply it to other management system.



Thank You

