Badm 352 Final Report

Group 6

Conrad Manaugh, Siyi Li, Yuliaoliao Zhang, Christina Piron, Megan Shi, Shirley Liu

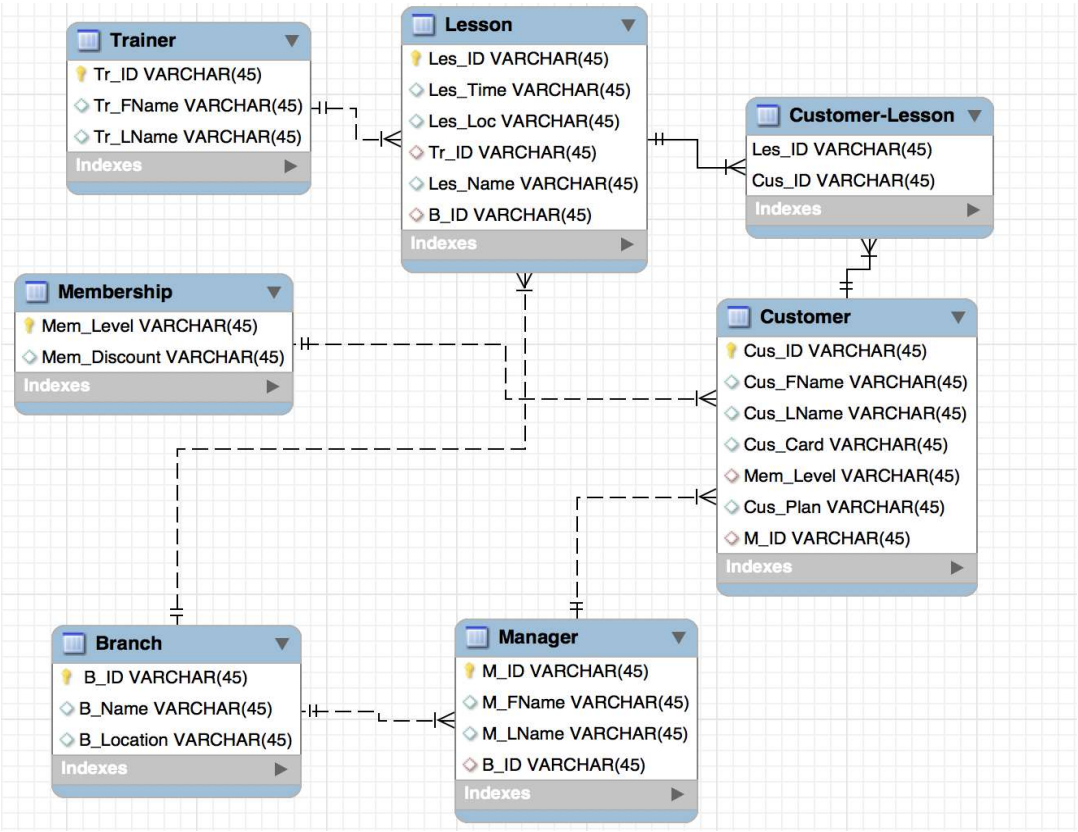
* All the data inserting can be seen in Conrad's account. The database is named manaugh2_fit.

1. **Company Background**
   According to our members' experience, lots of gyms don't have any advanced recording system. Therefore, we chose to build a recording system for a fitness club. This fitness club is aimed to help members achieve their fitness goals and create a comfortable environment for members. The club will offer three services: membership, personal training, and fitness assessments.

2. **Business Rules / Business Logic**

1) The Fit Fitness Club has three branches which locate at three different places. And the three places are New York, Boston and Chicago.
2) One customer only has one account which is presented as the Cus_Card number.
3) There are three different membership levels the customers can choose. Three levels are gold, silver and copper.
4) The gold card members enjoy a discount of 30%, the silver card members enjoy a discount of 20 % and the copper card members enjoy discount of 10%.
5) Each member will have only one manager who help them with the course planning, one manager will be responsible for several members.
6) Each branch has multiple managers, but a manager is only employed at one branch.
7) One fitness trainer can teach more than one class but each class only has one trainer.

3. ERD



4. Assumptions for the ERD

1. We said that manager were responsible for one branch in our database. However, in the reality, one manager can be responsible for several different branches.
2. Also, in order to simplify the database, we said that every city had only one branch. However, for big chain gym. They can have more than one branch in a city.

5. Code for Database and Table creation

```
create table Trainer(
Tr_ID varchar(45),
Tr_FName varchar(45),
Tr_LName varchar(45),
primary key(Tr_ID) );

create table Branch(
```

```
B_ID varchar(45),
B_Name varchar(45),
B_Location varchar(45),
primary key(B_ID) );

create table Membership(
Mem_level varchar(45),
Mem_Discount varchar(45),
primary key(Mem_level) );

create table Manager(
M_ID varchar(45),
M_FName varchar(45),
M_LName varchar(45),
B_ID varchar(45),
primary key(M_ID),
foreign key(B_ID) references Branch(B_ID));

create table Customer(
Cus_ID varchar(45),
Cus_FName varchar(45),
Cus_LName varchar(45),
Cus_Card varchar(45),
Mem_level varchar(45),
Cus_Plan varchar(45),
M_ID varchar(45),
primary key(Cus_ID),
foreign key(Mem_level) references Membership(Mem_level),
foreign key(M_ID) references Manager(M_ID));

create table Lesson(
Les_ID varchar(45),
Les_Time varchar(45),
Les_Loc varchar(45),
Tr_ID varchar(45),
Les_Name varchar(45),
B_ID varchar(45),
primary key(Les_ID),
foreign key(B_ID) references Branch(B_ID),
```

```
foreign key(Tr_ID) references Trainer(Tr_ID));


create table Customer_Lesson(
Les_ID varchar(45),
Cus_ID varchar(45),
primary key(Les_ID,Cus_ID),
foreign key(Les_ID) references Lesson(Les_ID),
foreign key(Cus_ID) references Customer(Cus_ID));

insert into Branch(B_ID, B_Name,B_Location)
values
('fit001',    'FitNY','New_York'),
('fit002',    'FitChi','Chicago'),
('fit003',    'FitBos','Boston') ;


INSERT INTO Membership (Mem_Level,Mem_Discount)
VALUES
('8002g','30'),
('8003s', '20'),
('8004c', '10'),
('8005c','10'),
('8006s', '20'),
('8007s','20'),
('8008g','30'),
('8001g','30');


INSERT INTO Manager
VALUES
('m002','Melinda','Smith','fit002'),
('m003','Anne','Johnson','fit003'),
('m004','Jessie','Zhang','fit002'),
('m005','Jay','Chow','fit001');



INSERT INTO Trainer(Tr_ID, Tr_FName, Tr_LName)
```

```
VALUES
('T9902', 'Tom', 'Smith'),
('T9903', 'Peter', 'Williams'),
('T9901', 'Alex', 'Davis'),
('T9904', 'Cathy', 'White'),
('T9905', 'Jane', 'Ross'),
('T9906', 'Susie', 'King'),
('T9907', 'Dylan', 'Wright'),
('T9908', 'Ben', 'Brown');

INSERT INTO Lesson(Les_ID,Les_Time,Les_Loc,Tr_ID,Les_Name,B_ID)
VALUES
('hathayoga01', '11am', 'c', 'T9903', 'Hathayoga', 'fit003'),
('hathayoga02', '11am', 'd', 'T9904', 'Hathayoga', 'fit001'),
('zumba01','10am','b','T9902','Zumba','fit002');


INSERT INTO
Customer(Cus_ID,Cus_FName,Cus_LName,Cus_Card,Mem_level,M_ID,Cus_Plan)
VALUES
('1104','Irene','Ross','8004','8004c','m003','A'),
('1105','Christina','Miller','8005','8005c','m002','A'),
('1106','Sienna','Li','8006','8006s','m003','A'),
('1107','Amy','Lin','8007','8007s','m004','A'),
('1108','Chloe','Zhang','8008','8008g','m002','A');

INSERT INTO Customer_Lesson(Cus_ID,Les_ID)
VALUES
('1104','hathayoga01'),
('1105','hathayoga02'),
('1108','zumba01');
```

6. **Screenshots of tables**

Trainer Table

Tr_ID	Tr_FName	Tr_LName
9901	Alex	Davis
9902	Tom	Smith
9903	Peter	Williams
9904	Cathy	White
9905	Jane	Ross
9906	Susie	King
9907	Dylan	Wright
9908	Ben	Brown

Customer

Cus_ID	Cus_FName	Cus_LName	Cus_Card	Mem_Level
1101	Ryan	Chen	8001	8001g
1102	Miranda	Wang	8002	8002g
1103	Andrew	Davis	8003	8003s
1104	Irene	Ross	8004	8004c
1105	Christina	Miller	8005	8005c
1106	Sienna	Li	8006	8006s
1107	Amy	Lin	8007	8007s
1108	Chloe	Zhang	8008	8008g

Branch

B_ID	B_Name	B_Location
fit001	FitNY	New_York
fit002	FitChi	Chicago
fit003	FitBos	Boston

Manager

M_ID	M_FName	M_LNama	B_ID
m001	Sarah	Williams	fit001
m002	Melinda	Smith	fit002
m003	Anne	Johnson	fit003
m004	Jessie	Zhang	fit002
m005	Jay	Chow	fit001

Lesson

Les_ID	Les_Time	Les_Loc	Tr_ID	Les_Name	B_ID
hathayoga01	11am	c	9903	Hathayoga	fit003
hathayoga02	11am	d	9904	Hathayoga	fit001
poweryoga01	10am	A	9901	Poweryoga	fit001
zumba01	10am	B	9902	Zumba	fit002

Membership

Mem_Level	Mem_Discount
8001g	30
8002g	30
8003s	20
8004c	10
8005c	10
8006s	20
8007s	20
8008g	30

Customer_Lesson

	Les_ID	Cus_ID
▶	hathayoga01	1104
	hathayoga02	1105
	zumba01	1108

7. **Code for queries and screen shots of outputs**
1. **Select count(*) from Trainer;**

count(*)
▶ 8

2. Select Cus_FName, Cus_LName from Customer where CUS_Card = '8001';

Cus_FName	Cus_LName
Ryan	Chen

3. Select Cus_FName, Cus_LName from Customer where Mem_Level like '%g';

Cus_FName	Cus_LName
Ryan	Chen
Miranda	Wang
Chloe	Zhang

4. select * from Customer natural join Customer_Lesson natural join Lesson;

Les_ID	Cus_ID	Cus_FName	Cus_LName	Cus_Card	Mem_level	Cus_Plan	M_ID	Les_Time	Les_Loc	Tr_ID	Les_Name	B_ID
hathayoga01	1104	Irene	Ross	8004	8004c	A	m003	11am	c	T9903	Hathayoga	fit003
hathayoga02	1105	Christina	Miller	8005	8005c	A	m002	11am	d	T9904	Hathayoga	fit001
zumba01	1108	Chloe	Zhang	8008	8008g	A	m002	10am	b	T9902	Zumba	fit002

5. select * from Customer natural join Membership;

Mem_level	Cus_ID	Cus_FName	Cus_LName	Cus_Card	Cus_Plan	M_ID	Mem_Discount
8004c	1104	Irene	Ross	8004	A	m003	10
8005c	1105	Christina	Miller	8005	A	m002	10
8006s	1106	Sienna	Li	8006	A	m003	20
8007s	1107	Amy	Lin	8007	A	m004	20
8008g	1108	Chloe	Zhang	8008	A	m002	30

6. select * from Manager natural join Branch;

B_ID	M_ID	M_FName	M_LName	B_Name	B_Location
fit002	m002	Melinda	Smith	FitChi	Chicago
fit003	m003	Anne	Johnson	FitBos	Boston
fit002	m004	Jessie	Zhang	FitChi	Chicago
fit001	m005	Jay	Chow	FitNY	New_York

7. select * from Manager where B_ID = 'fit001';

M_ID	M_FName	M_LName	B_ID
m005	Jay	Chow	fit001

8. select count(*), B_ID from Lesson group by B_ID;

	count(*)	B_ID
▶	1	fit001
	1	fit002
	1	fit003

9. select * from Trainer natural join Lesson where B_ID ='fit001';

	Tr_ID	Tr_FName	Tr_LName	Les_ID	Les_Time	Les_Loc	Les_Name	B_ID
▶	T9904	Cathy	White	hathayoga02	11am	d	Hathayoga	fit001

10. select B_ID,count(M_ID) from Manager Group by B_ID ;

B_ID	count(M_ID)
fit001	1
fit002	2
fit003	1

8. Scope for extension

If we have more time to work on this project, we will add three more tables in our database, the first table is the vendor table. This table will include the information of the vendors. We purchased the products from these vendors. The entities in the Vendor table include Vendor id , Vendor location and Vendor's name.

We will also add the Product table, in the product table, we will include two entities, which are Product Id and the selling price of the product.

Moreover, in order to connect the product table and the Vendor table, we will generate a junction table called Vendor_Product table. Vendor ID and Product ID will be both the

primary key and foreign key of this junction table. Besides the Vendor ID and Product ID, the other entities in the Vendor_Product table is the purchase purchase price.