

# Advanced database project

Made for DR/ Menna Mamdouh

## Made by:

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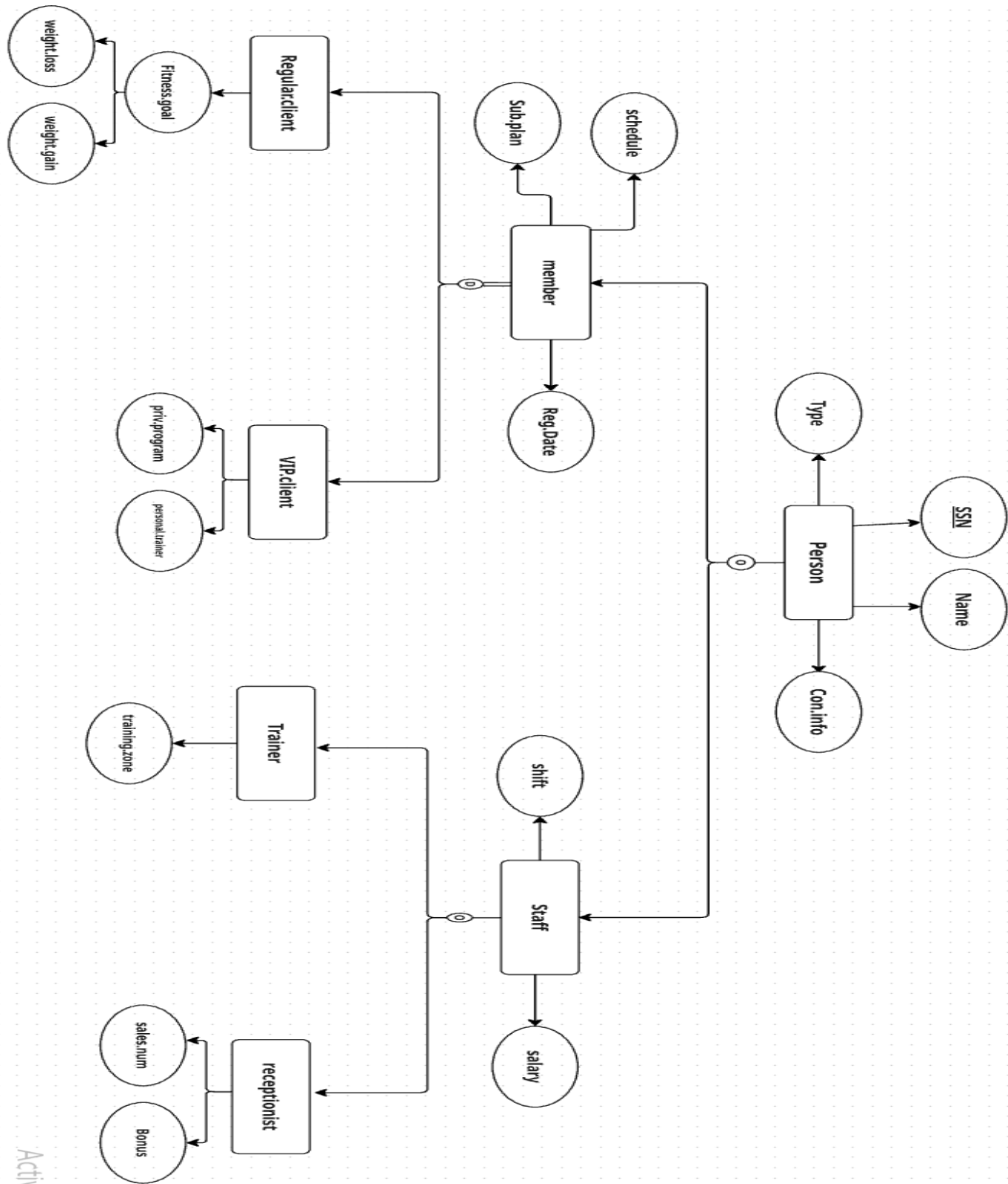
### **Case study (Made by Fatma):**

In a modern fitness center, individuals can take on one or more roles. There are members, who may be either regular clients or personal trainees, each with a subscription plan, training schedule and a registration date.

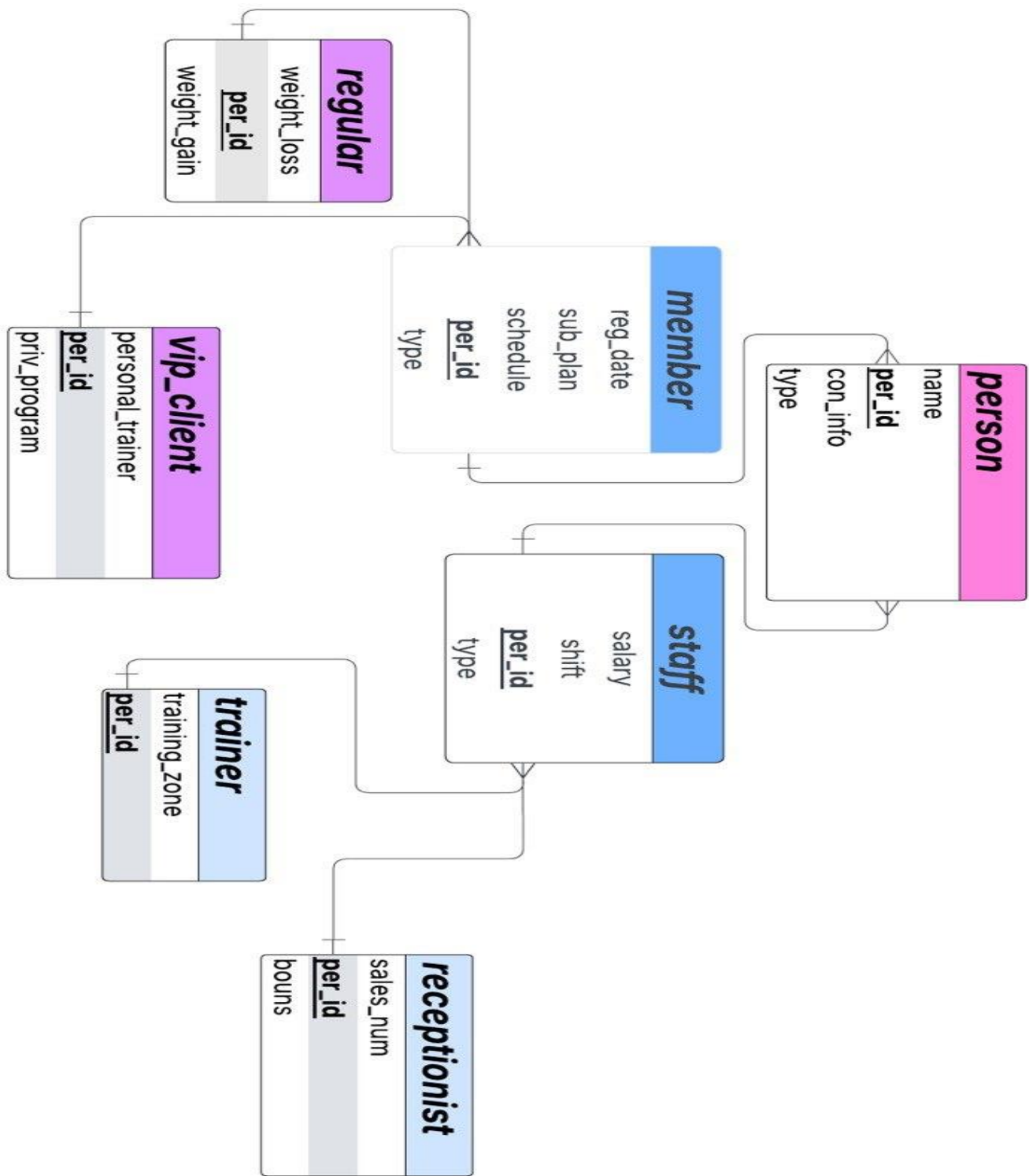
- Regular clients choose a fitness goal (e.g., weight loss, weight gain), while personal trainees are assigned a custom program and a personal trainer.
- The center also employs staff members including trainers and reception and maybe more, all of whom have working shifts and salary.
- Trainers work under a specific training zone,
- while receptionist can have extra bonus on his/her salary when he/she sells a specific number of sales
- Every person in the system has a name, contact info, and person ID date.

Sometimes, staff members may also join the gym as regular clients.

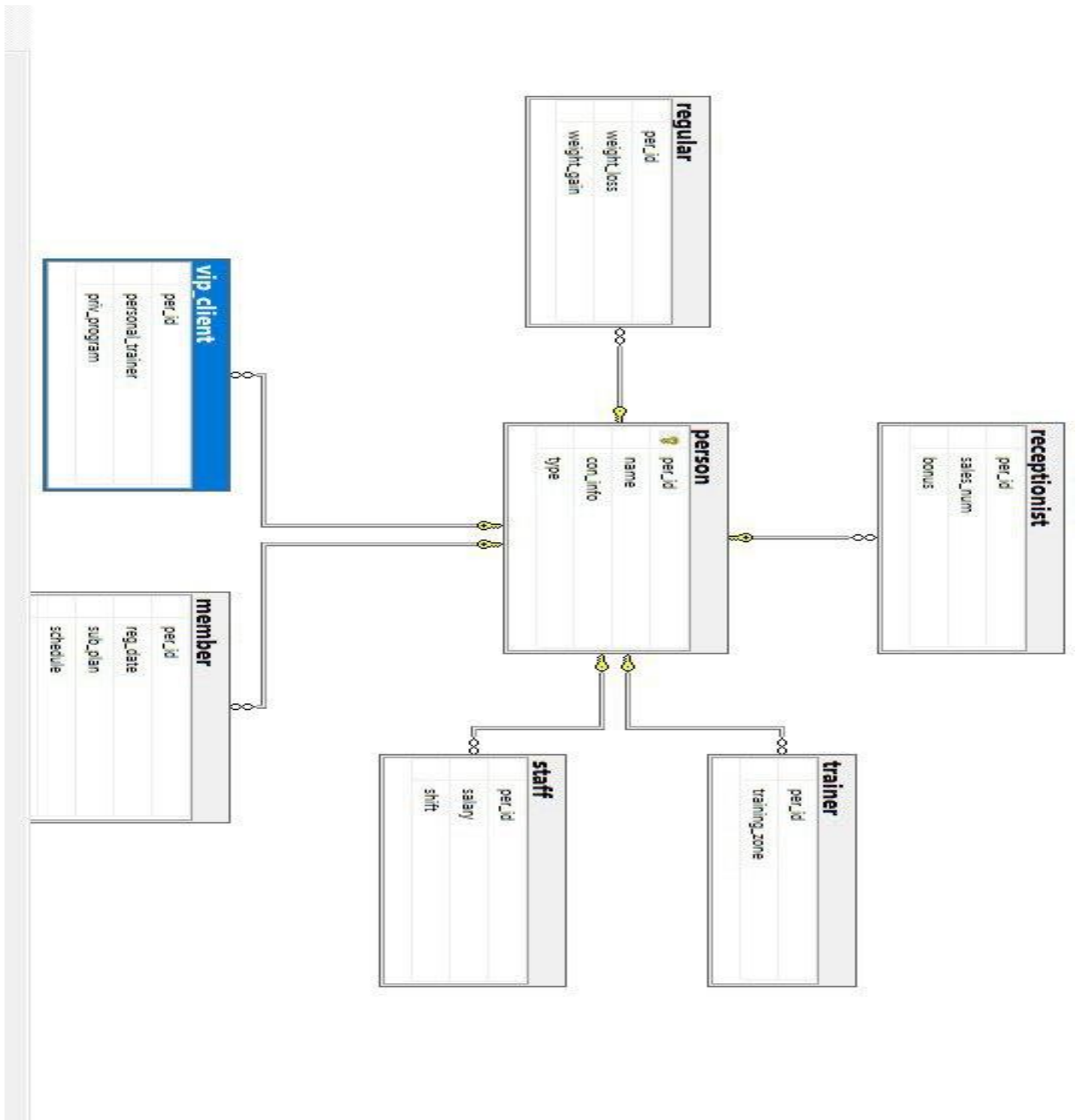
EERD (Made by Esraa):



Mapping (Made by Shahd & Mariam):

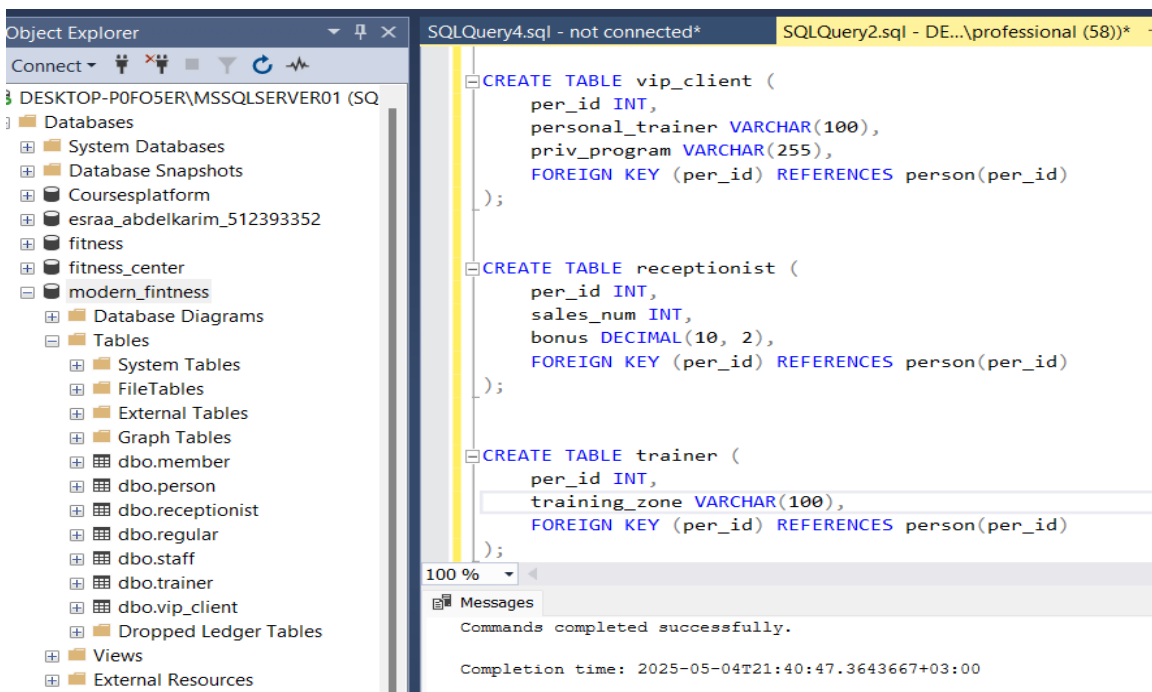
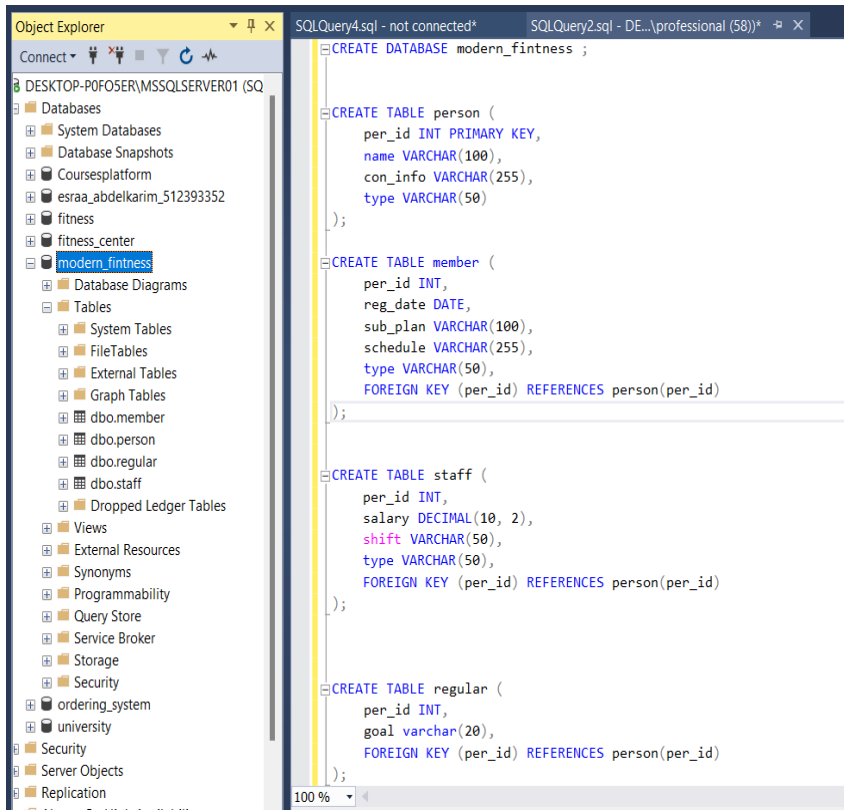


## Schema(made by Abdelrahman):



# SQL(Made by hisham&Abdelrahman):

## -Creating database and tables:



## -insert into tables:

The screenshot shows the SQL Server Enterprise Manager interface. The Object Explorer on the left displays the database structure for 'DESKTOP-POFO5ER\MSSQLSERVER01 (SQ...)' under the 'Databases' folder. The 'modern\_fitness' database is expanded, showing 'Tables' and 'Dropped Ledger Tables'. The 'Tables' folder is expanded, showing 'System Tables', 'FileTables', 'External Tables', 'Graph Tables', 'dbo.member', 'dbo.person', 'dbo.receptionist', 'dbo.regular', 'dbo.staff', 'dbo.trainer', 'dbo.vip\_client', and 'Dropped Ledger Tables'. The 'Messages' pane at the bottom shows the execution results of the queries.

```
SQLQuery2.sql - DE...\professional (58))*  
  
INSERT INTO person (per_id, name, con_info, type) VALUES  
(1, 'Hisham', 'hisham@example.com', 'member'),  
(2, 'Menna ', 'menna@example.com', 'VIP member'),  
(3, 'Abdelrahman', 'abdelrahman@example.com', 'VIP member'),  
(4, 'Mariam', 'mariam@example.com', 'receptionist'),  
(5, 'Fatma', 'fatma@example.com', 'trainer'),  
(6, 'Esraa', 'esraa@example.com', 'trainer'),  
(7, 'Shahd', 'shahd@example.com', 'receptionist'),  
(8, 'Mohammed', 'mohammed@example.com', 'member');  
  
INSERT INTO member (per_id, reg_date, sub_plan, schedule, type) VALUES  
(1, '2025-01-01', 'Monthly', 'MWF 6-7 PM', 'regular'),  
(2, '2025-04-01', 'Annual', 'MWF 6-7 PM', 'VIP'),  
(3, '2025-02-08', 'Annual', 'MWF 6-7 PM', 'VIP'),  
(8, '2025-04-18', 'Monthly', 'MWF 6-7 PM', 'regular');  
  
INSERT INTO staff (per_id, salary, shift) VALUES  
(4, 3000.00, 'Morning'),  
(5, 4000.00, 'Evening'),  
(6, 5000.00, 'Evening'),  
(7, 3700.00, 'Morning');
```

100 %  
Messages  
(4 rows affected)  
(4 rows affected)  
Completion time: 2025-05-04T21:41:48.0273821+03:00

The screenshot shows the SQL Server Enterprise Manager interface. The Object Explorer on the left displays the database structure for 'DESKTOP-POFO5ER\MSSQLSERVER01 (SQ...)' under the 'Databases' folder. The 'modern\_fitness' database is expanded, showing 'Tables' and 'Dropped Ledger Tables'. The 'Tables' folder is expanded, showing 'System Tables', 'FileTables', 'External Tables', 'Graph Tables', 'dbo.member', 'dbo.person', 'dbo.receptionist', 'dbo.regular', 'dbo.staff', 'dbo.trainer', 'dbo.vip\_client', and 'Dropped Ledger Tables'. The 'Columns' folder is expanded for 'dbo.person', showing 'per\_id (FK, int, null)' and 'goal (varchar(20), null)'. The 'Messages' pane at the bottom shows the execution results of the queries.

```
SQLQuery4.sql - not connected*  
  
INSERT INTO regular (per_id, goal) VALUES  
(1, 'weight loss'),  
(8, 'weight gain');  
  
INSERT INTO vip_client (per_id, personal_trainer, priv_program) VALUES  
(2, 'Esraa', 'VIP PPL'),  
(3, 'Fatma', 'VIP UL');  
  
INSERT INTO receptionist (per_id, sales_num, bonus) VALUES  
(4, 50, 500.00),  
(7, 24, 360.00);  
  
INSERT INTO trainer (per_id, training_zone) VALUES  
(5, 'Cardio'),  
(6, 'Legs');  
  
SELECT  
m.per_id,  
p.name,  
m.sub plan.
```

100 %  
Messages  
(2 rows affected)  
(2 rows affected)  
(2 rows affected)  
(2 rows affected)  
Completion time: 2025-05-04T21:42:20.5490697+03:00

## -2 examples of join:

```
SELECT
    m.per_id,
    p.name,
    m.sub_plan,
    v.personal_trainer,
    t.training_zone,
    r.goal
FROM member m
LEFT JOIN person p ON m.per_id = p.per_id
LEFT JOIN vip_client v ON v.per_id = m.per_id
LEFT JOIN trainer t ON v.personal_trainer = p.name -- assuming name is used here (ideally should be ID)
LEFT JOIN regular r ON r.per_id = m.per_id;
```

100 %

Results Messages

	per_id	name	sub_plan	personal_trainer	training_zone	goal
1	1	Hisham	Monthly	NULL	NULL	weight loss
2	2	Menna	Annual	Esraa	NULL	NULL
3	3	Abdelrahman	Annual	Fatma	NULL	NULL
4	8	Mohammed	Monthly	NULL	NULL	weight gain

```
SELECT
    s.per_id,
    p.name,
    s.salary,
    s.shift,
    rcp.sales_num,
    rcp.bonus
FROM staff s
JOIN person p ON s.per_id = p.per_id
JOIN receptionist rcp ON rcp.per_id = s.per_id;
```

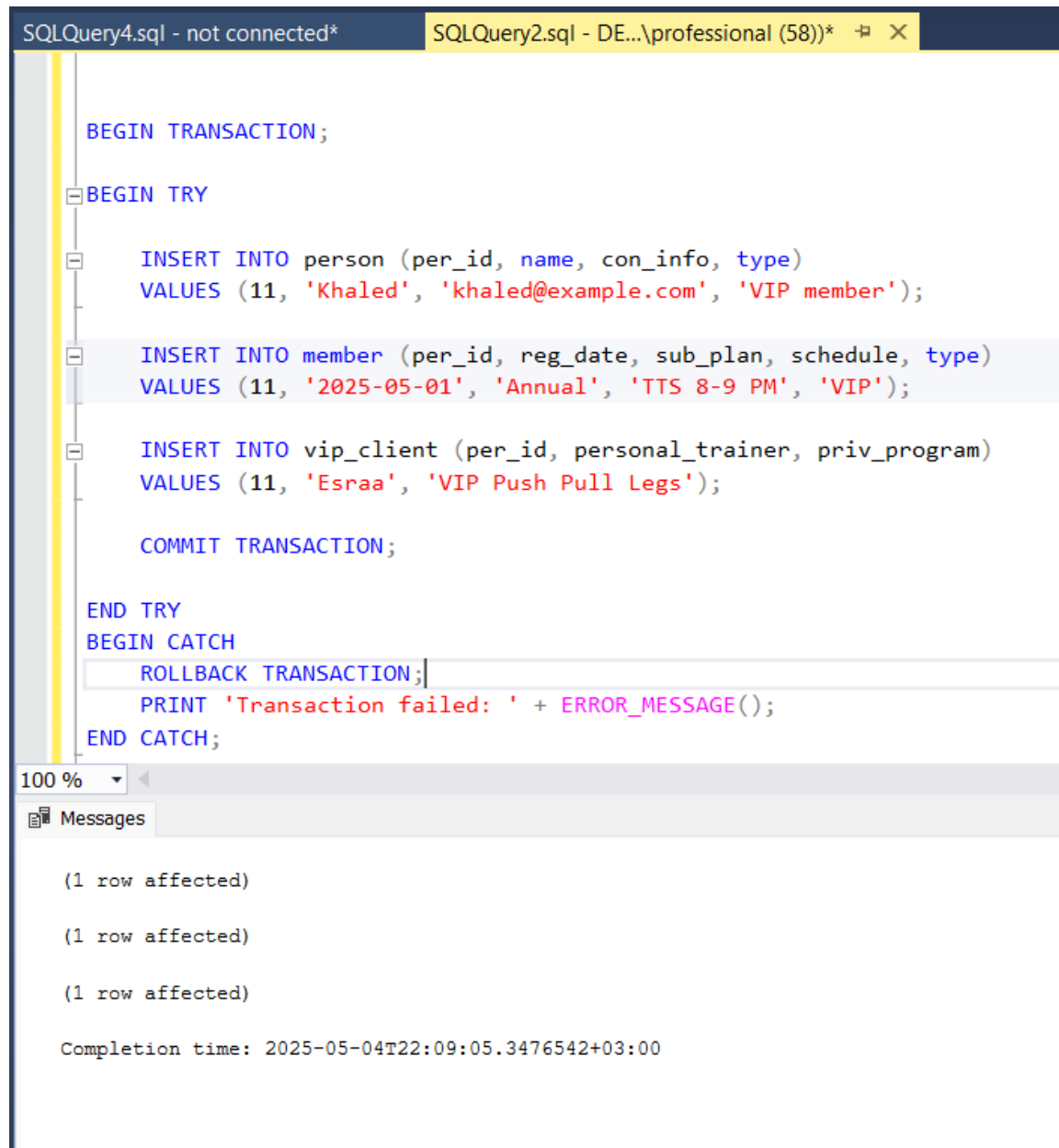
100 %

Results Messages

	per_id	name	salary	shift	sales_num	bonus
1	4	Mariam	3000.00	Morning	50	500.00
2	7	Shahd	3700.00	Morning	24	360.00



- one real example for transaction:



The screenshot shows a SQL query editor with two tabs: 'SQLQuery4.sql - not connected\*' and 'SQLQuery2.sql - DE...\professional (58))\*'. The active tab contains a SQL script for a transaction. The script starts with 'BEGIN TRANSACTION;', followed by a 'BEGIN TRY' block containing three 'INSERT INTO' statements for 'person', 'member', and 'vip\_client' tables. After the inserts, it has 'COMMIT TRANSACTION;'. The 'BEGIN TRY' block is followed by an 'END TRY' and a 'BEGIN CATCH' block. Inside the catch block, there is a text input field containing 'ROLLBACK TRANSACTION;', followed by a 'PRINT' statement that concatenates 'Transaction failed: ' with 'ERROR\_MESSAGE()'. The script ends with 'END CATCH;'. Below the editor, a 'Messages' pane shows three messages: '(1 row affected)', '(1 row affected)', and '(1 row affected)'. At the bottom, the 'Completion time' is listed as '2025-05-04T22:09:05.3476542+03:00'.

```
BEGIN TRANSACTION;

BEGIN TRY

    INSERT INTO person (per_id, name, con_info, type)
    VALUES (11, 'Khaled', 'khaled@example.com', 'VIP member');

    INSERT INTO member (per_id, reg_date, sub_plan, schedule, type)
    VALUES (11, '2025-05-01', 'Annual', 'TTS 8-9 PM', 'VIP');

    INSERT INTO vip_client (per_id, personal_trainer, priv_program)
    VALUES (11, 'Esraa', 'VIP Push Pull Legs');

    COMMIT TRANSACTION;

END TRY
BEGIN CATCH
    ROLLBACK TRANSACTION;
    PRINT 'Transaction failed: ' + ERROR_MESSAGE();
END CATCH;
```

100 %

Messages

(1 row affected)

(1 row affected)

(1 row affected)

Completion time: 2025-05-04T22:09:05.3476542+03:00

## -one view:

```
create view highpaid as  
select s.per_id, p.name, s.salary  
from staff as s  
join person as p on p.per_id = s.per_id  
where salary >3750;
```

100 %

Results Messages

	per_id	name	salary
1	5	Fatma	4000.00
2	6	Esraa	5000.00