



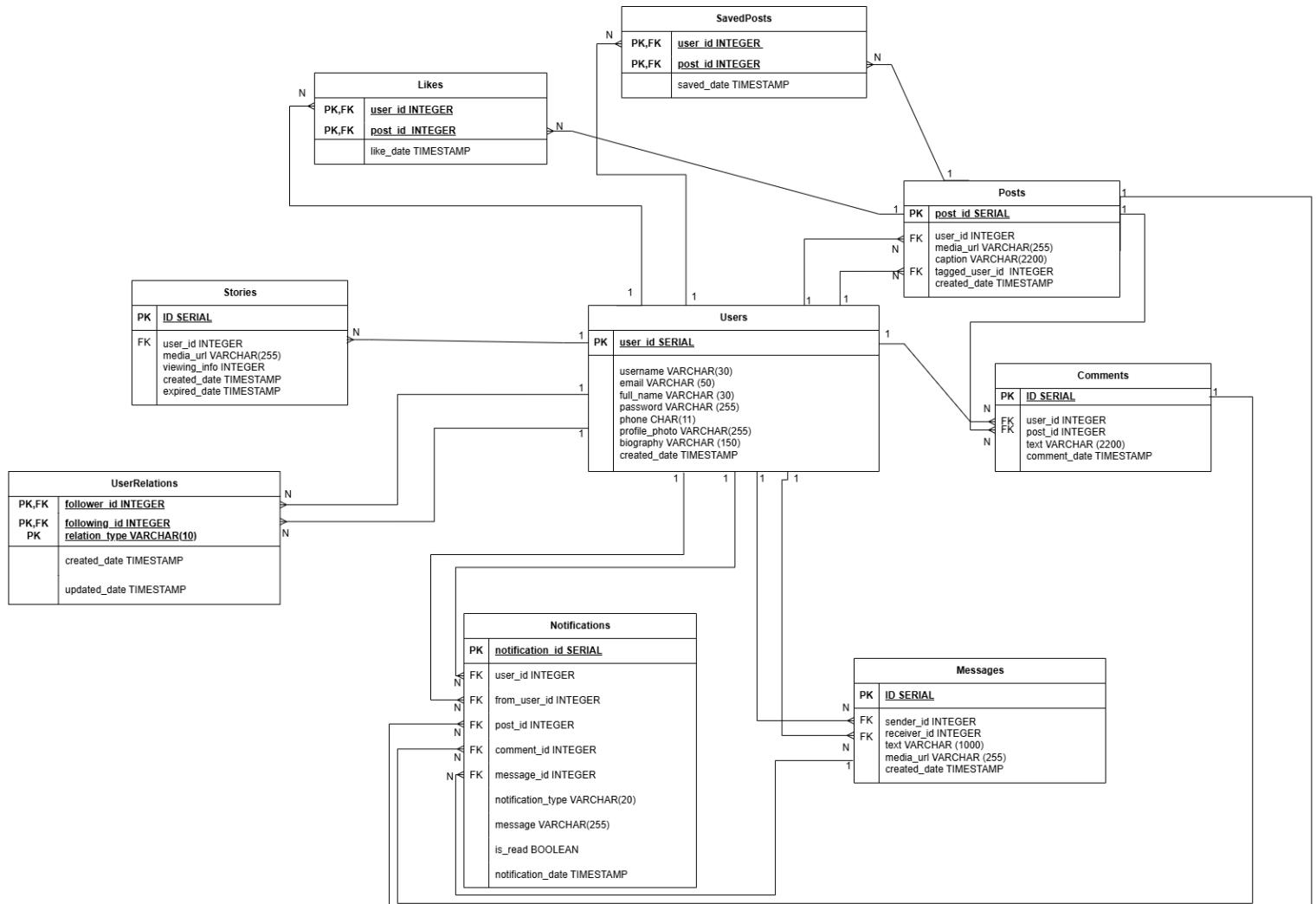
**DEPARTMENT OF COMPUTER  
ENGINEERING**

**2025 – 2026 FALL**

**DATABASE MANAGEMENT SYSTEMS  
PROJECT  
INSTAGRAM SCENARIO**

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**Entity-Relationship Table**



-The **Users** table uses **user\_id** to uniquely identify each user. The **username** and **email** fields are both not null and unique, ensuring that every account is distinct and verifiable for system login. The **password** field is mandatory and forms the basis of user authentication. Since all other data in the system is associated with a user, this table serves as the core of the entire structure.

```

CREATE TABLE Users (
    user_id SERIAL PRIMARY KEY,
    username VARCHAR(30) NOT NULL UNIQUE,
    email VARCHAR(50) NOT NULL UNIQUE,
    full_name VARCHAR(30),
    password VARCHAR(255) NOT NULL,
    phone CHAR(11),
    profile_photo VARCHAR(255),
    biography VARCHAR(150),
    created_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP
);
    
```

-The **Posts** table uses post\_id to identify posts. The user who created the post is linked to the Users table through the user\_id field as a foreign key, and ON DELETE CASCADE ensures that when a user is deleted, their posts are automatically removed. The tagged\_user\_id, which represents the tagged person in the post, is also a foreign key; with ON DELETE SET NULL in this relation, the post is preserved even if the tagged user is deleted, only the tag information is set to null.

```
CREATE TABLE Posts (
    post_id SERIAL PRIMARY KEY,
    user_id INT NOT NULL,
    media_url VARCHAR(255),
    caption VARCHAR(2200),
    tagged_user_id INT,
    created_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    CONSTRAINT fk_user FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_tagged_user FOREIGN KEY (tagged_user_id) REFERENCES Users(user_id) ON DELETE SET NULL
);
```

-Each comment in the **Comments** table is uniquely identified by ID. Defining id as serial ensures that a new, automatically incrementing ID is generated for each added comment. The post\_id and user\_id fields indicate which post the comment belongs to and which user created it, ensuring that every comment is linked to a valid post and user. The text field stores the content of the comment, and being not null prevents empty comments.

```
CREATE TABLE Comments (
    ID SERIAL PRIMARY KEY,
    user_id INT NOT NULL,
    post_id INT NOT NULL,
    text VARCHAR(2200) NOT NULL,
    comment_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    CONSTRAINT fk_user FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_post FOREIGN KEY (post_id) REFERENCES Posts(post_id) ON DELETE CASCADE
);
```

-The **Likes** table records which user liked which post. The post\_id and user\_id fields are foreign keys linked to the post and user, and together they are defined as the primary key, ensuring that each user can like a post only once. This keeps the like data clean and free of duplicates. The like\_date field records when a user liked a post.

```
CREATE TABLE Likes (
    user_id INT NOT NULL,
    post_id INT NOT NULL,
    like_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    PRIMARY KEY (user_id, post_id),
    CONSTRAINT fk_user FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_post FOREIGN KEY (post_id) REFERENCES Posts(post_id) ON DELETE CASCADE
);
```

-**SavedPosts** table stores the posts that users save. The composite primary key (user\_id, post\_id) ensures that a user can save the same post only once. user\_id and post\_id are linked to the related Users and Posts tables as foreign keys.

```
CREATE TABLE SavedPost (
    user_id INT NOT NULL,
    post_id INT NOT NULL,
    saved_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    PRIMARY KEY (user_id, post_id),
    CONSTRAINT fk_user FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_post FOREIGN KEY (post_id) REFERENCES Posts(post_id) ON DELETE CASCADE
);
```

After the table was created, its name was changed to SavedPosts to comply with naming conventions.

```
ALTER TABLE SavedPost
RENAME TO SavedPosts;
```

-In the **Stories** table, ID serial primary key creates an auto-incrementing and unique identifier for each story. user\_id ensures that the story must belong to a user and is also linked as a foreign key to the Users table. expire\_date not null enforces the expiration time of the story.

```
CREATE TABLE Stories (
    ID SERIAL PRIMARY KEY,
    user_id INT NOT NULL,
    media_url VARCHAR(255) NOT NULL,
    viewing_info INT,
    created_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    expire_date TIMESTAMP NOT NULL,
    CONSTRAINT fk_user FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE
);
```

-Each message in the **Messages** table is uniquely identified by ID, which is an auto-incrementing primary key. The sender\_id and receiver\_id fields cannot be null, and thanks to the defined foreign key constraints, messaging is only possible between users who exist in the Users table.

---

```
CREATE TABLE Message (
    ID SERIAL PRIMARY KEY,
    sender_id INT NOT NULL,
    receiver_id INT NOT NULL,
    text VARCHAR(1000) NOT NULL,
    media_url VARCHAR(255),
    created_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    CONSTRAINT fk_sender FOREIGN KEY (sender_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_receiver FOREIGN KEY (receiver_id) REFERENCES Users(user_id) ON DELETE CASCADE
);
```

Since the table was initially created with the name Message, its name was later changed to Messages.

# ALTER TABLE Message RENAME TO Messages;

-The **UserRelations** table represents the follow relationship between users, and since follower\_id, following\_id, and relation\_type together form the primary key, the same type of relationship cannot be added more than once. The foreign key constraints ensure that the relationship can only be established between users who exist in the Users table. The check clause restricts the value of relation\_type to only "follow", "block" or "requested" preventing invalid relationship types from being inserted.

```
CREATE TABLE UserRelations (
    follower_id INT NOT NULL,
    following_id INT NOT NULL,
    relation_type VARCHAR(10) NOT NULL CHECK (relation_type IN ('follow','block','requested')),
    created_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    updated_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    PRIMARY KEY (follower_id, following_id , relation_type),
    CONSTRAINT fk_userrelations_follower FOREIGN KEY (follower_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_userrelations_following FOREIGN KEY (following_id) REFERENCES Users(user_id) ON DELETE CASCADE
);
```

-In the **Notifications** table, the use of notification\_id ensures that each notification has a unique, automatically incrementing identifier. The user\_id and from\_user\_id foreign keys ensure that notifications occur between real users, while post\_id, comment\_id, and message\_id ensure that notifications are linked to valid content. The check constraint restricts the notification\_type field to only certain allowed values.

```
CREATE TABLE Notification (
    notification_id SERIAL PRIMARY KEY,
    user_id INTEGER NOT NULL,
    from_user_id INTEGER NOT NULL,
    post_id INTEGER,
    comment_id INTEGER,
    message_id INTEGER,
    notification_type VARCHAR(10) CHECK (notification_type IN ('request','message','tag','like','comment')),
    message VARCHAR(255),
    is_read BOOLEAN NOT NULL DEFAULT FALSE,
    notification_date TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    CONSTRAINT fk_notification_user FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_notification_from_user FOREIGN KEY (from_user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
    CONSTRAINT fk_notification_post FOREIGN KEY (post_id) REFERENCES Posts(post_id) ON DELETE CASCADE,
    CONSTRAINT fk_notification_comments FOREIGN KEY (comment_id) REFERENCES Comments(ID) ON DELETE CASCADE,
    CONSTRAINT fk_notification_message FOREIGN KEY (message_id) REFERENCES Message(ID) ON DELETE CASCADE
);
```

Since the table was initially created with the name Notification, its name was later changed to Notifications.

# ALTER TABLE Notification RENAME TO Notifications;

Tables (9)	
>	comments
>	likes
>	messages
>	notifications
>	posts
>	savedposts
>	stories
>	userrelations
>	users

```
INSERT INTO Users (username, email, full_name, password, phone, profile_photo, biography) VALUES
('ahmet_ylz', 'ahmet.yilmaz@gmail.com', 'Ahmet Yilmaz', 'TechGuru123', '05551234567', 'https://s3.cloudstorage.com/ahmet_y
('aydemir', 'ayse.demir@gmail.com', 'Ayşe Demir', 'ArtLover2015', '05452345678', 'https://s3.cloudstorage.com/aydemir/prof
('m.kaya', 'mehmet.kaya@gmail.com', 'Mehmet Kaya', 'ExploreWorld', '05353456789', 'https://s3.cloudstorage.com/m.kaya/prof
('zeynep021', 'zeynep.ozturk@hotmail.c...', 'Zeynep Öztürk', 'CoffeeBook02', '05454567890', 'https://s3.cloudstorage.com/ze
('ali_y', 'ali.yildirim@gmail.com', 'Ali Yıldırım', 'GoHardGym', '05386789012', NULL, 'Sports, fitness, and healthy living
('dnzcan', 'deniz.can@hotmail.com', 'Deniz Can', 'GuitarStudent', '05386789012', 'https://s3.cloudstorage.com/dnzcan/profi
('guler_emre', 'emre.guler@gmail.com', 'Emre Güler', 'GamerLife', '05547890123', 'https://s3.cloudstorage.com/guler_emre/p
('fatmaclk', 'fatma.celik@gmail.com', 'Fatma Çelik', 'HikeCamp24', '05498901234', 'https://s3.cloudstorage.com/fatmaclk/pr
('burak01', 'burak.aksoy@hotmail.com', 'Burak Aksoy', 'MovieCritic', '0545012345', 'https://s3.cloudstorage.com/burak01/p
('gizay.u', 'gizay.uzun@gmail.com', 'Gizay Uzun', 'FashionBlogger', '05450123456', NULL, 'Fashion and beauty blogger.'),
('caner_arslan', 'caner.arslan@gmail.com', 'Caner Arslan', 'ChefCaner', '05451112233', 'https://s3.cloudstorage.com/caner_
('elif_soylu', 'elif.soylu@gmail.com', 'Elif Soylu', 'CatMomActivist', '056922233441', 'https://s3.cloudstorage.com/elif_sc
('hakan_taner', 'hakan.taner@hotmail.com', 'Hakan Taner', 'RetiredGarden', '05353334455', 'https://s3.cloudstorage.com/hak
('irem.kilic', 'irem.kilic@hotmail.com', 'İrem Kılıç', 'MinimalDesign', '05344455661', 'https://s3.cloudstorage.com/irem_ki
('kaan_simsek', 'kaan.simsek@gmail.com', 'Kaan Simşek', 'DronePilot', '04445556677', NULL, 'Drone pilot, aerial photograph
('leyla_ozer', 'leyla.ozer@gmail.com', 'Leyla Özer', 'DeepThoughts', '05456667788', NULL, 'Philosophy student, curious abc
('murat_tekin', 'murat.tekin@hotmail.com', 'Murat Tekin', 'CarModLover', '05327778899', 'https://s3.cloudstorage.com/murat
('nesrin_sahin', 'nesrin.sahin@gmail.com', 'Nesrin Şahin', 'HealthyLife', '05658889900', 'https://s3.cloudstorage.com/nesr
('ozturk_yigit', 'ozturk.yigit@gmail.com', 'Öztürk Yiğit', 'StageActor', '05699990011', NULL, 'Amateur actor, stage arts.'
('pelin_aksu', 'pelin.aksu@gmail.com', 'Pelin Aksu', 'YogaPeace', '05320001122', 'https://s3.cloudstorage.com/pelin_aksu/p
('ridvan_uysal', 'ridvan.uysal@gmail.com', 'Rıdvan Uysal', 'ArchaeologyFan', '05459213456', NULL, 'Interested in historica
('sevgi_akdag', 'sevgi.akdag@gmail.com', 'Sevgi Akdağ', 'CeramicArtist', '05351324567', 'https://s3.cloudstorage.com/sevgi
('tayfun_erdem', 'tayfun.erdem@gmail.com', 'Tayfun Erdem', 'CyberSecure', '05243435678', 'https://s3.cloudstorage.com/tayf
('ufuk_guler', 'ufuk.guler@hotmail.com', 'Ufuk Güler', 'AsianFoodie', '05243546789', 'https://s3.cloudstorage.com/ufuk_gul
('vildan_simsek', 'vildan.simsek@gmail.com', 'Vildan Simşek', 'PoetCritic', '05554657890', 'https://s3.cloudstorage.com/vi
('yasin_ozer', 'yasin.ozer@gmail.com', 'Yasin Özer', 'NewIdeaBiz', '0555768901', NULL, 'Entrepreneur, chasing new business
('zuhal_kaya', 'zuhal.kaya@gmail.com', 'Zuhal Kaya', 'FilmFestival', '0555679812', 'https://s3.cloudstorage.com/zuhal_kaya
...')
```

	<b>user_id</b> [PK] integer	<b>username</b> character varying (30)	<b>email</b> character varying (50)	<b>full_name</b> character varying (30)	<b>password</b> character varying (255)	<b>phone</b> character (11)	<b>profile_photo</b> character varying (255)	bio character varying (255)
1	1	ahmet_ylz	ahmet.yilmaz@gmail.com	Ahmet Yılmaz	TechGuru123	05551234567	https://s3.cloudstorage.com/ahmet_yilmaz/profile_pic_2024.png	Technology Enthusiast
2	2	aydemir	ayse.demir@gmail.com	Ayşe Demir	ArtLover2015	05452345678	https://s3.cloudstorage.com/aydemir/profile_pic_2015.png	Artist
3	3	m.kaya	mehmet.kaya@gmail.com	Mehmet Kaya	ExploreWorld	05353456789	https://s3.cloudstorage.com/m.kaya/profile_pic_2025.png	Traveler
4	4	zeynep02	zeynep.ozturk@hotmail.com	Zeynep Öztürk	CoffeeBook02	05454567890	https://s3.cloudstorage.com/zeynep02/profile_pic_2023.png	Blogger
5	5	ali_y	ali.yildirim@gmail.com	Ali Yıldırım	GoHardGym	05386789012	[null]	Sportsperson
6	6	dznccan	deniz.can@hotmail.com	Deniz Can	GuitarStudent	05386789012	https://s3.cloudstorage.com/dznccan/profile_pic_2011.png	Artist
7	7	guler_emre	emre.guler@gmail.com	Emre Güler	GamerLife	05547890123	https://s3.cloudstorage.com/guler_emre/profile_pic_2012.png	Gamer
8	8	fatmack	fatma.celik@gmail.com	Fatma Çelik	HikeCamp24	05498901234	https://s3.cloudstorage.com/fatmack/profile_pic_2015.png	Nature Lover
9	9	burak01	burak.aksoy@hotmail.co...	Burak Aksoy	MovieCritic	05459012345	https://s3.cloudstorage.com/burak01/profile_pic_2023.png	Filmmaker
10	10	gizay.u	gizay.uzun@gmail.com	Gizay Uzun	FashionBlogger	05450123456	[null]	Fashionista
11	11	caner_arslan	caner.arslan@gmail.com	Caner Arslan	ChefCaner	05451112233	https://s3.cloudstorage.com/caner_arslan/profile_pic_2022.png	Chef
12	12	elif_soylu	elif.soylu@gmail.com	Elif Soylu	CatMomActivist	05692223344	https://s3.cloudstorage.com/elif_soylu/profile_pic_2021.png	Animal Lover
13	13	hakan_taner	hakan.taner@hotmail.co...	Hakan Taner	RetiredGarden	05353334455	https://s3.cloudstorage.com/hakan_taner/profile_pic_2015.png	Retired
14	14	irem.kilic	irem.kilic@hotmail.com	Irem Kılıç	MinimalDesign	0534445566	https://s3.cloudstorage.com/irem_kilic/profile_pic_2021.png	Designer
15	15	kaan_simsek	kaan.simsek@gmail.com	Kaan Şimşek	DronePilot	04445556677	[null]	Drone Pilot
16	16	leyla_ozer	leyla.ozer@gmail.com	Leyla Özer	DeepThoughts	05456667788	[null]	Philosopher
17	17	murat_tekin	murat.tekin@hotmail.com	Murat Tekin	CarModLover	05327778899	https://s3.cloudstorage.com/murat_tekin/profile_pic_2015.png	Automotive Enthusiast
18	18	nesrin_sahin	nesrin.sahin@gmail.com	Nesrin Şahin	HealthyLife	05658889900	https://s3.cloudstorage.com/nesrin_sahin/profile_pic_2015.p...	Health Guru
19	19	ozturk_yigit	ozturk.yigit@gmail.com	Özтурk Yiğit	StageActor	05699990011	[null]	Actor
20	20	pelin_aksu	pelin.aksu@gmail.com	Pelin Aksu	YogaPeace	05320001122	https://s3.cloudstorage.com/pelin_aksu/profile_pic_2015.png	Yogini
21	21	ridvan_uysal	ridvan.uysal@gmail.com	Ridvan Uysal	ArchaeologyFan	05459213456	[null]	Windows'u etkinleştirmek için Ayarlar'a gidin.

Total rows: 30 Query complete 00:00:12.00

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```

INSERT INTO Posts (user_id, media_url, caption, tagged_user_id) VALUES
(1, 'https://www.instagram.com/p/DjDzg/', 'First steps of my new software project!', NULL),
(2, 'https://www.instagram.com/p/AxBYcZdIeF2/', 'A frame I shot in Rome.', 10),
(3, 'https://www.instagram.com/p/G7hK41Mzw3/', 'Cappadocia balloons are amazing!', NULL),
(4, 'https://www.instagram.com/p/K6lPbcDE/', 'The best book I read this month.', 16),
(5, 'https://www.instagram.com/p/PQrKsYjZ/', 'New record attempt!', 28),
(1, 'https://www.instagram.com/p/GVxKqjKM/', 'Favorite coding tip of the week: DRV.', NULL),
(3, 'https://www.instagram.com/p/RJvbIpHyIZ/', 'Sun, sand, sea!', NULL),
(6, 'https://www.instagram.com/p/Zg9XybN1i/', 'A cover of my favorite song.', 7),
(7, 'https://www.instagram.com/p/HmWKLYT/', 'Have you tried the new game?', 1),
(8, 'https://www.instagram.com/p/SItBrx0/', 'The view from the summit is breathtaking.', NULL),
(1, 'https://www.instagram.com/p/Ahmet_Tech/', 'My new mechanical keyboard.', 23),
(3, 'https://www.instagram.com/p/MKY_Travel/', 'A place far away. Peace...', 8),
(4, 'https://www.instagram.com/p/Zeynep_Coffee/', 'A new third-wave coffee shop I discovered.', 18),
(6, 'https://www.instagram.com/p/Deniz_Music/', 'A short clip from a live performance.', 7),
(11, 'https://www.instagram.com/p/CanerFood/', 'Butter chicken I made this weekend. Recipe soon!', 12),
(12, 'https://www.instagram.com/p/Elif_Activist/', 'A shot from today's protest. Let's make our voices heard!', NULL),
(13, 'https://www.instagram.com/p/Hakan_Garden/', 'Fresh tomatoes from the garden. The reward for my effort.', 18),
(14, 'https://www.instagram.com/p/Irem_Design/', 'New logo design. With a minimalist approach.', 24),
(17, 'https://www.instagram.com/p/Murat_Car/', 'The final look of my new modification project.', 9),
(18, 'https://www.instagram.com/p/Nesrin_Bio/', 'Handmade natural soaps I made.', 22),
(20, 'https://www.instagram.com/p/Pelin_Yoga/', 'Morning yoga brings peace.', 22),
(22, 'https://www.instagram.com/p/Sevgi_Ceramic/', 'One of my new ceramics.', 13),
(23, 'https://www.instagram.com/p/Tayfun_Cyber/', 'Notes from the cybersecurity conference.', 1),
(24, 'https://www.instagram.com/p/Ufuk_Food/', 'I tried Thai-style Pad Thai today.', 11),
(25, 'https://www.instagram.com/p/Vildan_Poetry/', 'My new poetry attempt. Waiting for your comments.', 4),
(27, 'https://www.instagram.com/p/Zuhal_Film/', 'The last movie I watched really impressed me. I recommend it.', 9),
(1, 'https://www.instagram.com/p/Ahmet_Code/', 'Trying out a new algorithm.', 23),

```

	post_id [PK] integer	user_id integer	media_url character varying (255)	caption character varying (220)	tagged_user_id integer	created_date timestamp without time zone
1	1	1	https://www.instagram.com/p/DjDzg/	First steps of my new software project!	[null]	2025-12-07 23:20:35.350835
2	2	2	https://www.instagram.com/p/AXbYcZdle...	A frame I shot in Rome.	10	2025-12-07 23:20:35.350835
3	3	3	https://www.instagram.com/p/G7hK41Mz...	Cappadocia balloons are amazing!	[null]	2025-12-07 23:20:35.350835
4	4	4	https://www.instagram.com/p/K6lPbcDE/	The best book I read this month.	16	2025-12-07 23:20:35.350835
5	5	5	https://www.instagram.com/p/PQqrKsYJZ/	New record attempt!	28	2025-12-07 23:20:35.350835
6	6	1	https://www.instagram.com/p/GVxKqjKM/	Favorite coding tip of the week: DRV.	[null]	2025-12-07 23:20:35.350835
7	7	3	https://www.instagram.com/p/RJvblpHyIZ/	Sun, sand, sea..	[null]	2025-12-07 23:20:35.350835
8	8	6	https://www.instagram.com/p/Zg9XyBjN1I/	A cover of my favorite song.	7	2025-12-07 23:20:35.350835
9	9	7	https://www.instagram.com/p/HmWKLYT/	Have you tried the new game?	1	2025-12-07 23:20:35.350835
10	10	8	https://www.instagram.com/p/SltBrx0/	The view from the summit is breathtaking.	[null]	2025-12-07 23:20:35.350835
11	11	1	https://www.instagram.com/p/Ahmet_Tech/	My new mechanical keyboard.	23	2025-12-07 23:20:35.350835
12	12	3	https://www.instagram.com/p/MKY_Travel/	A place far away. Peace...	8	2025-12-07 23:20:35.350835
13	13	4	https://www.instagram.com/p/Zeynep_Cof...	A new third-wave coffee shop I discovered.	18	2025-12-07 23:20:35.350835
14	14	6	https://www.instagram.com/p/Deniz_Musi...	A short clip from a live performance.	7	2025-12-07 23:20:35.350835
15	15	11	https://www.instagram.com/p/CanerFood/	Butter chicken I made this weekend. Recipe soon!	12	2025-12-07 23:20:35.350835
16	16	12	https://www.instagram.com/p/Elif_Activist/	A shot from today's protest. Let's make our voices heard!	[null]	2025-12-07 23:20:35.350835
17	17	13	https://www.instagram.com/p/Hakan_Gar...	Fresh tomatoes from the garden. The reward for my effort.	18	2025-12-07 23:20:35.350835
18	18	14	https://www.instagram.com/p/Irem_Design/	New logo design. With a minimalist approach.	24	2025-12-07 23:20:35.350835
19	19	17	https://www.instagram.com/p/Murat_Car/	The final look of my new modification project.	9	2025-12-07 23:20:35.350835
20	20	18	https://www.instagram.com/p/Nesrin_Bio/	Handmade natural soaps I made.	22	2025-12-07 23:20:35.350835
21	21	20	https://www.instagram.com/p/Pelin_Yoga/	Morning yoga brings peace.	22	2025-12-07 23:20:35.350835

Total rows: 37 Query complete 00:00:00.102

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INSERT INTO Comments (user_id, post_id, text, comment_date) VALUES
(3, 1, 'I wish you success, it looks exciting!', NOW() - INTERVAL '5 days'),
(4, 2, 'The use of light is excellent, congratulations!', NOW() - INTERVAL '5 days'),
(1, 3, 'What a magnificent view! Which hotel did you stay at?', NOW() - INTERVAL '4 days'),
(2, 4, 'Adding it to my list immediately, thank you!', NOW() - INTERVAL '4 days'),
(16, 4, 'Would you recommend this book to me too? 😊', NOW() - INTERVAL '3 hours'),
(6, 5, 'Very good motivation!', NOW() - INTERVAL '3 days'),
(7, 1, 'Which language are you using for this project?', NOW() - INTERVAL '3 days'),
(5, 7, 'Happy holidays! Just what I needed.', NOW() - INTERVAL '2 days'),
(10, 8, 'I love your voice, keep going!', NOW() - INTERVAL '2 days'),
(9, 9, 'The graphics were really impressive.', NOW() - INTERVAL '1 day'),
(8, 3, 'It's a beautiful spot for a break, I love it!', NOW() - INTERVAL '4 days'),
(23, 1, 'The conference notes are very valuable, thank you Tayfun!', NOW() - INTERVAL '10 hours'),
(1, 23, 'Should we integrate this into the internal company project?', NOW() - INTERVAL '2 hours'),
(1, 9, 'Emre, I found a new bug in this game, should I send it to you?', NOW() - INTERVAL '3 hours'),
(11, 15, 'The recipe looks great, I'm going to try it too. Well done Caner!', NOW() - INTERVAL '30 minutes'),
(17, 14, 'Your workspace is very inspiring Irem.', NOW() - INTERVAL '6 hours'),
(7, 31, 'The stream was very fun, great job!', NOW() - INTERVAL '2 hours'),
(20, 21, 'A moment full of peace. Namaste. 🙏', NOW() - INTERVAL '5 hours'),
(18, 20, 'It's like I can smell the natural soaps from here!', NOW() - INTERVAL '8 hours'),
(11, 24, 'Where did you get the Pad Thai? It looks authentic!', NOW() - INTERVAL '1 hour'),
(16, 4, 'If we look at it from a philosophical perspective...', NOW() - INTERVAL '1 day'),
(7, 6, 'We must listen to this cover live soon!', NOW() - INTERVAL '4 hours'),
(12, 11, 'What a cute little one! What is its name?', NOW() - INTERVAL '1 hour'),
(10, 2, 'Ayşe, the light in this photo is perfect!', NOW() - INTERVAL '2 days'),
(9, 27, 'The cinematography is very successful, I agree.', NOW() - INTERVAL '1 day'),
(5, 8, 'Oh my God, this view is a dream!', NOW() - INTERVAL '3 days'),
(18, 17, 'I love the passion for gardening.', NOW() - INTERVAL '3 days'),
(22, 19, 'A design suitable for the theatre stage, very experimental.', NOW() - INTERVAL '5 hours'),
(4, 25, 'Vildan, these verses touched my heart.', NOW() - INTERVAL '1 day'),

```

	<b>id</b> [PK] integer	<b>user_id</b> integer	<b>post_id</b> integer	<b>text</b> character varying (2200)	<b>comment_date</b> timestamp without time zone
1	1	3	1	I wish you success, it looks exciting!	2025-12-02 23:25:48.030328
2	2	4	2	The use of light is excellent, congratulations!	2025-12-02 23:25:48.030328
3	3	1	3	What a magnificent view! Which hotel did you stay at?	2025-12-03 23:25:48.030328
4	4	2	4	Adding it to my list immediately, thank you!	2025-12-03 23:25:48.030328
5	5	16	4	Would you recommend this book to me too? 😊	2025-12-07 20:25:48.030328
6	6	6	5	Very good motivation!	2025-12-04 23:25:48.030328
7	7	7	1	Which language are you using for this project?	2025-12-04 23:25:48.030328
8	8	5	7	Happy holidays! Just what I needed.	2025-12-05 23:25:48.030328
9	9	10	8	I love your voice, keep going!	2025-12-05 23:25:48.030328
10	10	9	9	The graphics were really impressive.	2025-12-06 23:25:48.030328
11	11	8	3	It's a beautiful spot for a break, I love it!	2025-12-03 23:25:48.030328
12	12	23	1	The conference notes are very valuable, thank you Tayfun!	2025-12-07 13:25:48.030328
13	13	1	23	Should we integrate this into the internal company project?	2025-12-07 21:25:48.030328
14	14	1	9	Emre, I found a new bug in this game, should I send it to yo...	2025-12-07 20:25:48.030328
15	15	11	15	The recipe looks great, I'm going to try it too. Well done Ca...	2025-12-07 22:55:48.030328
16	16	17	14	Your workspace is very inspiring Irem.	2025-12-07 17:25:48.030328
17	17	7	31	The stream was very fun, great job!	2025-12-07 21:25:48.030328
18	18	20	21	A moment full of peace. Namaste. 🙏	2025-12-07 18:25:48.030328
19	19	18	20	It's like I can smell the natural soaps from here!	2025-12-07 15:25:48.030328
20	20	11	24	Where did you get the Pad Thai? It looks authentic!	2025-12-07 22:25:48.030328
21	21	16	4	If we look at it from a philosophical perspective...	2025-12-06 23:25:48.030328

Total rows: 60    Query complete 00:00:00.119

```
INSERT INTO Likes (user_id, post_id, like_date) VALUES
(1, 2, NOW() - INTERVAL '4 days'),(1, 4, NOW() - INTERVAL '3 days'),(1, 5, NOW() - INTERVAL '2 days'),
(1, 7, NOW() - INTERVAL '2 days'),(2, 1, NOW() - INTERVAL '5 days'),(2, 3, NOW() - INTERVAL '4 days'),
(2, 5, NOW() - INTERVAL '3 days'),(3, 2, NOW() - INTERVAL '5 days'),(3, 4, NOW() - INTERVAL '4 days'),
(3, 6, NOW() - INTERVAL '3 days'),(4, 1, NOW() - INTERVAL '5 days'),(5, 1, NOW() - INTERVAL '4 days'),
(6, 1, NOW() - INTERVAL '3 days'),(7, 9, NOW() - INTERVAL '2 days'),(8, 9, NOW() - INTERVAL '1 day'),
(10, 9, NOW() - INTERVAL '1 day'),(11, 23, NOW() - INTERVAL '10 hours'),(12, 23, NOW() - INTERVAL '9 hours'),
(13, 23, NOW() - INTERVAL '8 hours'),(14, 17, NOW() - INTERVAL '7 hours'),(15, 36, NOW() - INTERVAL '6 hours'),
(16, 11, NOW() - INTERVAL '5 hours'),(17, 13, NOW() - INTERVAL '4 hours'),(18, 27, NOW() - INTERVAL '3 hours'),
(20, 31, NOW() - INTERVAL '1 hour'),(21, 32, NOW() - INTERVAL '30 minutes'),
(22, 22, NOW() - INTERVAL '15 minutes'),(14, 1, NOW() - INTERVAL '1 day'),(15, 3, NOW() - INTERVAL '1 day'),
(16, 23, NOW() - INTERVAL '1 day'),(17, 9, NOW() - INTERVAL '1 day'),(18, 1, NOW() - INTERVAL '1 day'),(19, 3,
(20, 23, NOW() - INTERVAL '1 day'),(21, 9, NOW() - INTERVAL '1 day'),(22, 1, NOW() - INTERVAL '1 day'),
(23, 3, NOW() - INTERVAL '1 day'),(24, 23, NOW() - INTERVAL '1 day'),(25, 9, NOW() - INTERVAL '1 day'),
(26, 1, NOW() - INTERVAL '1 day'),(27, 3, NOW() - INTERVAL '1 day'),(28, 23, NOW() - INTERVAL '1 day'),
(29, 9, NOW() - INTERVAL '1 day'),(30, 1, NOW() - INTERVAL '1 day'),(1, 3, NOW() - INTERVAL '1 day'),
(4, 8, NOW() - INTERVAL '1 day'),(5, 14, NOW() - INTERVAL '1 day'),(6, 15, NOW() - INTERVAL '1 day'),(7, 37, N
```

	<b>user_id</b> [PK] integer	<b>post_id</b> [PK] integer	<b>like_date</b> timestamp without time zone
1		1	2025-12-03 23:55:04.26991
2		1	2025-12-06 23:55:04.26991
3		1	2025-12-04 23:55:04.26991
4		1	2025-12-05 23:55:04.26991
5		1	2025-12-05 23:55:04.26991
6		2	2025-12-02 23:55:04.26991
7		2	2025-12-03 23:55:04.26991
8		2	2025-12-04 23:55:04.26991
9		3	2025-12-02 23:55:04.26991
10		3	2025-12-03 23:55:04.26991
11		3	2025-12-04 23:55:04.26991
12		4	2025-12-02 23:55:04.26991
13		4	2025-12-06 23:55:04.26991
14		5	2025-12-03 23:55:04.26991
15		5	2025-12-06 23:55:04.26991
16		6	2025-12-04 23:55:04.26991
17		6	2025-12-06 23:55:04.26991
18		7	2025-12-05 23:55:04.26991
19		7	2025-12-06 23:55:04.26991
20		8	2025-12-06 23:55:04.26991
21		10	2025-12-06 23:55:04.26991

Total rows: 49

Query complete 00:00:00.090

```
INSERT INTO SavedPost (user_id, post_id, saved_date) VALUES
(1, 4, NOW() - INTERVAL '5 days'),
(1, 8, NOW() - INTERVAL '4 days'),
(2, 1, NOW() - INTERVAL '4 days'),
(3, 5, NOW() - INTERVAL '3 days'),
(4, 9, NOW() - INTERVAL '2 days'),
(5, 3, NOW() - INTERVAL '2 days'),
(6, 7, NOW() - INTERVAL '1 day'),
(7, 23, NOW() - INTERVAL '1 day'),
(8, 17, NOW() - INTERVAL '1 day'),
(9, 13, NOW() - INTERVAL '10 hours'),
(10, 1, NOW() - INTERVAL '8 hours'),
(11, 9, NOW() - INTERVAL '6 hours'),
(12, 3, NOW() - INTERVAL '4 hours'),
(13, 23, NOW() - INTERVAL '3 hours'),
(14, 1, NOW() - INTERVAL '1 hour');
```

	user_id [PK] integer	post_id [PK] integer	saved_date timestamp without time zone
1	1	4	2025-12-02 01:03:23.631932
2	1	8	2025-12-03 01:03:23.631932
3	2	1	2025-12-03 01:03:23.631932
4	3	5	2025-12-04 01:03:23.631932
5	4	9	2025-12-05 01:03:23.631932
6	5	3	2025-12-05 01:03:23.631932
7	6	7	2025-12-06 01:03:23.631932
8	7	23	2025-12-06 01:03:23.631932
9	8	17	2025-12-06 01:03:23.631932
10	9	13	2025-12-06 15:03:23.631932
11	10	1	2025-12-06 17:03:23.631932
12	11	9	2025-12-06 19:03:23.631932
13	12	3	2025-12-06 21:03:23.631932
14	13	23	2025-12-06 22:03:23.631932
15	14	1	2025-12-07 00:03:23.631932

---

**ALTER TABLE SavedPost  
RENAME TO SavedPosts;**  
**ALTER TABLE Notification  
RENAME TO Notifications;**  
**ALTER TABLE Message  
RENAME TO Messages;**

---

```
INSERT INTO Stories (user_id, media_url, viewing_info, expire_date) VALUES
(1, 'https://www.instagram.com/stories/ahmet_ylz/3780744980013284676/', 18500, NOW() + INTERVAL '24 HOUR')
(1, 'https://www.instagram.com/stories/ahmet_ylz/1283992232133284676/', 15100, NOW() + INTERVAL '24 HOUR')
(7, 'https://www.instagram.com/stories/guler_emre/3293812398483990033839/', 13900, NOW() + INTERVAL '24 HOUR')
(4, 'https://www.instagram.com/stories/zeynep02/93929839298390230983/', 12550, NOW() + INTERVAL '24 HOUR')
(1, 'https://www.instagram.com/stories/ahmet_ylz/3382981020012984676/', 14050, NOW() + INTERVAL '24 HOUR')
(10, 'https://www.instagram.com/stories/gizay.u/2317762371723612323676/', 16800, NOW() + INTERVAL '24 HOUR')
(7, 'https://www.instagram.com/stories/guler_emre/384320387132319131/', 15750, NOW() + INTERVAL '24 HOUR')
(7, 'https://www.instagram.com/stories/guler_emre/1382839800132846 /', 14600, NOW() + INTERVAL '24 HOUR'),
(8, 'https://www.instagram.com/stories/fatmaclk/291939219839231923990 /', 11400, NOW() + INTERVAL '24 HOUR')
(10, 'https://www.instagram.com/stories/gizay.u/112838199421232312334 /', 17720, NOW() + INTERVAL '24 HOUR')
(12, 'https://www.instagram.com/stories/elif_s/3452319800132846 /', 8850, NOW() + INTERVAL '24 HOUR'),
(12, 'https://www.instagram.com/stories/elif_s/9123880013284676 /', 7790, NOW() + INTERVAL '24 HOUR'),
(12, 'https://www.instagram.com/stories/elif_s/1029384500132846 /', 9910, NOW() + INTERVAL '24 HOUR'),
(14, 'https://www.instagram.com/stories/irem_k/3947812300132846 /', 6100, NOW() + INTERVAL '24 HOUR'),
(14, 'https://www.instagram.com/stories/irem_k/1234710013284676 /', 5050, NOW() + INTERVAL '24 HOUR'),
(17, 'https://www.instagram.com/stories/murat_t/9021380013284676 /', 3550, NOW() + INTERVAL '24 HOUR'),
(18, 'https://www.instagram.com/stories/nesrin_s/87654320013284676 /', 3600, NOW() + INTERVAL '24 HOUR'),
(20, 'https://www.instagram.com/stories/pelin_a/14567890013284676 /', 4720, NOW() + INTERVAL '24 HOUR'),
(22, 'https://www.instagram.com/stories/sevgi_a/112233440013284676 /', 2480, NOW() + INTERVAL '24 HOUR'),
(27, 'https://www.instagram.com/stories/zuhal_k/98765430013284676 /', 2350, NOW() + INTERVAL '24 HOUR'),
(2, 'https://www.instagram.com/stories/aydemir/56789010013284676 /', 1210, NOW() + INTERVAL '24 HOUR'),
(11, 'https://www.instagram.com/stories/caner_a/10293840013284676 /', 980, NOW() + INTERVAL '24 HOUR'),
(13, 'https://www.instagram.com/stories/hakan_t/7777770013284676 /', 490, NOW() + INTERVAL '24 HOUR'),
(24, 'https://www.instagram.com/stories/ufuk_g/88888880013284676 /', 620, NOW() + INTERVAL '24 HOUR'),
(25, 'https://www.instagram.com/stories/vildan_s/99999990013284676 /', 505, NOW() + INTERVAL '24 HOUR'),
(27, 'https://www.instagram.com/stories/zuhal_k/135792460013284676 /', 800, NOW() + INTERVAL '24 HOUR'),
(1, 'https://www.instagram.com/stories/ahmet_ylz/41123450013284676 /', 15250, NOW() + INTERVAL '24 HOUR'),
(7, 'https://www.instagram.com/stories/guler_emre/45567890013284676 /', 14950, NOW() + INTERVAL '24 HOUR'),
(8, 'https://www.instagram.com/stories/fatmaclk/41098760013284676 /', 11350, NOW() + INTERVAL '24 HOUR'),
(10, 'https://www.instagram.com/stories/gizay.u/40011220013284676 /', 16650, NOW() + INTERVAL '24 HOUR');
```

	<b>id [PK] integer</b>	<b>user_id integer</b>	<b>media_url character varying (255)</b>	<b>viewing_info integer</b>	<b>created_date timestamp without time zone</b>	<b>expire_date timestamp without time zone</b>
1	1	1	https://www.instagram.com/stories/ahmet_ylz/3780744980013284676/	18500	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
2	2	1	https://www.instagram.com/stories/ahmet_ylz/1283992232133284676/	15100	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
3	3	7	https://www.instagram.com/stories/guler_emre/3293812398483990033839...	13900	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
4	4	4	https://www.instagram.com/stories/zeynep02/93929839298390230983/	12550	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
5	5	1	https://www.instagram.com/stories/ahmet_ylz/3382981020012984676/	14050	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
6	6	10	https://www.instagram.com/stories/gizay.u/2317762371723612323676/	16800	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
7	7	7	https://www.instagram.com/stories/guler_emre/384320387132319131/	15750	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
8	8	7	https://www.instagram.com/stories/guler_emre/1382839800132846 /	14600	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
9	9	8	https://www.instagram.com/stories/fatmaclk/291939219839231923990/	11400	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
10	10	10	https://www.instagram.com/stories/gizay.u/112838199421232312334/	17720	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
11	11	12	https://www.instagram.com/stories/elif_s/3452319800132846 /	8850	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
12	12	12	https://www.instagram.com/stories/elif_s/9123880013284676/	7790	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
13	13	12	https://www.instagram.com/stories/elif_s/1029384500132846 /	9910	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
14	14	14	https://www.instagram.com/stories/irem_k/3947812300132846 /	6100	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
15	15	14	https://www.instagram.com/stories/irem_k/1234710013284676/	5050	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
16	16	17	https://www.instagram.com/stories/murat_t/9021380013284676/	3550	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
17	17	18	https://www.instagram.com/stories/nesrin_s/87654320013284676/	3600	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
18	18	20	https://www.instagram.com/stories/pelin_a/14567890013284676/	4720	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
19	19	22	https://www.instagram.com/stories/sevgi_a/112233440013284676/	2480	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
20	20	27	https://www.instagram.com/stories/zuhal_k/98765430013284676/	2350	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983
21	21	2	https://www.instagram.com/stories/aydemir/56789010013284676/	1210	2025-12-08 00:04:58.705983	2025-12-09 00:04:58.705983

Total rows: 30    Query complete 00:00:00.133

```

INSERT INTO Messages (sender_id, receiver_id, text, media_url) VALUES
(1, 2, 'Hi Ayşe, how are you?', NULL),
(2, 1, 'I'm good Ahmet, thank you. You?', NULL),
(1, 2, 'Shall we grab coffee this weekend?', NULL),
(2, 1, 'That would be great, where should we meet?', NULL),
(1, 2, 'I was thinking of that newly opened book cafe. I'll send you a photo.', 'http://media.com/kitap_kafe.jpg'),
(2, 1, 'I love it! Perfect, is 3 o'clock okay?', NULL),
(5, 6, 'How's your new gym?', NULL),
(6, 5, 'I'm very satisfied, it's very clean.', 'http://media.com/gym_photo.jpg'),
(5, 6, 'I'm thinking of dropping by the gym sometime.', NULL),
(6, 5, 'You definitely should come! This is a photo of the new machine set.', 'http://media.com/new_gym_equipment.jpg')
(5, 6, 'Wow, it looks very good!', NULL),
(7, 8, 'What's the trick to this game?', 'https://www.instagram.com/stories/guler_emre/138283980013284676/'),
(8, 7, 'I sent you a DM, let's talk there.', NULL),
(7, 8, 'Okay, thanks.', NULL),
(9, 10, 'I really liked your movie review.', NULL),
(10, 9, 'Thank you, do you have a recommendation for the next movie?', NULL),
(9, 10, 'I recommend you watch The Mentalist, especially this scene impressed me a lot.', 'http://youtube.com/watch?v=EfE'),
(10, 9, 'I had watched this before, the scene that impressed me was not this one.', 'http://youtube.com/watch?v=NTYfrCs'),
(9, 10, 'Maybe this scene will interest you more.', 'http://youtube.com/watch?v=AnotherScene'),
(3, 4, 'There's a place like this, what do you think?', 'http://starbucks.com/starb_photo.jpg'),
(4, 3, 'I have a better place idea, how about this one?', 'http://colombia.com/caffe_photo.jpg'),
(3, 4, 'What should I wear when going there? Do you think this is suitable?', 'http://media.com/galery_photo.jpg'),
(4, 3, 'That would be great, I'm thinking of wearing this style', 'http://media.com/galery_photo.jpg'),
(3, 4, 'Super, I'm wearing that outfit then! See you.', NULL),
(11, 12, 'You should have come to this activism event too!', NULL),
(12, 11, 'Ah, I wish I could have come, next time.', 'http://media.com/aktivizm_event.png'),
(11, 12, 'Absolutely! We can take this photo at the next meeting.', 'http://media.com/new_aktivizm_plan.jpg'),

```

	<b>Id</b> [PK] Integer	<b>sender_id</b> integer	<b>receiver_id</b> integer	<b>text</b> character varying (1000)	<b>media_url</b> character varying (255)	<b>created_date</b> timestamp without time zone
1	1	1	2	Hi Ayşe, how are you?	[null]	2025-12-08 00:08:24:
2	2	2	1	I'm good Ahmet, thank you. You?	[null]	2025-12-08 00:08:24:
3	3	1	2	Shall we grab coffee this weekend?	[null]	2025-12-08 00:08:24:
4	4	2	1	That would be great, where should we meet?	[null]	2025-12-08 00:08:24:
5	5	1	2	I was thinking of that newly opened book cafe. I'll send you a photo.	http://media.com/kitap_kafe.jpg	2025-12-08 00:08:24:
6	6	2	1	I love it! Perfect, is 3 o'clock okay?	[null]	2025-12-08 00:08:24:
7	7	5	6	How's your new gym?	[null]	2025-12-08 00:08:24:
8	8	6	5	I'm very satisfied, it's very clean.	http://media.com/gym_photo.jpg	2025-12-08 00:08:24:
9	9	5	6	I'm thinking of dropping by the gym sometime.	[null]	2025-12-08 00:08:24:
10	10	6	5	You definitely should come! This is a photo of the new machine set.	http://media.com/new_gym_equipment.jpg	2025-12-08 00:08:24:
11	11	5	6	Wow, it looks very good!	[null]	2025-12-08 00:08:24:
12	12	7	8	What's the trick to this game?	https://www.instagram.com/stories/guler_emre/138283980013284676/	2025-12-08 00:08:24:
13	13	8	7	I sent you a DM, let's talk there.	[null]	2025-12-08 00:08:24:
14	14	7	8	Okay, thanks.	[null]	2025-12-08 00:08:24:
15	15	9	10	I really liked your movie review.	[null]	2025-12-08 00:08:24:
16	16	10	9	Thank you, do you have a recommendation for the next movie?	[null]	2025-12-08 00:08:24:
17	17	9	10	I recommend you watch The Mentalist, especially this scene impressed me a...	http://youtube.com/watch?v=BEMFdsl	2025-12-08 00:08:24:
18	18	10	9	I had watched this before, the scene that impressed me was not this one.	http://youtube.com/watch?v=NTYfrCsgl	2025-12-08 00:08:24:
19	19	9	10	Maybe this scene will interest you more.	http://youtube.com/watch?v=AnotherScene	2025-12-08 00:08:24:
20	20	3	4	There's a place like this, what do you think?	http://starbucks.com/starb_photo.jpg	Windows'u Etkinleştir
21	21	4	3	I have a better place idea, how about this one?	http://colombia.com/caffe_photo.jpg	Windows'u etkinleştirmek için Ayşe

Total rows: 36 Query complete 00:00:00.080

CRLF Ln 2, Col 17

```

INSERT INTO UserRelations (follower_id, following_id, relation_type) VALUES
(2, 1, 'follow'), (3, 1, 'follow'), (4, 1, 'follow'), (17, 1, 'follow'), (19, 1, 'follow'),
(20, 1, 'follow'), (21, 1, 'follow'), (22, 1, 'follow'), (23, 1, 'follow'), (29, 1, 'follow'),
(5, 7, 'follow'), (6, 7, 'follow'), (11, 7, 'follow'), (12, 7, 'follow'), (23, 7, 'follow'),
(24, 7, 'follow'), (25, 7, 'follow'), (26, 7, 'follow'), (27, 7, 'follow'),
(9, 10, 'follow'), (11, 10, 'follow'), (28, 10, 'follow'), (29, 10, 'follow'), (30, 10, 'follow'),
(12, 14, 'follow'), (15, 17, 'follow'), (17, 18, 'follow'), (18, 17, 'follow'), (22, 24, 'follow'),
(1, 4, 'follow'), (7, 4, 'follow'), (1, 3, 'follow'),
(1, 2, 'follow'), (7, 5, 'follow'), (7, 6, 'follow'), (10, 9, 'follow'), (10, 11, 'follow'),
(14, 12, 'follow'), (17, 15, 'follow'), (4, 9, 'follow'), (9, 4, 'follow'), (8, 2, 'follow'),
(1, 7, 'follow'), (7, 1, 'follow'), (30, 1, 'follow'), (8, 7, 'follow'),
(5, 1, 'follow'), (5, 10, 'follow'),
(14, 8, 'follow'), (1, 5, 'follow'), (10, 5, 'follow'), (1, 30, 'follow'),
(10, 30, 'follow'), (2, 27, 'follow'), (3, 27, 'follow'),
(4, 7, 'follow'), (24, 22, 'follow'), (2, 8, 'follow'), (8, 14, 'follow'), (27, 2, 'follow'),
(12, 1, 'follow'), (25, 17, 'follow'), (28, 22, 'follow'),
(16, 21, 'follow'), (21, 16, 'follow'), (28, 29, 'follow'), (29, 28, 'follow'),
(2, 29, 'follow'), (3, 29, 'follow'),
(10, 28, 'follow'), (14, 20, 'follow'), (15, 22, 'follow'), (16, 20, 'follow'),
(13, 12, 'requested'), (16, 12, 'requested'), (19, 18, 'requested'), (20, 18, 'requested'),
(21, 25, 'requested'), (25, 21, 'requested'), (26, 22, 'requested'), (22, 26, 'requested'),
(29, 13, 'requested'), (13, 29, 'requested'), (30, 24, 'requested'), (24, 30, 'requested'),
(1, 25, 'block'), (26, 2, 'block'), (27, 3, 'block'), (28, 4, 'block');

```

	follower_id [PK] integer ↗	following_id [PK] integer ↗	relation_type [PK] character varying (10) ↗	created_date timestamp without time zone ↗	updated_date timestamp without time zone ↗
1	1	2	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
2	1	3	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
3	1	4	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
4	1	5	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
5	1	7	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
6	1	25	block	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
7	1	30	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
8	2	1	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
9	2	8	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
10	2	27	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
11	2	29	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
12	3	1	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
13	3	27	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
14	3	29	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
15	4	1	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
16	4	7	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
17	4	9	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
18	5	1	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
19	5	7	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
20	5	10	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498
21	6	7	follow	2025-12-08 00:12:09.798498	2025-12-08 00:12:09.798498

Total rows: 89    Query complete 00:00:00.103

```
INSERT INTO Notifications (user_id, from_user_id, post_id, comment_id, message_id, notification_type, message, is_read, n
(1, 7, 9, NULL, NULL, 'tag', 'guler_emre tagged you in a post.', TRUE, NOW() - INTERVAL '3 hours'),
(8, 3, 12, NULL, NULL, 'tag', 'm.kaya tagged you in a post.', FALSE, NOW()),
(7, 6, 14, NULL, NULL, 'tag', 'dnzcan tagged you in a post.', FALSE, NOW() - INTERVAL '1 hour'),
(12, 11, 15, NULL, NULL, 'tag', 'caner_arslan tagged you in a post.', TRUE, NOW() - INTERVAL '2 days'),
(9, 17, 17, NULL, NULL, 'tag', 'murat_tekin tagged you in a post.', FALSE, NOW()),
(22, 20, 20, NULL, NULL, 'tag', 'pelin_aksu tagged you in a post.', TRUE, NOW() - INTERVAL '5 minutes'),
(1, 23, 23, NULL, NULL, 'tag', 'tayfun_erdem tagged you in a post.', FALSE, NOW() - INTERVAL '1 day'),
(4, 25, 25, NULL, NULL, 'tag', 'vildan_simsek tagged you in a post.', FALSE, NOW()),
(9, 27, 26, NULL, NULL, 'tag', 'zuhal_kaya tagged you in a post.', TRUE, NOW() - INTERVAL '6 hours'),
(5, 8, 32, NULL, NULL, 'tag', 'fatmaclk tagged you in a post.', FALSE, NOW()),
(18, 13, 35, NULL, NULL, 'tag', 'hakan_taner tagged you in a post.', TRUE, NOW() - INTERVAL '10 hours'),
(17, 14, 36, NULL, NULL, 'tag', 'irem.kilic tagged you in a post.', FALSE, NOW());
```

```
INSERT INTO Notifications (user_id, from_user_id, post_id, comment_id, message_id, notification_type, message, is_read, n
(1, 3, 1, 1, NULL, 'comment', 'm.kaya commented on your post.', TRUE, NOW() - INTERVAL '5 days'),
(2, 4, 2, 2, NULL, 'comment', 'zeynep02 commented on your post.', FALSE, NOW() - INTERVAL '5 days'),
(3, 1, 3, 3, NULL, 'comment', 'ahmet_ylz commented on your post.', TRUE, NOW() - INTERVAL '4 days'),
(4, 2, 4, 4, NULL, 'comment', 'aydemir commented on your post.', FALSE, NOW() - INTERVAL '4 days'),
(4, 16, 4, 5, NULL, 'comment', 'leyla_ozer commented on your post.', TRUE, NOW() - INTERVAL '3 hours'),
(5, 6, 5, 6, NULL, 'comment', 'dnzcan commented on your post.', TRUE, NOW() - INTERVAL '3 days'),
(1, 7, 1, 7, NULL, 'comment', 'guler_emre commented on your post.', FALSE, NOW() - INTERVAL '3 days'),
(7, 5, 7, 8, NULL, 'comment', 'ali_y commented on your post.', FALSE, NOW() - INTERVAL '2 days'),
(8, 10, 8, 9, NULL, 'comment', 'gizay.u commented on your post.', TRUE, NOW() - INTERVAL '2 days'),
(7, 9, 9, 10, NULL, 'comment', 'burak01 commented on your post.', FALSE, NOW() - INTERVAL '1 day'),
(3, 8, 3, 11, NULL, 'comment', 'fatmaclk commented on your post.', TRUE, NOW() - INTERVAL '4 days'),
(1, 23, 1, 12, NULL, 'comment', 'tayfun_erdem commented on your post.', FALSE, NOW() - INTERVAL '10 hours'),
(23, 1, 23, 13, NULL, 'comment', 'ahmet_ylz commented on your post.', TRUE, NOW() - INTERVAL '2 hours'),
(7, 1, 9, 14, NULL, 'comment', 'ahmet_ylz commented on your post.', FALSE, NOW() - INTERVAL '3 hours'),
(11, 11, 15, 15, NULL, 'comment', 'caner_arslan commented on their own post.', TRUE, NOW() - INTERVAL '30 minutes'),
(6, 17, 14, 16, NULL, 'comment', 'murat_tekin commented on your post.', FALSE, NOW() - INTERVAL '6 hours'),
(7, 7, 31, 17, NULL, 'comment', 'guler_emre commented on their own post.', TRUE, NOW() - INTERVAL '2 hours'),
(20, 20, 21, 18, NULL, 'comment', 'pelin_aksu commented on their own post.', FALSE, NOW() - INTERVAL '5 hours'),
(18, 18, 20, 19, NULL, 'comment', 'nesrin_sahin commented on their own post.', TRUE, NOW() - INTERVAL '8 hours'),
(24, 11, 24, 20, NULL, 'comment', 'caner_arslan commented on your post.', FALSE, NOW() - INTERVAL '1 hour'),
(4, 16, 4, 21, NULL, 'comment', 'leyla_ozer commented on your post.', FALSE, NOW() - INTERVAL '1 day'),
(6, 7, 6, 22, NULL, 'comment', 'guler_emre commented on your post.', TRUE, NOW() - INTERVAL '4 hours'),
(11, 12, 11, 23, NULL, 'comment', 'elif_soylu commented on your post.', FALSE, NOW() - INTERVAL '1 hour'),
(2, 10, 2, 24, NULL, 'comment', 'gizay.u commented on your post.', TRUE, NOW() - INTERVAL '2 days'),
(27, 9, 27, 25, NULL, 'comment', 'burak01 commented on your post.', FALSE, NOW() - INTERVAL '1 day'),
(8, 5, 8, 26, NULL, 'comment', 'ali_y commented on your post.', TRUE, NOW() - INTERVAL '3 days'),
(17, 18, 17, 27, NULL, 'comment', 'nesrin_sahin commented on your post.', FALSE, NOW() - INTERVAL '3 days'),
```

```
INSERT INTO Notifications (user_id, from_user_id, post_id, comment_id, message_id, notification_type, message, is_read
(2, 1, 2, NULL, NULL, 'like', 'ahmet_ylz liked your post.', FALSE, NOW() - INTERVAL '4 days'),
(4, 1, 4, NULL, NULL, 'like', 'ahmet_ylz liked your post.', TRUE, NOW() - INTERVAL '3 days'),
(5, 1, 5, NULL, NULL, 'like', 'ahmet_ylz liked your post.', FALSE, NOW() - INTERVAL '2 days'),
(7, 1, 7, NULL, NULL, 'like', 'ahmet_ylz liked your post.', TRUE, NOW() - INTERVAL '2 days'),
(1, 2, 1, NULL, NULL, 'like', 'aydemir liked your post.', FALSE, NOW() - INTERVAL '5 days'),
(3, 2, 3, NULL, NULL, 'like', 'aydemir liked your post.', TRUE, NOW() - INTERVAL '4 days'),
(5, 2, 5, NULL, NULL, 'like', 'aydemir liked your post.', FALSE, NOW() - INTERVAL '3 days'),
(2, 3, 2, NULL, NULL, 'like', 'm.kaya liked your post.', TRUE, NOW() - INTERVAL '5 days'),
(4, 3, 4, NULL, NULL, 'like', 'm.kaya liked your post.', FALSE, NOW() - INTERVAL '4 days'),
(1, 3, 6, NULL, NULL, 'like', 'm.kaya liked your post.', TRUE, NOW() - INTERVAL '3 days'),
(1, 4, 1, NULL, NULL, 'like', 'zeynep02 liked your post.', FALSE, NOW() - INTERVAL '5 days'),
(1, 5, 1, NULL, NULL, 'like', 'ali_y liked your post.', TRUE, NOW() - INTERVAL '4 days'),
(1, 6, 1, NULL, NULL, 'like', 'dnzcan liked your post.', FALSE, NOW() - INTERVAL '3 days'),
(7, 7, 9, NULL, NULL, 'like', 'guler_emre liked their own post.', TRUE, NOW() - INTERVAL '2 days'),
(7, 8, 9, NULL, NULL, 'like', 'fatmaclk liked your post.', FALSE, NOW() - INTERVAL '1 day'),
(7, 7, 9, NULL, NULL, 'like', 'gizay.u liked your post.', TRUE, NOW() - INTERVAL '1 day'),
(23, 11, 23, NULL, NULL, 'like', 'caner_arslan liked your post.', FALSE, NOW() - INTERVAL '10 hours'),
(23, 12, 23, NULL, NULL, 'like', 'elif_soylu liked your post.', TRUE, NOW() - INTERVAL '9 hours'),
(23, 13, 23, NULL, NULL, 'like', 'hakan_taner liked your post.', FALSE, NOW() - INTERVAL '8 hours'),
(17, 14, 17, NULL, NULL, 'like', 'irem.kilic liked your post.', TRUE, NOW() - INTERVAL '7 hours'),
(14, 15, 36, NULL, NULL, 'like', 'kaan_simsek liked your post.', FALSE, NOW() - INTERVAL '6 hours'),
(11, 16, 11, NULL, NULL, 'like', 'leyla_ozer liked your post.', TRUE, NOW() - INTERVAL '5 hours'),
(4, 17, 13, NULL, NULL, 'like', 'murat_tekin liked your post.', FALSE, NOW() - INTERVAL '4 hours'),
(1, 18, 27, NULL, NULL, 'like', 'nesrin_sahin liked your post.', TRUE, NOW() - INTERVAL '3 hours'),
(3, 19, 3, NULL, NULL, 'like', 'ozturk_yigit liked your post.', FALSE, NOW() - INTERVAL '2 hours'),
(7, 20, 31, NULL, NULL, 'like', 'pelin_aksu liked your post.', TRUE, NOW() - INTERVAL '1 hour'),
(8, 21, 32, NULL, NULL, 'like', 'ridvan_uysal liked your post.', FALSE, NOW() - INTERVAL '30 minutes'),
```

```

INSERT INTO Notifications (user_id, from_user_id, post_id, comment_id, message_id, notification_type, message, is_read
(2, 1, NULL, NULL, 1, 'message', 'ahmet_ylz sent you a new message.', FALSE, NOW() - INTERVAL '15 minutes'),
(1, 2, NULL, NULL, 2, 'message', 'aydemir sent you a new message.', TRUE, NOW() - INTERVAL '14 minutes'),
(2, 1, NULL, NULL, 3, 'message', 'ahmet_ylz sent you a new message.', FALSE, NOW() - INTERVAL '13 minutes'),
(1, 2, NULL, NULL, 4, 'message', 'aydemir sent you a new message.', FALSE, NOW() - INTERVAL '12 minutes'),
(2, 1, NULL, NULL, 5, 'message', 'ahmet_ylz sent you a new message.', TRUE, NOW() - INTERVAL '11 minutes'),
(1, 2, NULL, NULL, 6, 'message', 'aydemir sent you a new message.', FALSE, NOW() - INTERVAL '10 minutes'),
(6, 5, NULL, NULL, 7, 'message', 'ali_y sent you a new message.', TRUE, NOW() - INTERVAL '9 minutes'),
(5, 6, NULL, NULL, 8, 'message', 'dnzcan sent you a new message.', FALSE, NOW() - INTERVAL '8 minutes'),
(6, 5, NULL, NULL, 9, 'message', 'ali_y sent you a new message.', TRUE, NOW() - INTERVAL '7 minutes'),
(5, 6, NULL, NULL, 10, 'message', 'dnzcan sent you a new message.', FALSE, NOW() - INTERVAL '6 minutes'),
(6, 5, NULL, NULL, 11, 'message', 'ali_y sent you a new message.', TRUE, NOW() - INTERVAL '5 minutes'),
(8, 7, NULL, NULL, 12, 'message', 'guler_emre sent you a new message.', FALSE, NOW() - INTERVAL '4 minutes 30 seconds'),
(7, 8, NULL, NULL, 13, 'message', 'fatmack sent you a new message.', TRUE, NOW() - INTERVAL '4 minutes 20 seconds'),
(8, 7, NULL, NULL, 14, 'message', 'guler_emre sent you a new message.', FALSE, NOW() - INTERVAL '4 minutes 10 seconds'),
(10, 9, NULL, NULL, 15, 'message', 'burak01 sent you a new message.', TRUE, NOW() - INTERVAL '4 minutes'),
(9, 10, NULL, NULL, 16, 'message', 'gizay.u sent you a new message.', FALSE, NOW() - INTERVAL '3 minutes 45 seconds'),
(10, 9, NULL, NULL, 17, 'message', 'burak01 sent you a new message.', FALSE, NOW() - INTERVAL '3 minutes 30 seconds'),
(9, 10, NULL, NULL, 18, 'message', 'gizay.u sent you a new message.', TRUE, NOW() - INTERVAL '3 minutes 15 seconds'),
(10, 9, NULL, NULL, 19, 'message', 'burak01 sent you a new message.', FALSE, NOW() - INTERVAL '3 minutes'),
(4, 3, NULL, NULL, 20, 'message', 'm.kaya sent you a new message.', TRUE, NOW() - INTERVAL '2 minutes 45 seconds'),
(3, 4, NULL, NULL, 21, 'message', 'zeynep02 sent you a new message.', FALSE, NOW() - INTERVAL '2 minutes 30 seconds'),
(4, 3, NULL, NULL, 22, 'message', 'm.kaya sent you a new message.', TRUE, NOW() - INTERVAL '2 minutes 15 seconds'),
(3, 4, NULL, NULL, 23, 'message', 'zeynep02 sent you a new message.', FALSE, NOW() - INTERVAL '2 minutes'),
(4, 3, NULL, NULL, 24, 'message', 'm.kaya sent you a new message.', TRUE, NOW() - INTERVAL '1 minute 45 seconds'),
(12, 11, NULL, NULL, 25, 'message', 'caner_arslan sent you a new message.', FALSE, NOW() - INTERVAL '1 minute 30 seconds'),
(11, 12, NULL, NULL, 26, 'message', 'elif_soylu sent you a new message.', TRUE, NOW() - INTERVAL '1 minute 15 seconds'),
(12, 11, NULL, NULL, 27, 'message', 'caner_arslan sent you a new message.', FALSE, NOW() - INTERVAL '1 minute'),

```

```

INSERT INTO Notifications (user_id, from_user_id, post_id, comment_id, message_id, notification_type, message, is_read, noti
(12, 13, NULL, NULL, 'request', 'hakan_taner wants to follow you.', FALSE, NOW() - INTERVAL '4 hours'),
(12, 16, NULL, NULL, 'request', 'leyla_ozer wants to follow you.', TRUE, NOW() - INTERVAL '3 hours'),
(18, 19, NULL, NULL, 'request', 'ozturk_yigit wants to follow you.', FALSE, NOW() - INTERVAL '2 hours'),
(18, 20, NULL, NULL, 'request', 'pelin_aksu wants to follow you.', FALSE, NOW() - INTERVAL '1 hour'),
(25, 21, NULL, NULL, 'request', 'ridvan_uysal wants to follow you.', TRUE, NOW() - INTERVAL '30 minutes'),
(21, 25, NULL, NULL, 'request', 'vildan_simsek wants to follow you.', FALSE, NOW() - INTERVAL '28 minutes'),
(22, 26, NULL, NULL, 'request', 'yasin_ozer wants to follow you.', TRUE, NOW() - INTERVAL '25 minutes'),
(26, 22, NULL, NULL, 'request', 'sevgi_akdag wants to follow you.', FALSE, NOW() - INTERVAL '20 minutes'),
(13, 29, NULL, NULL, 'request', 'deniz_sari wants to follow you.', TRUE, NOW() - INTERVAL '15 minutes'),
(29, 13, NULL, NULL, 'request', 'hakan_taner wants to follow you.', FALSE, NOW() - INTERVAL '10 minutes'),
(24, 30, NULL, NULL, 'request', 'melisa_koc wants to follow you.', FALSE, NOW() - INTERVAL '5 minutes'),
(30, 24, NULL, NULL, 'request', 'ufuk_guler wants to follow you.', TRUE, NOW() - INTERVAL '2 minutes');

```

notification_id [PK] integer	user_id integer	from_user_id integer	post_id integer	comment_id integer	message_id integer	notification_type character varying (10)	message character varying (255)	is_read boolean	notification_date timestamp without time zone
1	93	1	7	9	[null]	[null]	tag	true	2025-12-07 21:23:50.847592
2	94	8	3	12	[null]	[null]	tag	false	2025-12-08 00:23:50.847592
3	95	7	6	14	[null]	[null]	tag	false	2025-12-07 23:23:50.847592
4	96	12	11	15	[null]	[null]	tag	true	2025-12-06 00:23:50.847592
5	97	9	17	17	[null]	[null]	tag	false	2025-12-08 00:23:50.847592
6	98	22	20	20	[null]	[null]	tag	true	2025-12-08 00:18:50.847592
7	99	1	23	23	[null]	[null]	tag	false	2025-12-07 00:23:50.847592
8	100	4	25	25	[null]	[null]	tag	false	2025-12-08 00:23:50.847592
9	101	9	27	26	[null]	[null]	tag	true	2025-12-07 18:23:50.847592
10	102	5	8	32	[null]	[null]	tag	false	2025-12-08 00:23:50.847592
11	103	18	13	35	[null]	[null]	tag	true	2025-12-07 14:23:50.847592
12	104	17	14	36	[null]	[null]	tag	false	2025-12-08 00:23:50.847592
13	105	1	3	1	1	[null]	comment	true	2025-12-03 00:23:50.847592
14	106	2	4	2	2	[null]	comment	false	2025-12-03 00:23:50.847592
15	107	3	1	3	3	[null]	comment	true	2025-12-04 00:23:50.847592
16	108	4	2	4	4	[null]	comment	false	2025-12-04 00:23:50.847592
17	109	4	16	4	5	[null]	comment	true	2025-12-07 21:23:50.847592
18	110	5	6	5	6	[null]	comment	true	2025-12-05 00:23:50.847592
19	111	1	7	1	7	[null]	comment	false	2025-12-05 00:23:50.847592
20	112	7	5	7	8	[null]	comment	Windows' u etkin	2025-12-06 00:23:50.847592.in
21	113	8	10	8	9	[null]	comment	Windows' u etkin	2025-12-06 00:23:50.847592.in

Total rows: 140 Query complete 00:00:00.145

CRLF Ln 1, Col 1

- Find the users (user\_id, username) among all users in the database who have not liked any posts.

```

SELECT user_id, username, full_name
FROM Users
WHERE user_id NOT IN (
    SELECT DISTINCT user_id
    FROM Likes)
ORDER BY user_id;

```

OR

```

SELECT U.user_id, U.username, U.full_name
FROM Users U
WHERE U.user_id NOT IN (
    SELECT DISTINCT user_id
    FROM Likes)
ORDER BY U.user_id;

```

	user_id [PK] integer	username character varying (30)	full_name character varying (30)
1	9	burak01	Burak Aksoy

2. Find the top 5 users who have published the most posts. Then, list the total number of messages sent by these top 5 users, along with the count of messages among those sent that contain media content (media\_url IS NOT NULL).

```

WITH TopPosters AS (
    SELECT U.user_id, U.username
    FROM Users U
    JOIN Posts P ON U.user_id = P.user_id
    GROUP BY U.user_id, U.username
    ORDER BY COUNT(P.post_id) DESC LIMIT 5)

SELECT TP.username, COUNT(M.ID) AS total_messages_sent,
SUM(CASE WHEN M.media_url IS NOT NULL THEN 1 ELSE 0 END) AS media_messages_sent_count
FROM TopPosters TP
JOIN Messages M ON TP.user_id = M.sender_id
GROUP BY TP.username
ORDER BY total_messages_sent DESC;

```

	username character varying (30)	total_messages_sent bigint	media_messages_sent_count bigint
1	ahmet_ylz	4	1
2	m.kaya	3	2
3	dncan	2	2
4	zeynep02	2	2
5	fatmaclk	1	0

3. Find the list of users (user\_id and username) who have both liked at least 3 different posts and sent private messages (DMs) to at least 2 different users.

```

SELECT user_id, username
FROM Users
WHERE user_id IN (SELECT user_id FROM Likes L
                  GROUP BY L.user_id
                  HAVING COUNT(L.post_id) >= 3 )

```

### INTERSECT

```

SELECT user_id, username
FROM Users
WHERE user_id IN (SELECT sender_id
                  FROM Messages
                  GROUP BY sender_id
                  HAVING COUNT(DISTINCT receiver_id) >= 2
) ORDER BY user_id;

```

	user_id	username
	integer	character varying (30)
1	1	ahmet_ylz

4. Find the username, full\_name, and post\_id of users whose post text contains the word 'new' and whose email address ends with 'gmailcom'.

```

SELECT U.username, U.full_name, U.email, P.post_id, P.caption
FROM Users U JOIN Posts P ON U.user_id = P.user_id
WHERE P.caption LIKE '%new%' AND TRIM(U.email) LIKE '%gmail.com'
ORDER BY U.username, P.post_id;

```

	username	full_name	email	post_id	caption
	character varying (30)	character varying (30)	character varying (50)	integer	character varying (2200)
1	ahmet_ylz	Ahmet Yılmaz	ahmet.yilmaz@gmail.co...	1	First steps of my new software project!
2	ahmet_ylz	Ahmet Yılmaz	ahmet.yilmaz@gmail.co...	11	My new mechanical keyboard.
3	ahmet_ylz	Ahmet Yılmaz	ahmet.yilmaz@gmail.co...	27	Trying out a new algorithm.
4	elif_soylu	Elif Soylu	elif.soylu@gmail.com	34	My new cat.
5	guler_emre	Emre Güler	emre.guler@gmail.com	9	Have you tried the new game?
6	m.kaya	Mehmet Kaya	mehmet.kaya@gmail.co...	28	Discovering new routes.
7	sevgi_akdag	Sevgi Akdağ	sevgi.akdag@gmail.com	22	One of my new ceramics.
8	vildan_simsek	Vıldan Şimşek	vildan.simsek@gmail.c...	25	My new poetry attempt. Waiting for your comme...

(We used TRIM because in SQL, the TRIM function is used to remove unwanted characters—most commonly extra spaces—from the beginning and end of a string.)

5. Get the list of users (sender\_id) who sent messages containing at least 2 media content (media\_url is not empty) along with the total number of media content they sent.

```

SELECT M.sender_id, U.username, COUNT(M.media_url) AS total_media_content
FROM Messages M
JOIN Users U ON M.sender_id = U.user_id
WHERE M.media_url IS NOT NULL
GROUP BY M.sender_id, U.username
HAVING COUNT(M.media_url) >= 2
ORDER BY total_media_content DESC;

```

	sender_id integer	total_media_count bigint
1	4	2
2	6	2
3	9	2
4	3	2

6. Find the username , email , full name and phone number list of followers who follow Gizay.u but have not liked any of gizay.u's posts.

```

SELECT F.username, F.email, F.full_name, F.phone
FROM Users G JOIN UserRelations UR ON G.user_id = UR.following_id
JOIN Users F ON UR.follower_id = F.user_id
WHERE G.username = 'gizay.u' AND UR.relation_type = 'follow'
AND F.user_id NOT IN ( SELECT DISTINCT L.user_id
FROM Likes L
JOIN Posts P ON L.post_id = P.post_id
WHERE P.user_id = G.user_id)
ORDER BY F.username;

```

	username character varying (30)	email character varying (50)	full_name character varying (30)	phone character (11)
1	ali_y	ali.yildirim@gmail.com	Ali Yıldırım	05386789012
2	burak01	burak.aksoy@hotmail.c...	Burak Aksoy	05459012345
3	caner_arslan	caner.arslan@gmail.com	Caner Arslan	05451112233
4	deniz_sari	deniz.sari@gmail.com	Deniz Sarı	05558091234
5	hakki_dogu	hakki.dogu@hotmail.com	Hakkı Doğu	05557980123
6	melisa_koc	melisa.koc@gmail.com	Melisa Koç	05559102345

7. Find the username, email, full name, and follower count of users who have sent a follow request (requested) to the main user, and who have previously exchanged messages with the main user, and whose follower count is greater than 2.

```
SELECT U.username, U.email, U.full_name, COUNT(T_UR.follower_id) AS requesting_user_follower_count
FROM Users U JOIN UserRelations UR ON U.user_id = UR.follower_id
JOIN UserRelations T_UR ON U.user_id = T_UR.following_id
WHERE UR.following_id = user_id
AND UR.relation_type = 'requested'
AND U.user_id IN ( SELECT sender_id FROM Messages WHERE receiver_id = user_id
UNION
SELECT receiver_id FROM Messages WHERE sender_id = user_id)
GROUP BY U.user_id, U.username, U.email, U.full_name
HAVING COUNT(T_UR.follower_id) > 2
ORDER BY requesting_user_follower_count DESC;
```

	username character varying (30) 	email character varying (50) 	full_name character varying (30) 	requesting_user_follower_count bigint 
--	--	---	---	--

8. Find the username, email, full name, phone number and follower count of users who have at least one story and more than 4 followers.

```
SELECT U.username, U.email, U.full_name, U.phone,
COUNT(DISTINCT UR.follower_id) AS follower_count,
COUNT(DISTINCT S.ID) AS total_story_count
FROM Users U
JOIN UserRelations UR ON U.user_id = UR.following_id
JOIN Stories S ON U.user_id = S.user_id
WHERE UR.relation_type = 'follow'
GROUP BY U.user_id, U.username, U.email, U.full_name, U.phone
HAVING COUNT(DISTINCT S.ID) >= 1
AND COUNT(DISTINCT UR.follower_id) > 4
ORDER BY follower_count DESC;
```

	username character varying (30) 	email character varying (50) 	full_name character varying (30) 	phone character (11) 	follower_count bigint 	total_story_count bigint 
1	ahmet_ylz	ahmet.yilmaz@gmail.c...	Ahmet Yilmaz	05551234567	14	4
2	guler_emre	emre.guler@gmail.com	Emre Güler	05547890123	12	4
3	gizay.u	gizay.uzun@gmail.com	Gizay Uzun	05450123456	6	3

9. For each user, list their followers and the total number of likes those followers have given to the user's posts. Only include followers who have liked at least one post.

```

SELECT
    U1.username AS account_owner,
    U2.username AS follower_name,
    COUNT(L.post_id) AS total_likes_given_from_follower
    FROM UserRelations UR
    JOIN Users U1 ON UR.following_id = U1.user_id
    JOIN Users U2 ON UR.follower_id = U2.user_id
    JOIN Posts P ON U1.user_id = P.user_id
    JOIN Likes L ON P.post_id = L.post_id AND UR.follower_id = L.user_id
    WHERE UR.relation_type = 'follow'
    GROUP BY U1.username, U2.username
    ORDER BY total_likes_given_from_follower DESC;

```

	account_owner character varying (30)	follower_name character varying (30)	total_likes_given_from_follower bigint
1	m.kaya	ahmet_ylz	2
2	guler_emre	fatmaclk	1
3	zeynep02	ahmet_ylz	1
4	aydemir	ahmet_ylz	1
5	ahmet_ylz	m.kaya	1
6	ahmet_ylz	ali_y	1
7	ahmet_ylz	zeynep02	1
8	ali_y	ahmet_ylz	1
9	ahmet_ylz	melisa_koc	1
10	ahmet_ylz	aydemir	1
11	ahmet_ylz	sevgi_akdag	1
12	guler_emre	vildan_simsek	1

10. "For each following relationship, find how long (in days) the follower has been following the person they follow."

```

SELECT
    U1.username AS follower_username,
    U2.username AS followed_username,
    UR.created_date AS followed_since,
    CURRENT_DATE - UR.created_date::date AS days_passed
    FROM UserRelations UR
    JOIN Users U1 ON UR.following_id = U1.user_id
    JOIN Users U2 ON UR.follower_id = U2.user_id
    WHERE UR.relation_type = 'follow'
    ORDER BY days_passed DESC;

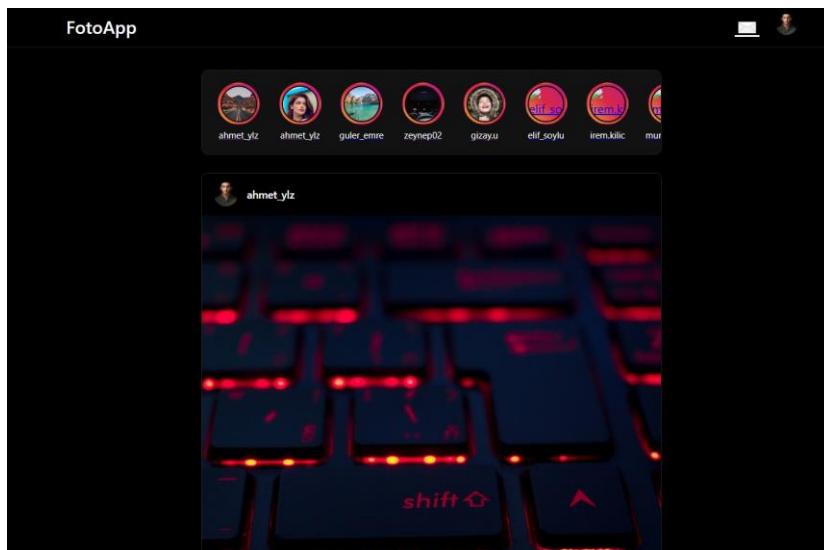
```

	follower_username character varying (30) 	followed_username character varying (30) 	followed_since timestamp without time zone 	days_passed integer 
1	aydemir	ahmet_ylz	2025-12-08 00:12:09.798498	11
2	m.kaya	ahmet_ylz	2025-12-08 00:12:09.798498	11
3	zeynep02	ahmet_ylz	2025-12-08 00:12:09.798498	11
4	murat_tekin	ahmet_ylz	2025-12-08 00:12:09.798498	11
5	ozturk_yigit	ahmet_ylz	2025-12-08 00:12:09.798498	11
6	pelin_aksu	ahmet_ylz	2025-12-08 00:12:09.798498	11
7	ridvan_uysal	ahmet_ylz	2025-12-08 00:12:09.798498	11
8	sevgi_akdag	ahmet_ylz	2025-12-08 00:12:09.798498	11
9	tayfun_erdem	ahmet_ylz	2025-12-08 00:12:09.798498	11
10	deniz_sari	ahmet_ylz	2025-12-08 00:12:09.798498	11
11	ali_y	guler_emre	2025-12-08 00:12:09.798498	11
12	dncan	guler_emre	2025-12-08 00:12:09.798498	11
13	caner_arslan	guler_emre	2025-12-08 00:12:09.798498	11
14	elif_soylu	guler_emre	2025-12-08 00:12:09.798498	11
15	tayfun_erdem	guler_emre	2025-12-08 00:12:09.798498	11
16	ufuk_guler	guler_emre	2025-12-08 00:12:09.798498	11
17	vildan_simsek	guler_emre	2025-12-08 00:12:09.798498	11
18	yasin_ozer	guler_emre	2025-12-08 00:12:09.798498	11
19	zuhal_kaya	guler_emre	2025-12-08 00:12:09.798498	11
20	burak01	gizay.u	2025-12-08 00:12:09.798498	11
21	caner_arslan	gizay.u	2025-12-08 00:12:09.798498	11
--				
Total rows: 73    Query complete 00:00:00.085				

("In the SQL query, the **CURRENT\_DATE** expression provides the system's current date, while the **::date** suffix is used to convert the `created_date` timestamp into a plain date format by stripping away the hour and minute information.")

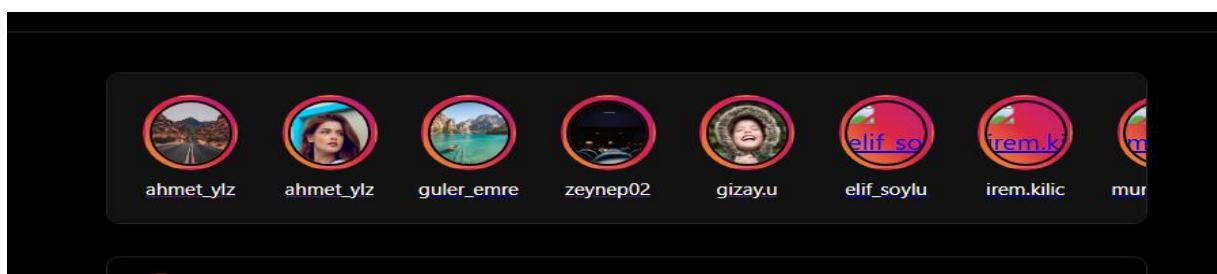
## INTERFACE

In this project, the interface of the Instagram-like application was partially integrated with the database. The data displayed on the interface was presented through specific filtering and selection processes. Nevertheless, the operation of core features connected to the database through user interactions (such as story viewing, post listing, likes, comments, and messaging) was demonstrated with screenshots.



### 1. Story

In the application, stories are not displayed as static content; they are dynamically retrieved from the database. Added stories remain visible for a limited period (24 hours) and are automatically removed from the interface after this duration. For this reason, the functionality of the story feature was documented using screenshots, and it is expected that the related stories may no longer be visible after the project submission.



re... × public.comments/i... × instagram/postgre... × instagram/postgre... ×

instagram/postgres@PostgreSQL 17

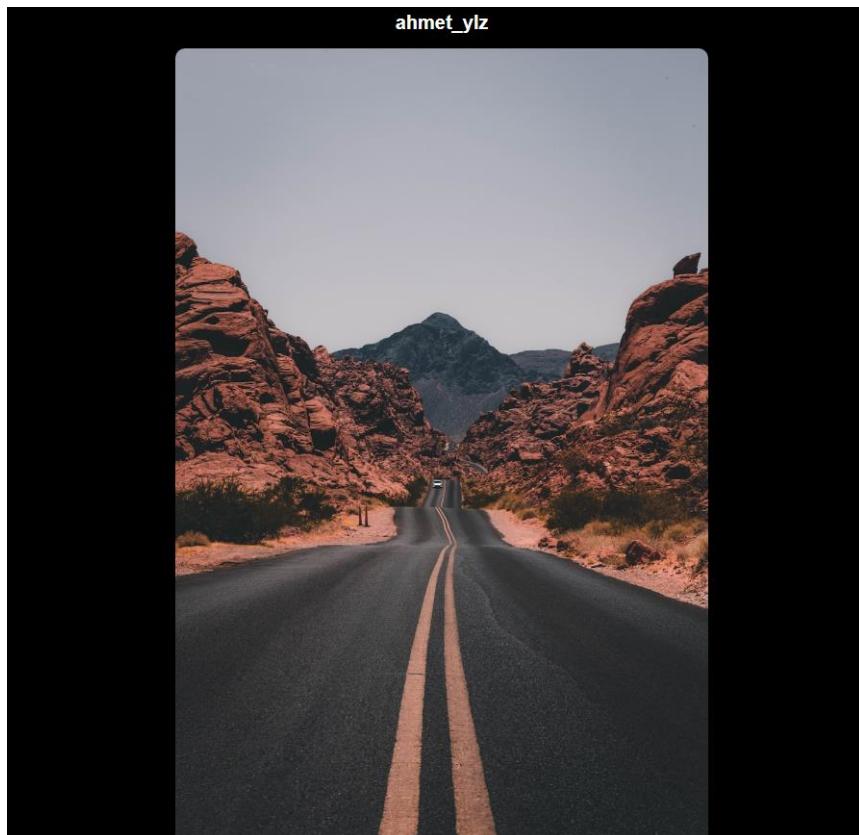
No limit

Query History

```
1 UPDATE stories
2 SET
3     created_date = NOW(),
4     expire_date = NOW() + INTERVAL '1 day';
5
```

As shown here, newly created stories are successfully stored in the database in real-time.

	<b>id</b> [PK] integer	<b>user_id</b> integer	<b>media_url</b> character varying (255)	<b>created_date</b> timestamp without time zone	<b>expire_date</b> timestamp without time zone
1	1	1	<a href="https://images.unsplash.com/photo-1500530855697-b586d89ba3ee?w=900">https://images.unsplash.com/photo-1500530855697-b586d89ba3ee?w=900</a>	2025-12-20 15:32:46.652547	2025-12-21 15:32:46.652547
2	2	1	<a href="https://images.unsplash.com/photo-1529626455594-4ff0802cfb7e?w=900">https://images.unsplash.com/photo-1529626455594-4ff0802cfb7e?w=900</a>	2025-12-20 15:32:46.652547	2025-12-21 15:32:46.652547

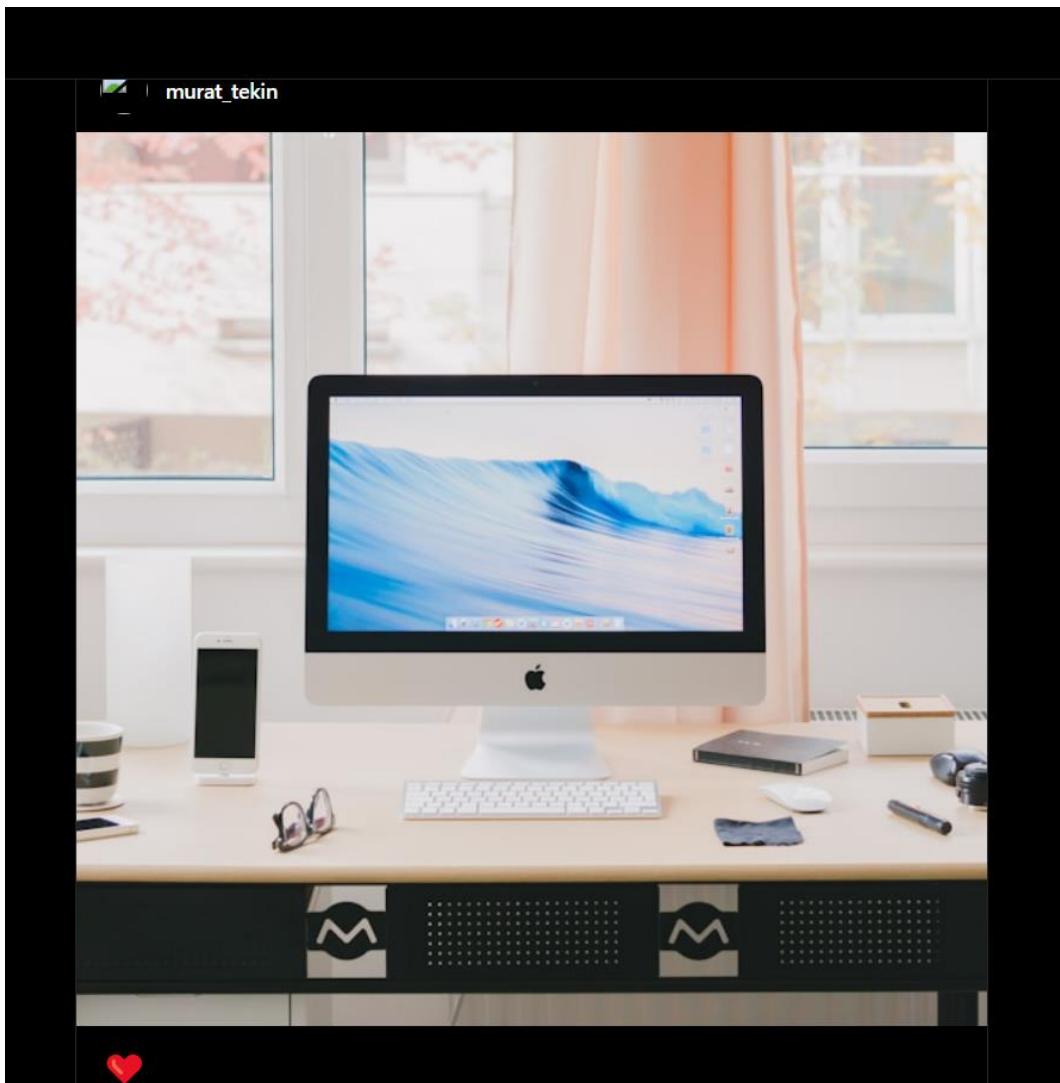


## 2. Feed (Post Listing)

In the database, a larger number of posts were added by my teammate as part of the project. However, during the interface development process, the number of posts displayed on the main feed was limited (e.g., to 10 posts) in order to maintain performance and layout consistency.

Additionally, although caption data exists in the database for some posts, it has not yet been fully integrated into the interface. This part is currently under development, and the core post listing functionality has been demonstrated with screenshots.

	post_id [PK] integer	user_id integer	media_url character varying (255)	caption character varying (2200)	cr tir
32	31	7	https://images.unsplash.com/photo-1494790108377-be9c29b29330?w=900	Live stream has started!	20
33	32	8	https://images.unsplash.com/photo-1501785888041-af3ef285b470?w=900	A challenging climb.	20
34	33	11	https://images.unsplash.com/photo-1529626455594-4ff0802cfb7e?w=900	My favorite dessert recipe.	20
35	35	13	https://images.unsplash.com/photo-1517832207067-4db24a2ae47c?w=900	My new gardening tool.	20
36	36	14	https://images.unsplash.com/photo-1507149833265-60c372daea22?w=900	Today's workspace.	20
37	1	1	https://images.unsplash.com/photo-1523050854058-8df90110c9f1	First steps of my new software project!	20



### 3. Likes

The like feature operates in connection with the database based on user interactions. When a user likes a post, a corresponding record is added to the likes table, and this change is immediately reflected on the interface. This behavior was verified using database outputs captured before and after the like action.

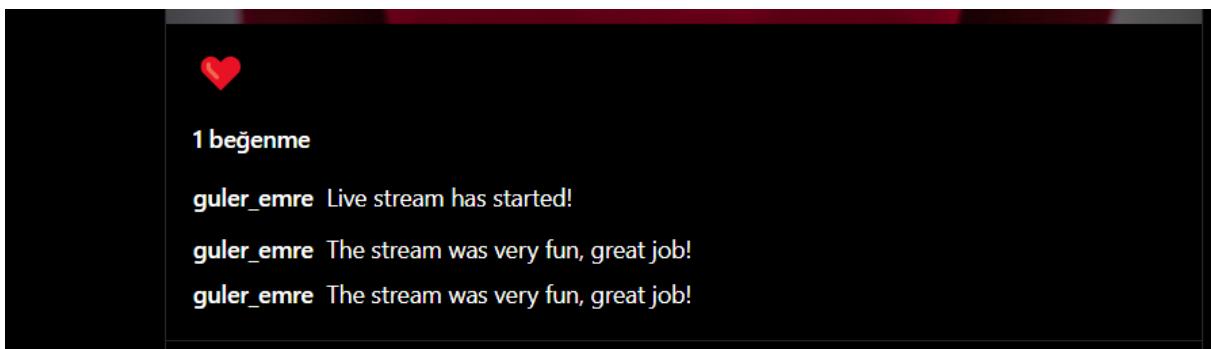


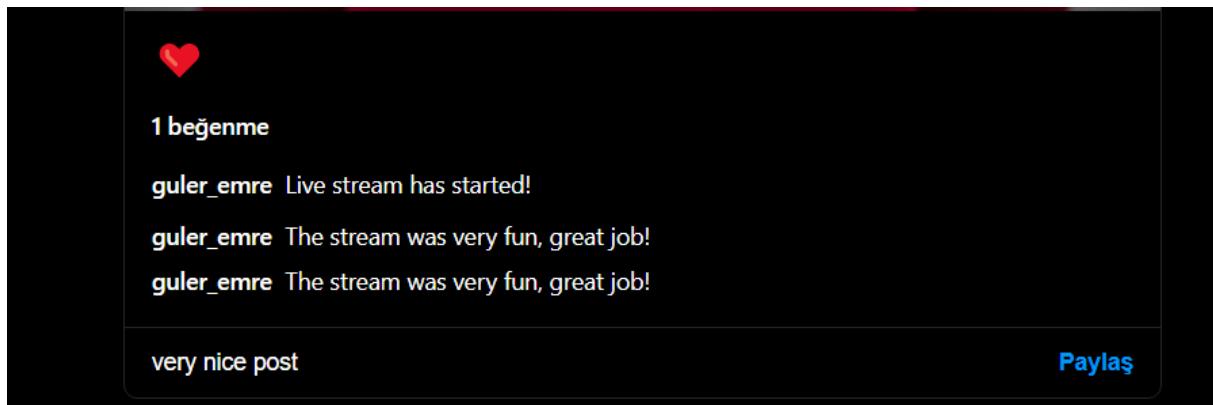
#### 4. Comment

The comment feature operates in an integrated manner with the database based on user interactions. When a user adds a comment to a post, the related comment is stored in the comments table and displayed on the interface. This behavior was verified using database outputs before and after the comment action.

	<b>id</b> [PK] integer	<b>post_id</b> integer	<b>text</b> character varying (2200)	<b>comment_date</b> timestamp without time zone
1	47	31	The stream was very fun, great job!	2025-12-07 21:26:45.974856
2	17	31	The stream was very fun, great job!	2025-12-07 21:25:48.030328
3	52	6	We must listen to this cover live soon!	2025-12-07 19:26:45.974856
4	22	6	We must listen to this cover live soon!	2025-12-07 19:25:48.030328

Although multiple comments were added to some posts in the database, I applied certain filtering and limitation mechanisms on the interface side. As a result, instead of displaying all comments for a post, only one or two comments were displayed in some cases.



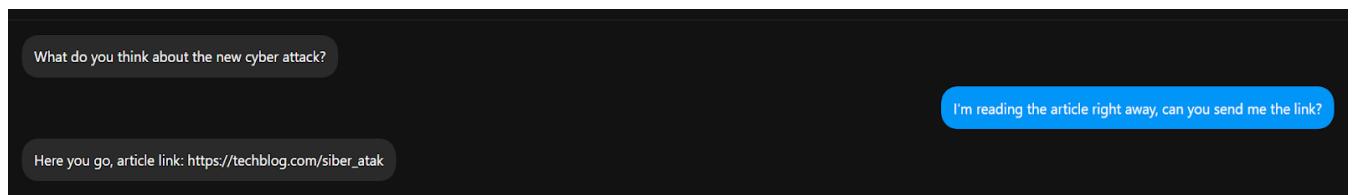
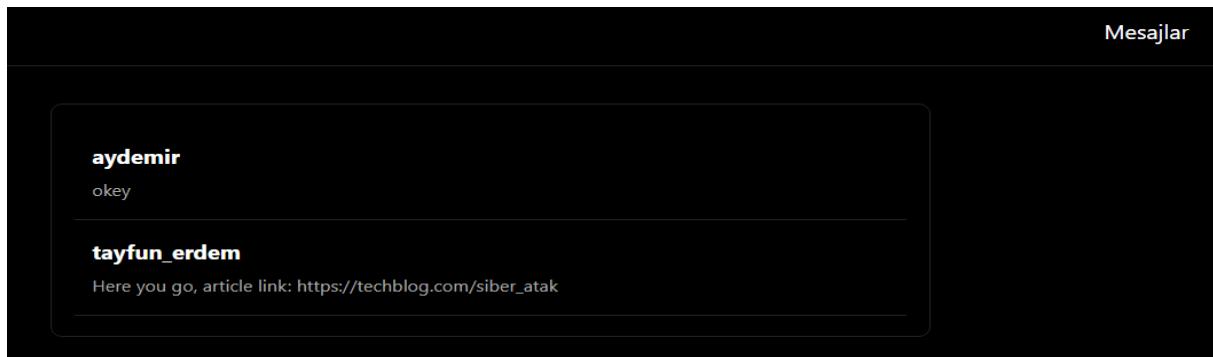


Showing rows: 1 to 5					
	id [PK] integer	user_id integer	post_id integer	text character varying (2200)	comment_date timestamp without time zone
1	61	1	31	very nice post	2025-12-20 16:41:58.765159

## 5. Messaging (Direct Messages)

The messaging (DM) feature was implemented on the interface to enable one-to-one communication between users.

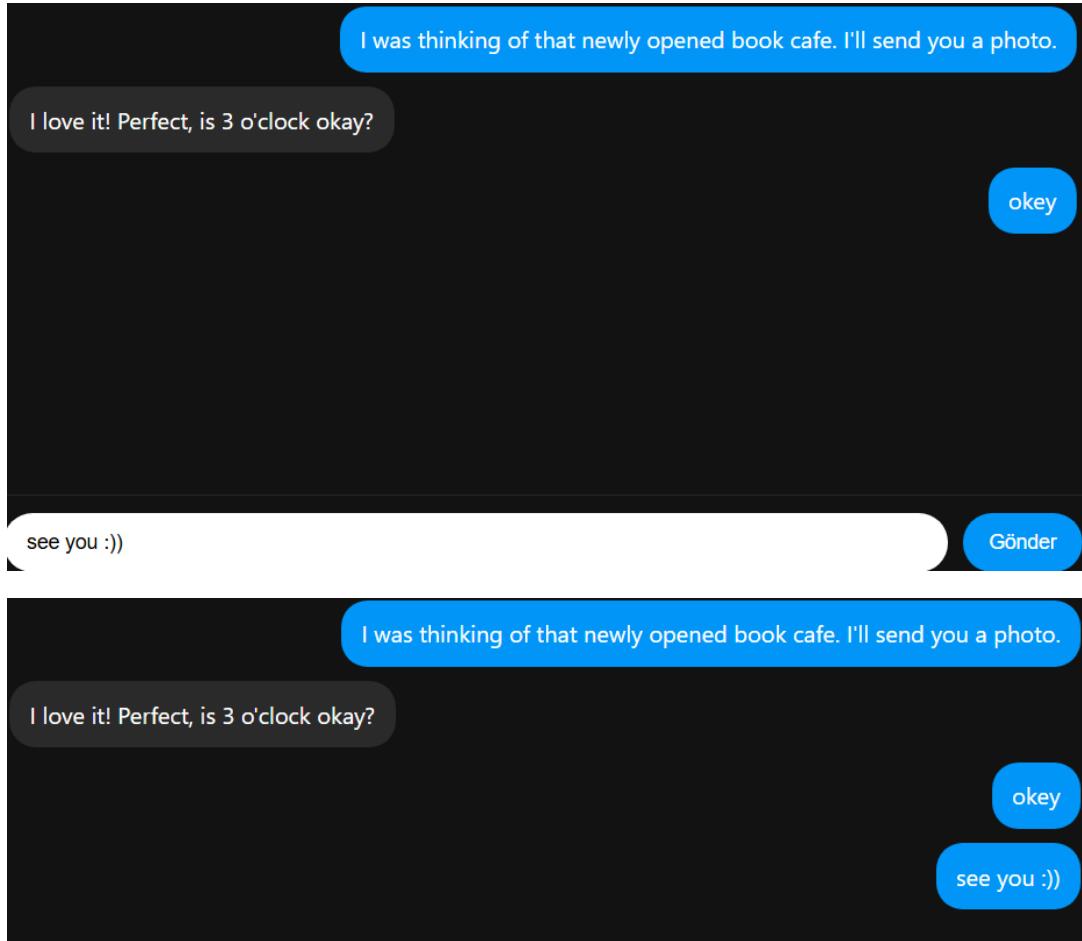
Not all message records in the database were retrieved on the interface; instead, selected messages were queried to demonstrate the functionality of the messaging feature. The successful storage of sent messages in the database was verified using screenshots and query outputs.





	<b>id</b> [PK] integer ↗	<b>sender_id</b> integer ↗	<b>receiver_id</b> integer ↗	<b>text</b> character varying (1000)	<b>created_date</b> timestamp without time zone ↗
1	37	1	2	okey	2025-12-20 15:08:54.263358
2	2	2	1	I'm good Ahmet, thank you. You?	2025-12-08 00:08:24.241057
3	3	1	2	Shall we grab coffee this weekend?	2025-12-08 00:08:24.241057
4	4	2	1	That would be great, where should we meet?	2025-12-08 00:08:24.241057
5	5	1	2	I was thinking of that newly opened book cafe. I'll send you a photo.	2025-12-08 00:08:24.241057
6	6	2	1	I love it! Perfect, is 3 o'clock okay?	2025-12-08 00:08:24.241057

Messages sent through the interface are stored in the database and displayed on the messaging screen.

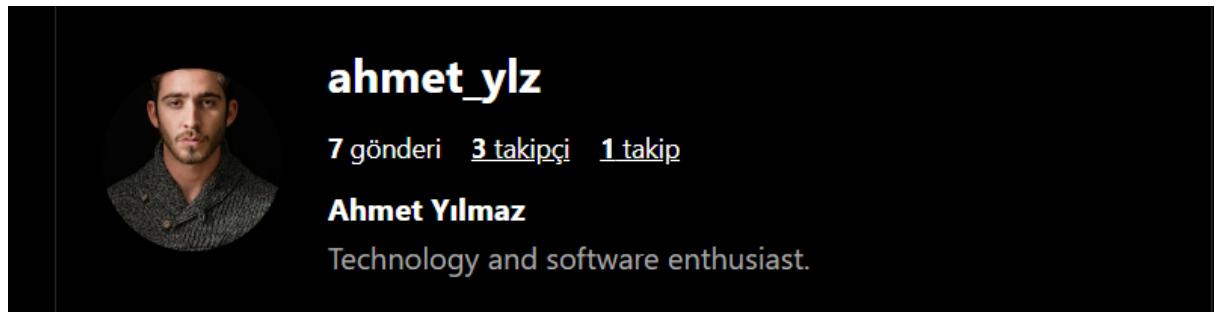


	<b>id</b> [PK] integer	<b>sender_id</b> integer	<b>receiver_id</b> integer	<b>text</b> character varying (1000)	<b>created_date</b> timestamp without time zone
1	38	1	2	see you :))	2025-12-21 00:51:08.32975
2	37	1	2	okey	2025-12-20 15:08:54.263358
3	3	1	2	Shall we grab coffee this weekend?	2025-12-08 00:08:24.241057
4	4	2	1	That would be great, where should we meet?	2025-12-08 00:08:24.241057

## 6. User Profile

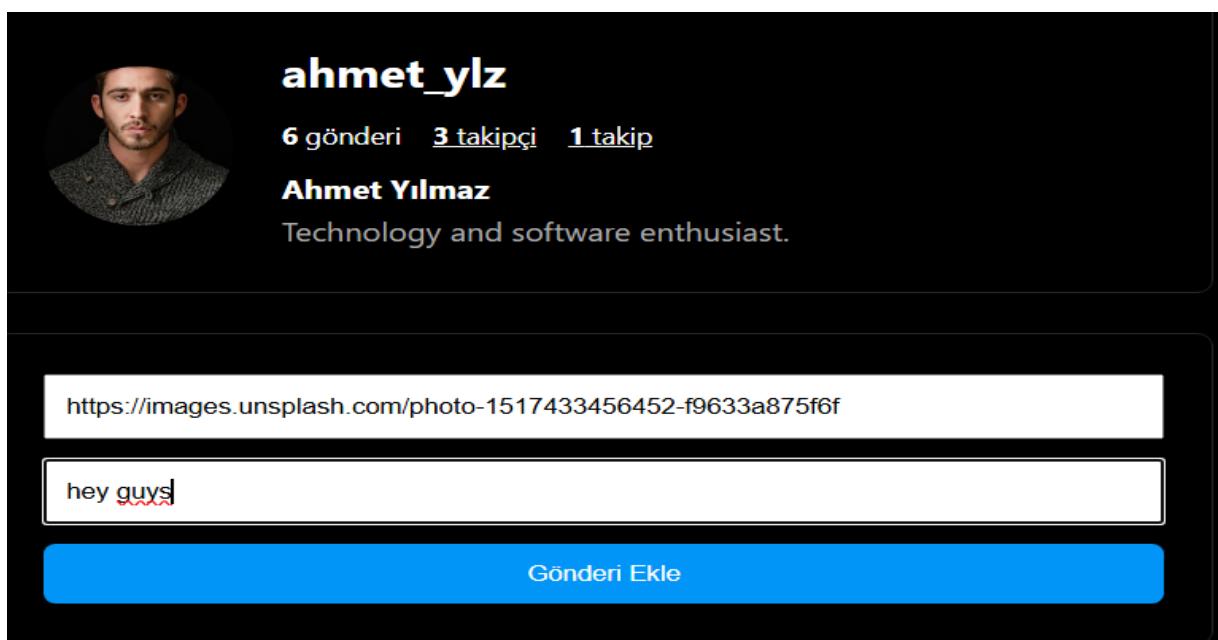
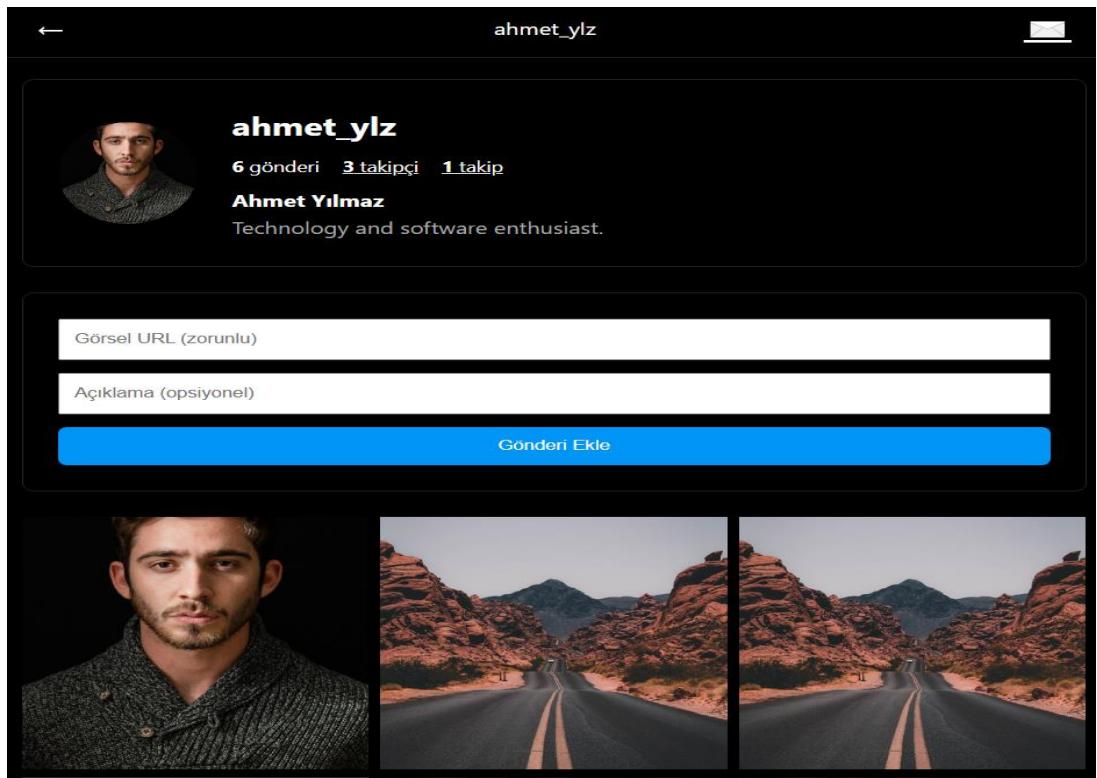
The user profile page was designed to display basic user information (username and biography) along with the user's own posts. The posts shown on the profile are retrieved from the database and filtered to include only records belonging to the relevant user.

The application supports posting; however, at this stage, posts are limited to URL-based media formats. Features such as multi-image swipe (carousel), as available in real-world Instagram, have not yet been implemented. These features are planned to be improved in future updates.



A user profile card for a user named **ahmet\_ylz**. The card features a placeholder profile picture of a man with dark hair and a beard. Below the picture, the username **ahmet\_ylz** is displayed in a large, bold, white font. Underneath the username, the user's statistics are shown: **7 gönderi**, **3 takipçi**, and **1 takip**. Below the statistics, the user's full name **Ahmet Yılmaz** is listed, followed by a descriptive bio: **Technology and software enthusiast.**

<b>user_id</b> [PK] integer	<b>username</b> character varying (30)	<b>biography</b> character varying (150)
1	ahmet_ylz	Technology and software enthusiast.





**Ahmet Yılmaz**  
Technology and software enthusiast.

---

Görsel URL (zorunlu)

Açıklama (opsiyonel)

Gönderi Ekle

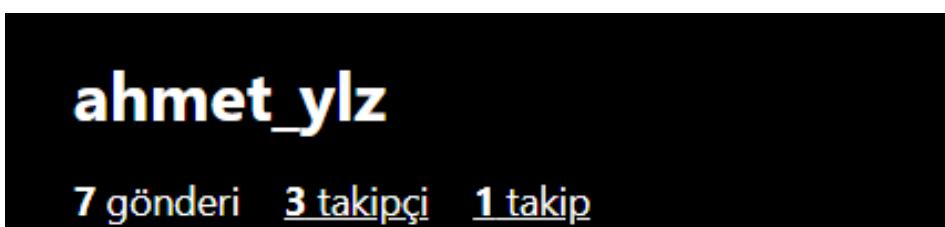


	post_id [PK] integer	user_id integer	media_url character varying (255)	caption character varying (2200)	created_date timestamp without time zone
1	44	1	<a href="https://images.unsplash.com/photo-1517433456452-f9633a875f6f">https://images.unsplash.com/photo-1517433456452-f9633a875f6f</a>	hey guys	2025-12-21 01:02:00.085415

## 7-Follow-Follower

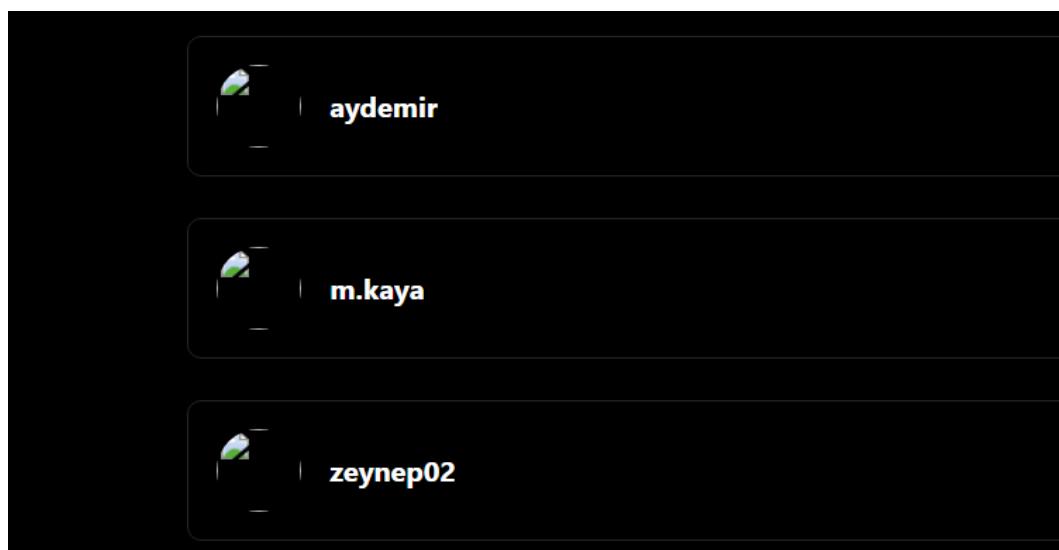
Follower and following information is calculated using the database table that stores relationships between users. The follower and following counts displayed on the interface are dynamically generated based on these relationship records.

Not all follow relationships were fully reflected on the interface; instead, selected queries and sample outputs were used to demonstrate the functionality. This was verified with screenshots.



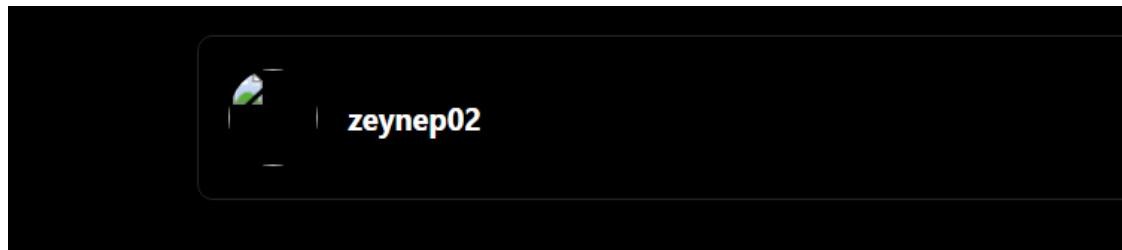
A screenshot of a database management system interface. At the top, there is a toolbar with various icons: a plus sign, a file icon, a dropdown arrow, a clipboard icon, another dropdown arrow, a trash bin, a database icon, a download icon, a refresh icon, and a SQL icon. Below the toolbar is a table with four columns:

	follower_username	relation_type	created_date
	character varying (30)	character varying (10)	timestamp without time zone
1	aydemir	follow	2025-12-14 04:31:45.709791
2	m.kaya	follow	2025-12-14 04:31:45.709791
3	zeynep02	follow	2025-12-14 04:31:45.709791



A screenshot of a database management system interface. At the top, there is a toolbar with various icons: a plus sign, a file icon, a dropdown arrow, a clipboard icon, another dropdown arrow, a trash bin, a database icon, a download icon, a refresh icon, and a SQL icon. Below the toolbar is a table with four columns:

	following_username	relation_type	created_date
	character varying (30)	character varying (10)	timestamp without time zone
1	zeynep02	follow	2025-12-14 04:31:45.709791
2	vildan_simsek	block	2025-12-14 04:31:45.709791



While querying follow relationships, **blocked** users were excluded from both listing and counting operations. Therefore, blocked follow relationships are not displayed on the interface.

In this project, multiple database queries and functionalities were designed for an Instagram-like social media application. Each user has a profile page where posts, follower counts, and following counts can be viewed. In addition, queries for social media features such as messaging, interactions (likes and comments), following, and blocking were created; however, not all of these features could be fully integrated into the interface in the current version.

During the development process, a significant portion of the designed queries was integrated into the interface, demonstrating correct interaction with the database. Although not all functionalities were implemented simultaneously, the current interface provides clear evidence of successful data insertion and retrieval. The remaining features are under development and planned for future updates.