Princess Sumaya University for Technology
جامعة الأميرة سميّة للتكنولوجيا

Project Main Ideas and Requirements
Database Systems

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Introduction

In the dynamic world of real estate, managing the myriad interactions and transactions between clients, agents, and companies can be a daunting task. This complexity increases with the volume of properties, the diversity of clients, and the range of marketing campaigns companies need to conduct. Recognizing the challenges and inefficiencies inherent in traditional real estate processes, we have developed this platform to streamline property management, client interactions, campaign execution, and transaction management. With a focus on centralization and leveraging technology, our platform aims to simplify the real estate experience by providing a seamless and intuitive solution for all stakeholders. By empowering real estate professionals to efficiently manage properties, conduct effective marketing campaigns, and facilitate transparent transactions, we strive to enhance the overall real estate experience for both companies and clients alike.

Our real estate management platform is a mobile application designed to streamline interactions between real estate companies, agents, and clients. Users can log in as either clients or agents (employees affiliated with companies or freelancers). Agents scan properties, which are then displayed on the platform. Clients can wishlist properties, follow companies, and contact agents to proceed with rentals or purchases. Contracts and transactions, whether fully paid or in installments, are seamlessly managed and stored in the database. We chose to develop this application to enhance efficiency, ensure transparency, improve client experiences, and boost agent productivity in the real estate industry. By centralizing all activities and transactions, the platform empowers companies with data-driven insights and a competitive edge, making it an essential tool for modern real estate management.

Requirements

A platform for real-estate companies connects users with companies and agents overseeing various properties to facilitate the process of viewing a property, ensuring the integrity of information, and recording the process of a transaction. A database is used to keep track of the connections and transactions between users and agents in a company over time.

Real estate **companies** could subscribe to the platform, overseeing a network of agents and properties in the real estate domain. Each company is uniquely identified by a ***company ID*** and carries essential details such as its ***name*** and ***establishment date***. Additionally, the company's ***contact information***, including ***physical address***, ***phone number***, and ***email address***, is stored for easy communication. The database tracks the company's ***license*** information and ***subscription details***, including the ***subscription tier***, and ***start*** and ***end-expiration dates***.

- Companies *hire* many **employee agents**, where each **employee** is affiliated with precisely one company, and a company must have agents working for it.

- Companies can *own* multiple **properties**, with each property exclusively belonging to one company. A company must own at least one property, and a property may or may not be owned by a company.

Campaigns are *conducted* by **companies** to reach a bigger audience and increase a firm's reputation. If a company is removed all related campaigns are removed. It contains information about ***campaign ID***, and various marketing ***campaign types*** (lead generation, sales promotion, etc.). It also contains ***channels*** to decide whether it is through social media, email, or even print, ***duration***, ***budget***, and ***effectiveness metrics***.

- A **campaign** must *include many* **properties**, and in turn, properties can be a part of many campaigns.

- Every **company** may *conduct* many **campaigns** curated for a client. A campaign must be conducted by only one company.

Users could be a **client** or an **agent**. Users must have a unique ***user ID***, their ***name*** consisting of ***first*** and ***last name***, ***gender***, ***date of birth***, ***contact information*** like ***phone number*** and ***email***, and ***login credentials*** as ***username*** and ***password.***

A **client** will have an *occupation* to help with the property's target audience.

- **Clients** can *view* as many **properties** as they wish, but not all properties must be viewed by a client.

- **Clients** can *attend* many **campaigns** organized by companies, where at least 5 or more clients must attend for the campaign to be run.

- **Clients** *contact* **agents** to hold negotiations regarding the property, not all agents attract potential clients, and not all clients contact agents.

- **Clients** can *wishlist* **properties** that pique their interest, it is not necessarily the case for properties to end up on clients' wishlist, and not all clients have a wishlist.

- **Clients** have the option to *follow* **companies**, enabling them to receive updates and notifications regarding the company's activities and listings. Not every company necessitates the attention of every client, and likewise, not all users are obliged to follow all companies, facilitated by relevant attributes such as *Notification Preference*.

An **agent** is either an **employee**, who works in a company or a **freelancer**. **Agents** have *licenses*.

- **Agents**, both **freelancers** and **employees** must *scan* **properties**, and all properties must be scanned by only one agent.

- Only some **employees** *participate* in as many campaigns as assigned to, and campaigns must have participants.

- An **employee** can *lead* one **campaign** at a time, whereas a campaign must have a leader.

A **property** includes a variety of characteristics, covering its *general information*, including *property ID*, the *type* whether residential or commercial, the *construction firm*, its *status*, and *property tax*. *Property features* include the *number of floors*, *number of rooms*, *area*, *appliances*, *accessibility*, *parking space*, and *outdoor space*. *Geographical data* include the *city*, the *neighborhoods*, *zoning information*, *school districts*, and *crime statistics*.

- If an **agent** works in a company(**employee**), then the **company** will *own* the **property** and give access to that agent. All companies must own at least one property, but not all properties are owned by companies.

- If the **agent** is a **freelancer**, then he directly *owns* the **property**. Again, properties can be owned by either companies or freelancers, and a freelancer must own at least one property.

- A **property** *has a* **contract** written when it is purchased/rented, not all properties have contracts but all contracts must be written for a particular property. If a property is removed all contracts are discarded.

Contracts help ensure clarity, transparency, and protection in a transaction. They contain a unique ***contract ID***, ***duration***, ***client*** and ***agent signatures,*** and ***payment*** including the ***status***, ***total cost,*** and ***frequency***.

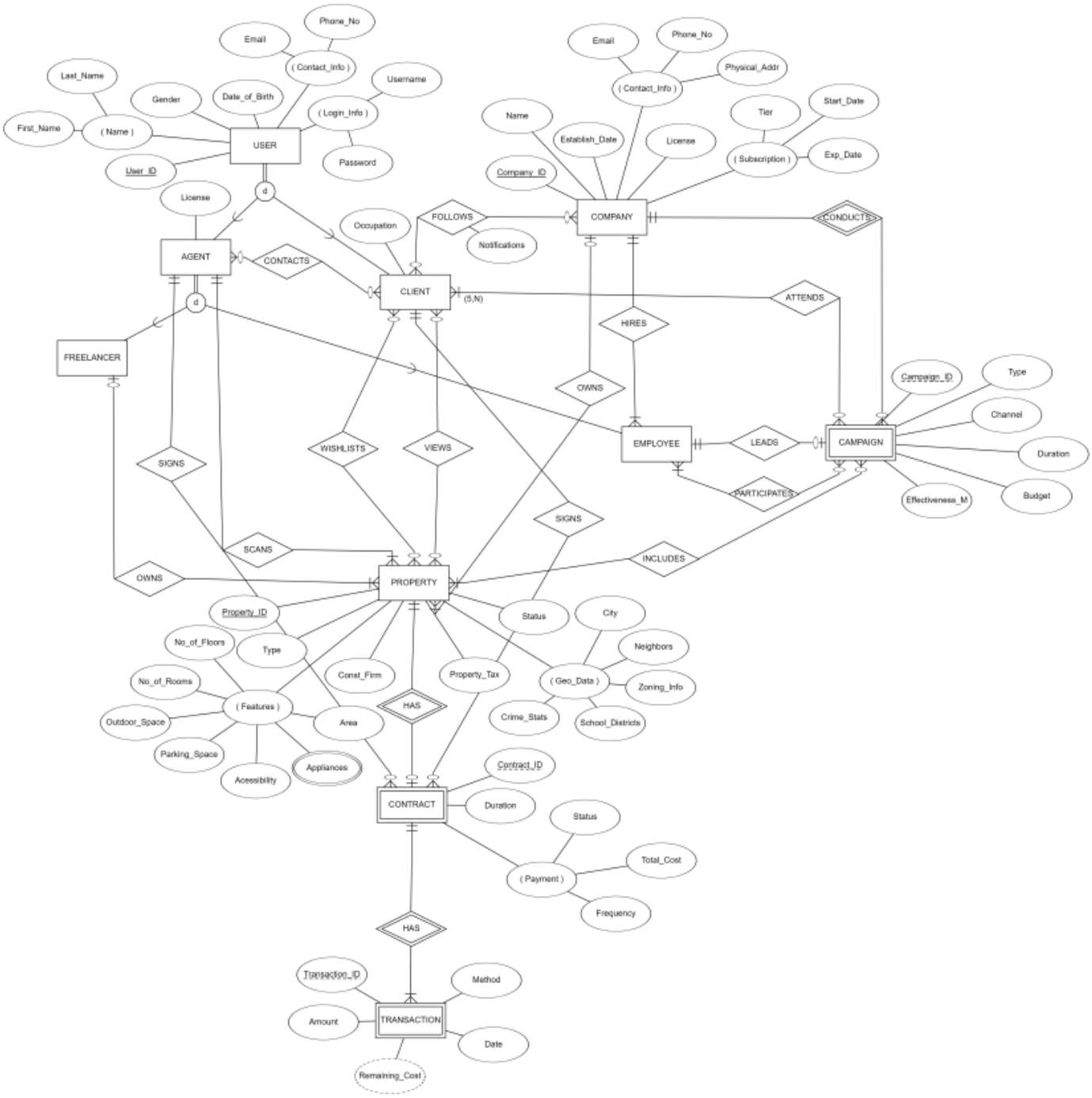
- Every **contract** must be *signed* by an **agent**, where an agent can sign many contracts, but a contract must be signed by only one agent.

- Every **contract** must be *signed* by a **client**, where a client can sign many contracts, and a contract must be signed by only one client.

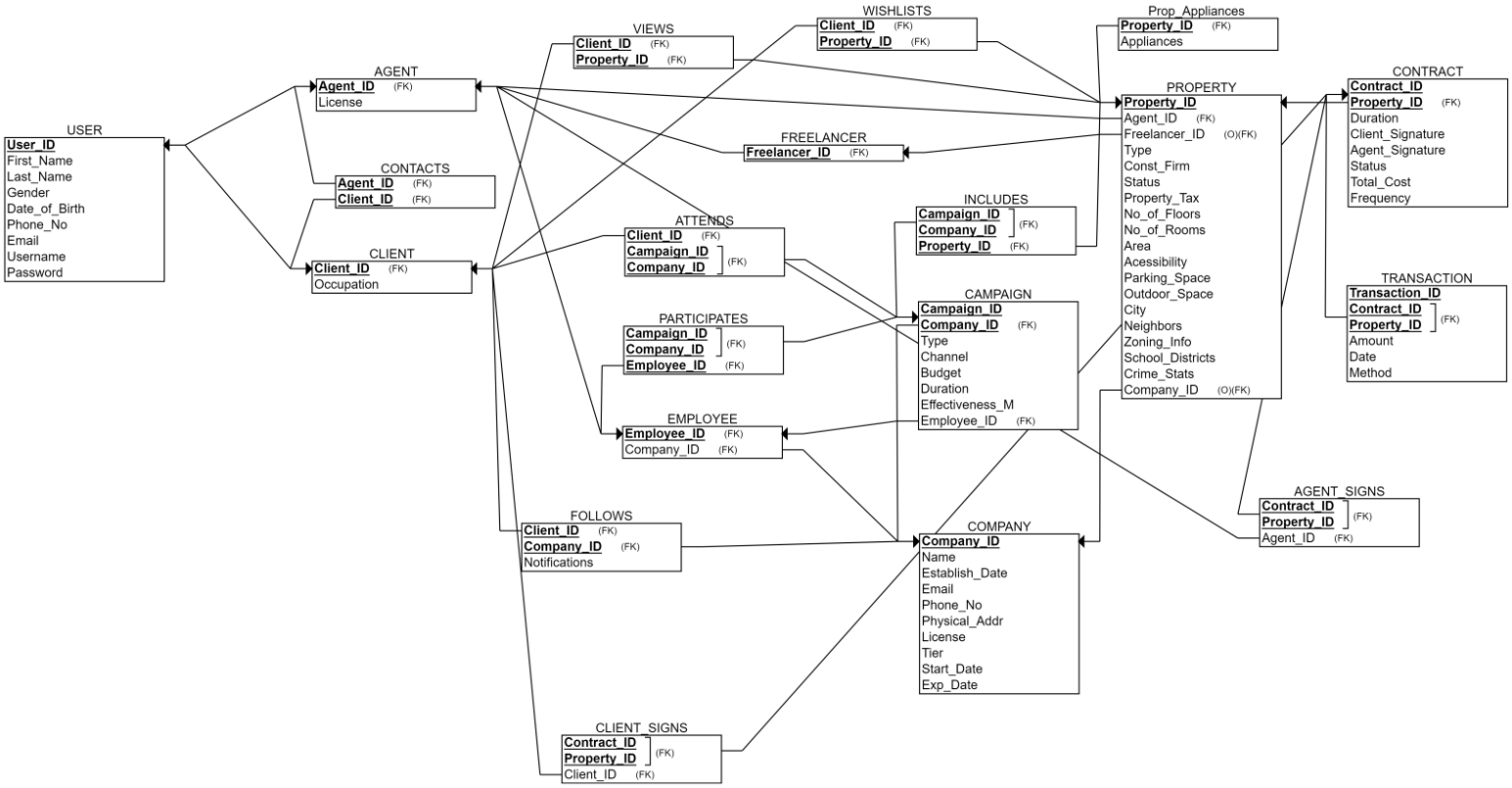
- Every **contract** must *have* at least one **transaction**, while every transaction must have one active contract at a time.

A **transaction** includes the unique ***transaction ID,*** and ***amount*** transferred, which may be paid in installments or fully. It also has the ***remaining cost*** after each transaction, ***date***, and ***method*** (online/cash).

ER+ERR Diagram



Relational Schema



Database Instances

USERS

```
1  SELECT * FROM USERS;
2  SELECT * FROM AGENT;
3  SELECT * FROM CLIENT;
```

USER_ID	FIRST_NAME	LAST_NAME	GENDER	DATE_OF_BIRTH	PHONE_NO	EMAIL	USERNAME	PASSWORD
100001	Ahmad	Abdullah	M	15-JAN-90	796346578	ahmad.abdullah@yahoo.com	ahmadabd	pass123
100002	Fatima	Ali	F	22-MAY-85	772938475	fatima.ali@gmail.com	fatimaa	abc456
100003	Yousef	Hassan	M	11-JUL-92	792273849	yousef.hassan@outlook.com	yousefh	qwerty1
100004	Layla	Khalil	F	30-MAR-88	796634789	layla.khalil@yahoo.com	laylak	p@ssw0rd
100005	Omar	Mahmoud	M	25-NOV-95	778876890	omar.mahmoud@outlook.com	omarm	letmein1
100006	Nour	Hamdi	F	18-SEP-87	795432198	nour.hamdi@yahoo.com	nourh	password123
100007	Khaled	Salem	M	29-NOV-91	797654321	khaled.salem@gmail.com	khaleds	securepwd1
100008	Rana	Yassin	F	12-APR-84	776789123	rana.yassin@outlook.com	ranay	P@55w0rd
100009	Samer	Farah	M	05-AUG-93	775678901	samer.farah@yahoo.com	samerf	passw0rd!
100010	Lina	Haddad	F	14-FEB-89	774567890	lina.haddad@gmail.com	linah	s3cr3tword
100011	Ahmad	Ibrahim	M	20-JUL-86	798754321	ahmad.ibrahim@gmail.com	ahmadi	newpass123
100012	Nada	Hassan	F	15-MAR-90	775123498	nada.hassan@yahoo.com	nada_h	p@ssw0rd123
100013	Youssef	Ali	M	05-NOV-88	799345678	youssef.ali@outlook.com	youssefa	securepassword1
100014	Rania	Khaled	F	22-SEP-84	776234875	rania.khaled@gmail.com	raniak	abc123
100015	Zaid	Salem	M	10-MAY-93	798563214	zaid.salem@yahoo.com	zaid_s	password456

AGENT

```
1  SELECT * FROM USERS;
2  SELECT * FROM AGENT;
3  SELECT * FROM CLIENT;
```

100015	Zaid	Salem	M	10-

Download CSV

15 rows selected.

AGENT_ID	LICENSE
100001	https://example.com/license123
100002	https://example.com/license456
100003	https://example.com/license789
100004	https://example.com/license101
100005	https://example.com/license112
100006	https://example.com/license123
100007	https://example.com/license456
100008	https://example.com/license789
100009	https://example.com/license101
100010	https://example.com/license112

Download CSV

10 rows selected.

CLIENT

CLIENT_ID	OCCUPATION
100011	Architect
100012	Nurse
100013	Accountant
100014	Chef
100015	Student

Download CSV

5 rows selected.

CONTACTS

AGENT_ID	CLIENT_ID
100001	100011
100002	100012
100003	100013
100008	100014
100009	100015

Download CSV

5 rows selected.

FREELANCER

FREELANCER_ID
100001
100002
100003
100004
100005

Download CSV

5 rows selected.

COMPANY

COMPANY_ID	NAME	ESTABLISH_DATE	EMAIL	PHONE_NO	PHYSICAL_ADDR	LICENSE	TIER	START_DATE	EXP_DATE
200001	Al-Mahari Real Estate	01-JAN-90	info@almahari.com	651234567	Abdoun St	https://www.almaharilicenses.com/123.pdf	1	01-JAN-20	01-JAN-23
200002	Al-Talal Real Estate	10-MAY-83	info@altalal.com	652345678	Rainbow St	https://www.altalallicenses.com/456.pdf	3	15-JUN-19	15-JUN-22
200003	Al-Salem Real Estate	20-SEP-06	info@alsalem.com	653456789	Mecca St	https://www.alsalemlicenses.com/789.pdf	1	20-MAR-21	20-MAR-24
200004	Al-Hussein Real Estate	05-DEC-83	info@alhussein.com	654567890	Gardens St	https://www.alhusseinlicenses.com/101.pdf	0	01-FEB-22	01-FEB-25
200005	Al-Ramzi Real Estate	20-JUL-05	info@alramzi.com	655678901	Shmeisani St	https://www.alramzilicenses.com/202.pdf	1	01-MAY-23	01-MAY-26

Download CSV

5 rows selected.

PROPERTY

PROPERTY_ID	AGENT_ID	FREELANCER_ID	PROPERTY_TYPE	CONST_FIRM	STATUS	PROPERTY_TAX	NO_OF_FLOORS	NO_OF_ROOMS	AREA	ACCESSIBILITY	PARKING_SPACE	OUTDOOR_SPACE	CITY	NEIGHBORS	ZONING_INFO	SCHOOL_DISTRICTS	CRIME_STATS	COMPANY_ID
300001	100001	100001	Apartment	Al-Wahda Construction Company	Not Available	100	6	3	120	Y	Y	N	Amman	Residential	A	Y	0	200001
300002	100002	100002	House	Al-Muhajireen Construction	Available	200	2	5	400	Y	Y	Y	Amman	Residential	B	Y	1	200001
300003	100003	100003	Office	Al-Hamlaka Real Estate	Available	500	20	30	1000	Y	Y	Y	Amman	Commercial	C	N	2	200002
300004	100004	–	Villa	Al-Aman Real Estate Development	Available	300	3	8	600	Y	Y	Y	Amman	Residential	D	Y	3	200002
300005	100005	–	Apartment	Al-Masnaa Construction	Available	150	10	20	800	Y	Y	N	Amman	Residential	E	N	1	200003

Download CSV

5 rows selected.

VIEWS_PROPERTY

CLIENT_ID	PROPERTY_ID
100011	300001
100012	300002
100013	300003
100014	300004
100015	300005

Download CSV

5 rows selected.

WISHLISTS

CLIENT_ID	PROPERTY_ID
100011	300001
100012	300002
100013	300003
100014	300004
100015	300005

Download CSV

5 rows selected.

EMPLOYEE

EMPLOYEE_ID	COMPANY_ID
100006	200001
100007	200002
100008	200003
100009	200004
100010	200005

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5 rows selected.

ATTENDS

CLIENT_ID	CAMPAIGN_ID	COMPANY_ID
100011	400001	200001
100012	400002	200002
100013	400003	200003
100014	400004	200004
100015	400005	200005

Download CSV

5 rows selected.

CAMPAIGN

CAMPAIGN_ID	COMPANY_ID	CAMPAIGN_TYPE	CAMPAIGN_CHANNEL	BUDGET	DURATION	EFFECTIVENESS_METRIC	EMPLOYEE_ID
400001	200001	Social Media Ads	Facebook	5000	30	75	100006
400002	200002	Email Marketing	Mailchimp	7000	45	80	100007
400003	200003	Search Engine Optimization	Google	6000	60	85	100008
400004	200004	Content Marketing	Blogging	5500	45	70	100009
400005	200005	Print Advertising	Newspapers	4500	30	65	100010

Download CSV

5 rows selected.

PARTICIPATES

CAMPAIGN_ID	COMPANY_ID	EMPLOYEE_ID
400001	200001	100006
400002	200002	100007
400003	200003	100008
400004	200004	100009
400005	200005	100010

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5 rows selected.

FOLLOWS

CLIENT_ID	COMPANY_ID	NOTIFICATIONS
100011	200001	Y
100012	200002	N
100013	200003	Y
100014	200004	N
100015	200005	Y

Download CSV

5 rows selected.

PROPERTY_APPLIANCES

PROPERTY_ID	APPLIANCES
300001	Dishwasher
300001	Refrigerator
300002	Microwave
300002	Oven
300002	Washing Machine

Download CSV

5 rows selected.

INCLUDES

CAMPAIGN_ID	COMPANY_ID	PROPERTY_ID
400001	200001	300001
400002	200002	300002
400003	200003	300003
400004	200004	300004
400005	200005	300005

Download CSV

5 rows selected.

CONTRACT

CONTRACT_ID	PROPERTY_ID	DURATION	STATUS	TOTAL_COST	FREQUENCY
500001	300001	12	Active	150000	12
500002	300002	24	Active	200000	24
500003	300003	36	Active	300000	36
500004	300004	12	Active	120000	12
500005	300005	24	Active	240000	24

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5 rows selected.

TRANSACTIONS

TRANSACTION_ID	CONTRACT_ID	PROPERTY_ID	AMOUNT	TRANSACTION_DATE	TRANSACTION_METHOD
600001	500001	300001	12500	19-MAY-24	Credit
600002	500001	300001	12500	19-JUN-24	Credit
600003	500001	300001	12500	19-JUL-24	Credit
600004	500002	300002	10000	19-MAY-24	Bank Transfer
600005	500002	300002	10000	19-JUN-24	Bank Transfer

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5 rows selected.

AGENT_SIGNS

CONTRACT_ID	PROPERTY_ID	AGENT_ID
500001	300001	100001
500002	300002	100002
500003	300003	100003
500004	300004	100004
500005	300005	100005

Download CSV

5 rows selected.

CLIENT_SIGNS

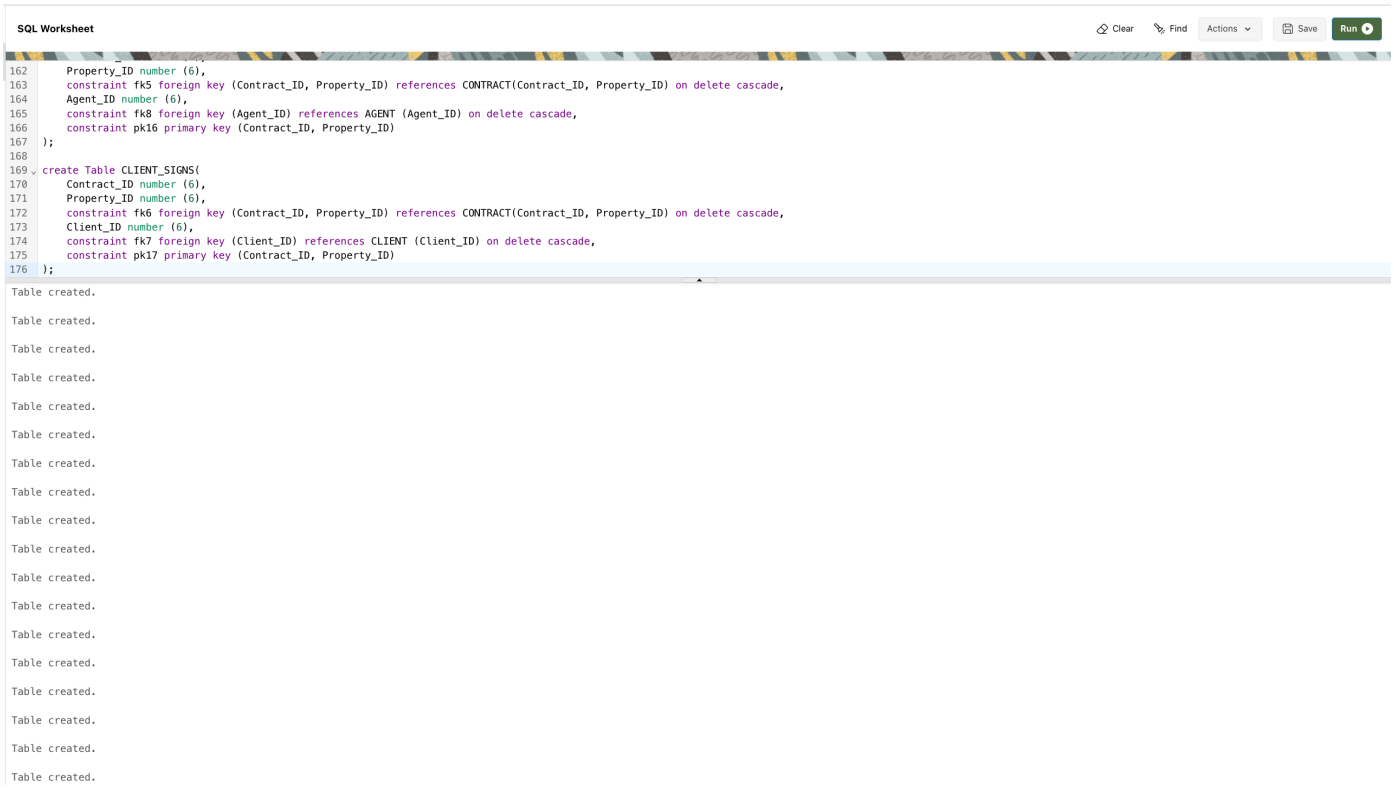
CONTRACT_ID	PROPERTY_ID	CLIENT_ID
500001	300001	100011
500002	300002	100012
500003	300003	100013
500004	300004	100014
500005	300005	100015

Download CSV

5 rows selected.

1. Creating Tables and setting constraints and data types

Screenshot



SQL

```
create Table USERS(
    User_ID number(6) primary key,
    First_Name VARCHAR (20),
    Last_Name VARCHAR (20),
    Gender VARCHAR (1),
    Date_of_Birth Date,
    Phone_No number (10),
    Email VARCHAR (50),
    Username VARCHAR (20),
    Password VARCHAR (20)
);

create Table AGENT(
    Agent_ID number (6) references USERS(User_ID) on delete cascade,
    License VARCHAR (50),
    constraint pk1 primary key (Agent_ID)
);

create Table CLIENT(
    Client_ID number (6) references USERS(User_ID) on delete cascade,
    Occupation VARCHAR (50),
    constraint pk3 primary key (Client_ID)
);

create Table CONTACTS(
    Agent_ID number (6) references Agent(Agent_ID) on delete cascade,
    Client_ID number (6) references Client(Client_ID) on delete cascade,
    constraint pk2 primary key (Agent_ID, Client_ID)
);

create Table COMPANY(
```

```
    Company_ID number (6) primary key,
    Name varchar (50),
    Establish_Date Date,
    Email varchar (50),
    Phone_No number (10),
    Physical_Addr varchar (50),
    License varchar (50),
    Tier number (1) check (tier in (0,1,2,3)),
    Start_Date Date,
    Exp_Date Date
);

create Table FREELANCER(
    Freelancer_ID number (6) references Agent(Agent_ID) on delete cascade,
    constraint pk6 primary key (Freelancer_ID)
);

create Table PROPERTY(
    Property_ID number (6) primary key,
    Agent_ID number (6) references Agent (Agent_ID) on delete cascade,
    Freelancer_ID number (6) references Freelancer (Freelancer_ID) on delete cascade,
    Property_Type varchar (15),
    Const_Firm varchar (50),
    Status varchar (15),
    Property_Tax number (3),
    No_of_Floors number (3),
    No_of_Rooms number (3),
    Area number (5),
    Accessibility varchar (1),
    Parking_Space varchar (1),
    Outdoor_Space varchar (1),
    City varchar (10),
    Neighbors varchar (20),
```

```
    Zoning_Info varchar (1),
    School_Districts varchar(1),
    Crime_stats number (2),
    Company_ID number (6) references Company (Company_ID) on delete cascade
);

create Table VIEWS_PROPERTY(
    Client_ID number (6) references Client(Client_ID) on delete cascade,
    Property_ID number (6) references Property(Property_ID) on delete cascade,
    constraint pk4 primary key (Client_ID, Property_ID)
);

create Table WISHLISTS(
    Client_ID number (6) references Client(Client_ID) on delete cascade,
    Property_ID number (6) references Property(Property_ID) on delete cascade,
    constraint pk5 primary key (Client_ID, Property_ID)
);

create Table EMPLOYEE(
    Employee_ID number (6) references Agent(Agent_ID) on delete cascade,
    Company_ID number (6) references Company (Company_ID) on delete cascade,
    constraint pk9 primary key (Employee_ID)
);

create Table CAMPAIGN(
    Campaign_ID number (6),
    Company_ID number (6) references Company (Company_ID) on delete cascade,
    constraint pk12 primary key (Campaign_ID, Company_ID),
    Campaign_Type varchar (50),
    Campaign_Channel varchar (50),
    Budget number (10),
    Duration number (4),
    Effectiveness_Metric number (3),
```

```
    Employee_ID number (6) references Employee (Employee_ID) on delete cascade
);

create Table ATTENDS(
    Client_ID number (6) references Client(Client_ID) on delete cascade,
    Campaign_ID number (6),
    Company_ID number (6),
    constraint fk1 foreign key (Campaign_ID, Company_ID) references Campaign
(Campaign_ID, Company_ID) on delete cascade,
    constraint pk7 primary key (Client_ID, Campaign_ID, Company_ID)
);

create Table PARTICIPATES(
    Campaign_ID number (6),
    Company_ID number (6),
    constraint fk2 foreign key (Campaign_ID, Company_ID) references Campaign
(Campaign_ID, Company_ID) on delete cascade,
    Employee_ID number (6) references EMPLOYEE(Employee_ID) on delete cascade,
    constraint pk8 primary key (Employee_ID, Campaign_ID, Company_ID)
);

create Table FOLLOWS(
    Client_ID number (6) references Client (Client_ID) on delete cascade,
    Company_ID number (6) references Company (Company_ID) on delete cascade,
    Notifications varchar(1),
    constraint pk10 primary key (Client_ID, Company_ID)
);

create Table PROPERTY_APPLIANCES(
    Property_ID number (6) references Property (Property_ID) on delete cascade,
    Appliances varchar (20),
    constraint pk13 primary key (Property_ID, Appliances)
);
```

```
create Table INCLUDES(
    Campaign_ID number (6),
    Company_ID number (6),
    constraint fk3 foreign key (Campaign_ID, Company_ID) references Campaign
(Campaign_ID, Company_ID) on delete cascade,
    Property_ID number (6) references Property(Property_ID) on delete cascade,
    constraint pk11 primary key (Property_ID, Campaign_ID, Company_ID)
);

create Table CONTRACT(
    Contract_ID number(6),
    Property_ID number (6) references Property (Property_ID) on delete cascade,
    constraint pk14 primary key (Contract_ID, Property_ID),
    Duration number (4),
    Status varchar (10),
    Total_Cost number (10),
    Frequency number (2)
);

create Table TRANSACTIONS(
    Transaction_ID number (6),
    Contract_ID number (6),
    Property_ID number (6),
    constraint fk4 foreign key (Contract_ID, Property_ID) references
Contract(Contract_ID, Property_ID) on delete cascade,
    constraint pk15 primary key (Transaction_ID, Contract_ID, Property_ID),
    Amount number (10),
    Transaction_Date Date,
    Transaction_Method varchar(20)
);
```

```
create Table AGENT_SIGNS(
    Contract_ID number (6),
    Property_ID number (6),
    constraint fk5 foreign key (Contract_ID, Property_ID) references
CONTRACT(Contract_ID, Property_ID) on delete cascade,
    Agent_ID number (6),
    constraint fk8 foreign key (Agent_ID) references AGENT (Agent_ID) on delete
cascade,
    constraint pk16 primary key (Contract_ID, Property_ID)
);

create Table CLIENT_SIGNS(
    Contract_ID number (6),
    Property_ID number (6),
    constraint fk6 foreign key (Contract_ID, Property_ID) references
CONTRACT(Contract_ID, Property_ID) on delete cascade,
    Client_ID number (6),
    constraint fk7 foreign key (Client_ID) references CLIENT (Client_ID) on delete
cascade,
    constraint pk17 primary key (Contract_ID, Property_ID)
        );
```

2. Inserting records into each relation. (5 records in each table)

Screenshot

SQL Worksheet

Clear | Find | Actions | Save | Run

```
INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500002, 300002, 100012);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500003, 300003, 100013);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500004, 300004, 100014);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500005, 300005, 100015);



INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount, Transaction_Date, Transaction_Method) VALUES
(600001, 500001, 300001, 12500, TO_DATE('2024-05-19', 'YYYY-MM-DD'), 'Credit');

INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount, Transaction_Date, Transaction_Method) VALUES
(600002, 500001, 300001, 12500, TO_DATE('2024-06-19', 'YYYY-MM-DD'), 'Credit');

```

```
1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

SQL

```
INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100001, 'Ahmad', 'Abdullah', 'M', TO_DATE('1990-01-15', 'YYYY-MM-DD'),
0796346578, 'ahmad.abdullah@yahoo.com', 'ahmadabd', 'pass123');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100002, 'Fatima', 'Ali', 'F', TO_DATE('1985-05-22', 'YYYY-MM-DD'), 0772938475,
'fatima.ali@gmail.com', 'fatimaa', 'abc456');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100003, 'Yousef', 'Hassan', 'M', TO_DATE('1992-07-11', 'YYYY-MM-DD'),
0792273849, 'yousef.hassan@outlook.com', 'yousefh', 'qwerty1');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100004, 'Layla', 'Khalil', 'F', TO_DATE('1988-03-30', 'YYYY-MM-DD'), 0796634789,
'layla.khalil@yahoo.com', 'laylak', 'p@ssw0rd');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100005, 'Omar', 'Mahmoud', 'M', TO_DATE('1995-11-25', 'YYYY-MM-DD'),
0778876890, 'omar.mahmoud@outlook.com', 'omarm', 'letmein1');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100006, 'Nour', 'Hamdi', 'F', TO_DATE('1987-09-18', 'YYYY-MM-DD'), 0795432198,
'nour.hamdi@yahoo.com', 'nourh', 'password123');
```

```
INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100007, 'Khaled', 'Salem', 'M', TO_DATE('1991-11-29', 'YYYY-MM-DD'), 0797654321,
'khaled.salem@gmail.com', 'khaleds', 'securepwd1');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100008, 'Rana', 'Yassin', 'F', TO_DATE('1984-04-12', 'YYYY-MM-DD'), 0776789123,
'rana.yassin@outlook.com', 'ranay', 'P@55w0rd');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100009, 'Samer', 'Farah', 'M', TO_DATE('1993-08-05', 'YYYY-MM-DD'), 0775678901,
'samer.farah@yahoo.com', 'samerf', 'passw0rd!');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100010, 'Lina', 'Haddad', 'F', TO_DATE('1989-02-14', 'YYYY-MM-DD'), 0774567890,
'lina.haddad@gmail.com', 'linah', 's3cr3tword');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100011, 'Ahmad', 'Ibrahim', 'M', TO_DATE('1986-07-20', 'YYYY-MM-DD'),
0798754321, 'ahmad.ibrahim@gmail.com', 'ahmadi', 'newpass123');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
(100012, 'Nada', 'Hassan', 'F', TO_DATE('1990-03-15', 'YYYY-MM-DD'), 0775123498,
'nada.hassan@yahoo.com', 'nada_h', 'p@ssw0rd123');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth,
Phone_No, Email, Username, Password) VALUES
```

(100013, 'Youssef', 'Ali', 'M', TO_DATE('1988-11-05', 'YYYY-MM-DD'), 0799345678, 'youssef.ali@outlook.com', 'youssefa', 'securepassword1');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth, Phone_No, Email, Username, Password) VALUES
(100014, 'Rania', 'Khaled', 'F', TO_DATE('1984-09-22', 'YYYY-MM-DD'), 0776234875, 'rania.khaled@gmail.com', 'raniak', 'abc123');

INSERT INTO USERS (User_ID, First_Name, Last_Name, Gender, Date_of_Birth, Phone_No, Email, Username, Password) VALUES
(100015, 'Zaid', 'Salem', 'M', TO_DATE('1993-05-10', 'YYYY-MM-DD'), 0798563214, 'zaid.salem@yahoo.com', 'zaid_s', 'password456');

INSERT INTO AGENT (Agent_ID, License) VALUES (100001, 'https://example.com/license123');
INSERT INTO AGENT (Agent_ID, License) VALUES (100002, 'https://example.com/license456');
INSERT INTO AGENT (Agent_ID, License) VALUES (100003, 'https://example.com/license789');
INSERT INTO AGENT (Agent_ID, License) VALUES (100004, 'https://example.com/license101');
INSERT INTO AGENT (Agent_ID, License) VALUES (100005, 'https://example.com/license112');
INSERT INTO AGENT (Agent_ID, License) VALUES (100006, 'https://example.com/license123');
INSERT INTO AGENT (Agent_ID, License) VALUES (100007, 'https://example.com/license456');
INSERT INTO AGENT (Agent_ID, License) VALUES (100008, 'https://example.com/license789');

```
INSERT INTO AGENT (Agent_ID, License) VALUES (100009,
'https://example.com/license101');
INSERT INTO AGENT (Agent_ID, License) VALUES (100010,
'https://example.com/license112');


INSERT INTO CLIENT (Client_ID, Occupation) VALUES (100011, 'Architect');
INSERT INTO CLIENT (Client_ID, Occupation) VALUES (100012, 'Nurse');
INSERT INTO CLIENT (Client_ID, Occupation) VALUES (100013, 'Accountant');
INSERT INTO CLIENT (Client_ID, Occupation) VALUES (100014, 'Chef');
INSERT INTO CLIENT (Client_ID, Occupation) VALUES (100015, 'Student');


INSERT INTO CONTACTS (Agent_ID, Client_ID) VALUES (100001, 100011);
INSERT INTO CONTACTS (Agent_ID, Client_ID) VALUES (100002, 100012);
INSERT INTO CONTACTS (Agent_ID, Client_ID) VALUES (100003, 100013);
INSERT INTO CONTACTS (Agent_ID, Client_ID) VALUES (100008, 100014);
INSERT INTO CONTACTS (Agent_ID, Client_ID) VALUES (100009, 100015);

INSERT INTO COMPANY (Company_ID, Name, Establish_Date, Email, Phone_No,
Physical_Addr, License, Tier, Start_Date, Exp_Date) VALUES
(200001, 'Al-Mahari Real Estate', TO_DATE('1990-01-01', 'YYYY-MM-DD'),
'info@almahari.com', 0651234567, 'Abdoun St',
'https://www.almaharilicenses.com/123.pdf', 1, TO_DATE('2020-01-01', 'YYYY-MM-
DD'), TO_DATE('2023-01-01', 'YYYY-MM-DD'));

INSERT INTO COMPANY (Company_ID, Name, Establish_Date, Email, Phone_No,
Physical_Addr, License, Tier, Start_Date, Exp_Date) VALUES
(200002, 'Al-Talal Real Estate', TO_DATE('1983-05-10', 'YYYY-MM-DD'),
'info@altalal.com', 0652345678, 'Rainbow St',
'https://www.altalallicenses.com/456.pdf', 3, TO_DATE('2019-06-15', 'YYYY-MM-DD'),
TO_DATE('2022-06-15', 'YYYY-MM-DD'));
```

INSERT INTO COMPANY (Company_ID, Name, Establish_Date, Email, Phone_No, Physical_Addr, License, Tier, Start_Date, Exp_Date) VALUES
(200003, 'Al-Salem Real Estate', TO_DATE('1906-09-20', 'YYYY-MM-DD'), 'info@alsalem.com', 0653456789, 'Mecca St', 'https://www.alsalemlicenses.com/789.pdf', 1, TO_DATE('2021-03-20', 'YYYY-MM-DD'), TO_DATE('2024-03-20', 'YYYY-MM-DD'));

INSERT INTO COMPANY (Company_ID, Name, Establish_Date, Email, Phone_No, Physical_Addr, License, Tier, Start_Date, Exp_Date) VALUES
(200004, 'Al-Hussein Real Estate', TO_DATE('1983-12-05', 'YYYY-MM-DD'), 'info@alhussein.com', 0654567890, 'Gardens St', 'https://www.alhusseinlicenses.com/101.pdf', 0, TO_DATE('2022-02-01', 'YYYY-MM-DD'), TO_DATE('2025-02-01', 'YYYY-MM-DD'));

INSERT INTO COMPANY (Company_ID, Name, Establish_Date, Email, Phone_No, Physical_Addr, License, Tier, Start_Date, Exp_Date) VALUES
(200005, 'Al-Ramzi Real Estate', TO_DATE('2005-07-20', 'YYYY-MM-DD'), 'info@alramzi.com', 0655678901, 'Shmeisani St', 'https://www.alramzilicenses.com/202.pdf', 1, TO_DATE('2023-05-01', 'YYYY-MM-DD'), TO_DATE('2026-05-01', 'YYYY-MM-DD'));

INSERT INTO FREELANCER (Freelancer_ID) VALUES (100001);
INSERT INTO FREELANCER (Freelancer_ID) VALUES (100002);
INSERT INTO FREELANCER (Freelancer_ID) VALUES (100003);
INSERT INTO FREELANCER (Freelancer_ID) VALUES (100004);
INSERT INTO FREELANCER (Freelancer_ID) VALUES (100005);

INSERT INTO PROPERTY (Property_ID, Agent_ID, Freelancer_ID, Property_Type, Const_Firm, Status, Property_Tax, No_of_Floors, No_of_Rooms, Area, Accessibility, Parking_Space, Outdoor_Space, City, Neighbors, Zoning_Info, School_Districts, Crime_stats, Company_ID) VALUES
(300001, 100001, 100001, 'Apartment', 'Al-Wahda Construction Company', 'Not Available', 100, 6, 3, 120, 'Y', 'Y', 'N', 'Amman', 'Residential', 'A', 'Y', 0, 200001);

INSERT INTO PROPERTY (Property_ID, Agent_ID, Freelancer_ID, Property_Type, Const_Firm, Status, Property_Tax, No_of_Floors, No_of_Rooms, Area, Accessibility, Parking_Space, Outdoor_Space, City, Neighbors, Zoning_Info, School_Districts, Crime_stats, Company_ID) VALUES
(300002, 100002, 100002, 'House', 'Al-Muhajireen Construction', 'Available', 200, 2, 5, 400, 'Y', 'Y', 'Y', 'Amman', 'Residential', 'B', 'Y', 1, 200001);

INSERT INTO PROPERTY (Property_ID, Agent_ID, Freelancer_ID, Property_Type, Const_Firm, Status, Property_Tax, No_of_Floors, No_of_Rooms, Area, Accessibility, Parking_Space, Outdoor_Space, City, Neighbors, Zoning_Info, School_Districts, Crime_stats, Company_ID) VALUES
(300003, 100003, 100003, 'Office', 'Al-Mamlaka Real Estate', 'Available', 500, 20, 30, 1000, 'Y', 'Y', 'Y', 'Amman', 'Commercial', 'C', 'N', 2, 200002);

INSERT INTO PROPERTY (Property_ID, Agent_ID, Freelancer_ID, Property_Type, Const_Firm, Status, Property_Tax, No_of_Floors, No_of_Rooms, Area, Accessibility, Parking_Space, Outdoor_Space, City, Neighbors, Zoning_Info, School_Districts, Crime_stats, Company_ID) VALUES
(300004, 100004, NULL, 'Villa', 'Al-Aman Real Estate Development', 'Available', 300, 3, 8, 600, 'Y', 'Y', 'Y', 'Amman', 'Residential', 'D', 'Y', 3, 200002);

INSERT INTO PROPERTY (Property_ID, Agent_ID, Freelancer_ID, Property_Type, Const_Firm, Status, Property_Tax, No_of_Floors, No_of_Rooms, Area, Accessibility, Parking_Space, Outdoor_Space, City, Neighbors, Zoning_Info, School_Districts, Crime_stats, Company_ID) VALUES
(300005, 100005, NULL, 'Apartment', 'Al-Masnaa Construction', 'Available', 150, 10, 20, 800, 'Y', 'Y', 'N', 'Amman', 'Residential', 'E', 'N', 1, 200003);

INSERT INTO VIEWS_PROPERTY (Client_ID, Property_ID) VALUES (100011, 300001);
INSERT INTO VIEWS_PROPERTY (Client_ID, Property_ID) VALUES (100012, 300002);

```
INSERT INTO VIEWS_PROPERTY (Client_ID, Property_ID) VALUES (100013, 300003);
INSERT INTO VIEWS_PROPERTY (Client_ID, Property_ID) VALUES (100014, 300004);
INSERT INTO VIEWS_PROPERTY (Client_ID, Property_ID) VALUES (100015, 300005);

INSERT INTO WISHLISTS (Client_ID, Property_ID) VALUES (100011, 300001);
INSERT INTO WISHLISTS (Client_ID, Property_ID) VALUES (100012, 300002);
INSERT INTO WISHLISTS (Client_ID, Property_ID) VALUES (100013, 300003);
INSERT INTO WISHLISTS (Client_ID, Property_ID) VALUES (100014, 300004);
INSERT INTO WISHLISTS (Client_ID, Property_ID) VALUES (100015, 300005);

INSERT INTO EMPLOYEE (Employee_ID, Company_ID) VALUES (100006, 200001);
INSERT INTO EMPLOYEE (Employee_ID, Company_ID) VALUES (100007, 200002);
INSERT INTO EMPLOYEE (Employee_ID, Company_ID) VALUES (100008, 200003);
INSERT INTO EMPLOYEE (Employee_ID, Company_ID) VALUES (100009, 200004);
INSERT INTO EMPLOYEE (Employee_ID, Company_ID) VALUES (100010, 200005);

INSERT INTO CAMPAIGN (Campaign_ID, Company_ID, Campaign_Type,
Campaign_Channel, Budget, Duration, Effectiveness_Metric, Employee_ID) VALUES
(400001, 200001, 'Social Media Ads', 'Facebook', 5000, 30, 75, 100006);
INSERT INTO CAMPAIGN (Campaign_ID, Company_ID, Campaign_Type,
Campaign_Channel, Budget, Duration, Effectiveness_Metric, Employee_ID) VALUES
(400002, 200002, 'Email Marketing', 'Mailchimp', 7000, 45, 80, 100007);
INSERT INTO CAMPAIGN (Campaign_ID, Company_ID, Campaign_Type,
Campaign_Channel, Budget, Duration, Effectiveness_Metric, Employee_ID) VALUES
(400003, 200003, 'Search Engine Optimization', 'Google', 6000, 60, 85, 100008);
INSERT INTO CAMPAIGN (Campaign_ID, Company_ID, Campaign_Type,
Campaign_Channel, Budget, Duration, Effectiveness_Metric, Employee_ID) VALUES
(400004, 200004, 'Content Marketing', 'Blogging', 5500, 45, 70, 100009);
INSERT INTO CAMPAIGN (Campaign_ID, Company_ID, Campaign_Type,
Campaign_Channel, Budget, Duration, Effectiveness_Metric, Employee_ID) VALUES
(400005, 200005, 'Print Advertising', 'Newspapers', 4500, 30, 65, 100010);
```

```
INSERT INTO ATTENDS (Client_ID, Campaign_ID, Company_ID) VALUES (100011, 400001, 200001);
INSERT INTO ATTENDS (Client_ID, Campaign_ID, Company_ID) VALUES (100012, 400002, 200002);
INSERT INTO ATTENDS (Client_ID, Campaign_ID, Company_ID) VALUES (100013, 400003, 200003);
INSERT INTO ATTENDS (Client_ID, Campaign_ID, Company_ID) VALUES (100014, 400004, 200004);
INSERT INTO ATTENDS (Client_ID, Campaign_ID, Company_ID) VALUES (100015, 400005, 200005);

INSERT INTO PARTICIPATES (Campaign_ID, Company_ID, Employee_ID) VALUES (400001, 200001, 100006);
INSERT INTO PARTICIPATES (Campaign_ID, Company_ID, Employee_ID) VALUES (400002, 200002, 100007);
INSERT INTO PARTICIPATES (Campaign_ID, Company_ID, Employee_ID) VALUES (400003, 200003, 100008);
INSERT INTO PARTICIPATES (Campaign_ID, Company_ID, Employee_ID) VALUES (400004, 200004, 100009);
INSERT INTO PARTICIPATES (Campaign_ID, Company_ID, Employee_ID) VALUES (400005, 200005, 100010);

INSERT INTO FOLLOWS (Client_ID, Company_ID, Notifications) VALUES (100011, 200001, 'Y');
INSERT INTO FOLLOWS (Client_ID, Company_ID, Notifications) VALUES (100012, 200002, 'N');
INSERT INTO FOLLOWS (Client_ID, Company_ID, Notifications) VALUES (100013, 200003, 'Y');
INSERT INTO FOLLOWS (Client_ID, Company_ID, Notifications) VALUES (100014, 200004, 'N');
INSERT INTO FOLLOWS (Client_ID, Company_ID, Notifications) VALUES (100015, 200005, 'Y');
```

```
INSERT INTO PROPERTY_APPLIANCES (Property_ID, Appliances)
VALUES (300001, 'Refrigerator');

INSERT INTO PROPERTY_APPLIANCES (Property_ID, Appliances)
VALUES (300001, 'Dishwasher');

INSERT INTO PROPERTY_APPLIANCES (Property_ID, Appliances)
VALUES (300002, 'Washing Machine');

INSERT INTO PROPERTY_APPLIANCES (Property_ID, Appliances)
VALUES (300002, 'Microwave');

INSERT INTO PROPERTY_APPLIANCES (Property_ID, Appliances)
VALUES (300002, 'Oven');


INSERT INTO INCLUDES (Campaign_ID, Company_ID, Property_ID) VALUES (400001,
200001, 300001);
INSERT INTO INCLUDES (Campaign_ID, Company_ID, Property_ID) VALUES (400002,
200002, 300002);
INSERT INTO INCLUDES (Campaign_ID, Company_ID, Property_ID) VALUES (400003,
200003, 300003);
INSERT INTO INCLUDES (Campaign_ID, Company_ID, Property_ID) VALUES (400004,
200004, 300004);
INSERT INTO INCLUDES (Campaign_ID, Company_ID, Property_ID) VALUES (400005,
200005, 300005);

INSERT INTO CONTRACT (Contract_ID, Property_ID, Duration, Status, Total_Cost,
Frequency) VALUES
(500001, 300001, 12, 'Active', 150000, 12);

INSERT INTO CONTRACT (Contract_ID, Property_ID, Duration, Status, Total_Cost,
Frequency) VALUES
```

(500002, 300002, 24, 'Active', 200000, 24);

INSERT INTO CONTRACT (Contract_ID, Property_ID, Duration, Status, Total_Cost, Frequency) VALUES
(500003, 300003, 36, 'Active', 300000, 36);

INSERT INTO CONTRACT (Contract_ID, Property_ID, Duration, Status, Total_Cost, Frequency) VALUES
(500004, 300004, 12, 'Active', 120000, 12);

INSERT INTO CONTRACT (Contract_ID, Property_ID, Duration, Status, Total_Cost, Frequency) VALUES
(500005, 300005, 24, 'Active', 240000, 24);

INSERT INTO AGENT_SIGNS (Contract_ID, Property_ID, Agent_ID)
VALUES (500001, 300001, 100001);

INSERT INTO AGENT_SIGNS (Contract_ID, Property_ID, Agent_ID)
VALUES (500002, 300002, 100002);

INSERT INTO AGENT_SIGNS (Contract_ID, Property_ID, Agent_ID)
VALUES (500003, 300003, 100003);

INSERT INTO AGENT_SIGNS (Contract_ID, Property_ID, Agent_ID)
VALUES (500004, 300004, 100004);

INSERT INTO AGENT_SIGNS (Contract_ID, Property_ID, Agent_ID)
VALUES (500005, 300005, 100005);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500001, 300001, 100011);

```
INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500002, 300002, 100012);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500003, 300003, 100013);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500004, 300004, 100014);

INSERT INTO CLIENT_SIGNS (Contract_ID, Property_ID, Client_ID)
VALUES (500005, 300005, 100015);



INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount,
Transaction_Date, Transaction_Method) VALUES
(600001, 500001, 300001, 12500, TO_DATE('2024-05-19', 'YYYY-MM-DD'), 'Credit');

INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount,
Transaction_Date, Transaction_Method) VALUES
(600002, 500001, 300001, 12500, TO_DATE('2024-06-19', 'YYYY-MM-DD'), 'Credit');

INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount,
Transaction_Date, Transaction_Method) VALUES
(600003, 500001, 300001, 12500, TO_DATE('2024-07-19', 'YYYY-MM-DD'), 'Credit');

INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount,
Transaction_Date, Transaction_Method) VALUES
(600004, 500002, 300002, 10000, TO_DATE('2024-05-19', 'YYYY-MM-DD'), 'Bank
Transfer');
```

INSERT INTO TRANSACTIONS (Transaction_ID, Contract_ID, Property_ID, Amount, Transaction_Date, Transaction_Method) VALUES
(600005, 500002, 300002, 10000, TO_DATE('2024-06-19', 'YYYY-MM-DD'), 'Bank Transfer');

3. Modifying a record based on a condition

Condition: Update the status of contracts to 'Expired' for those contracts where the duration is greater than 24 months

SQL Worksheet | Clear | Find | Actions | Save | Run

```
1  UPDATE CONTRACT
2  SET Status = 'Expired'
3  WHERE Duration > 24;
4
5  SELECT * FROM CONTRACT
```

1 row(s) updated.

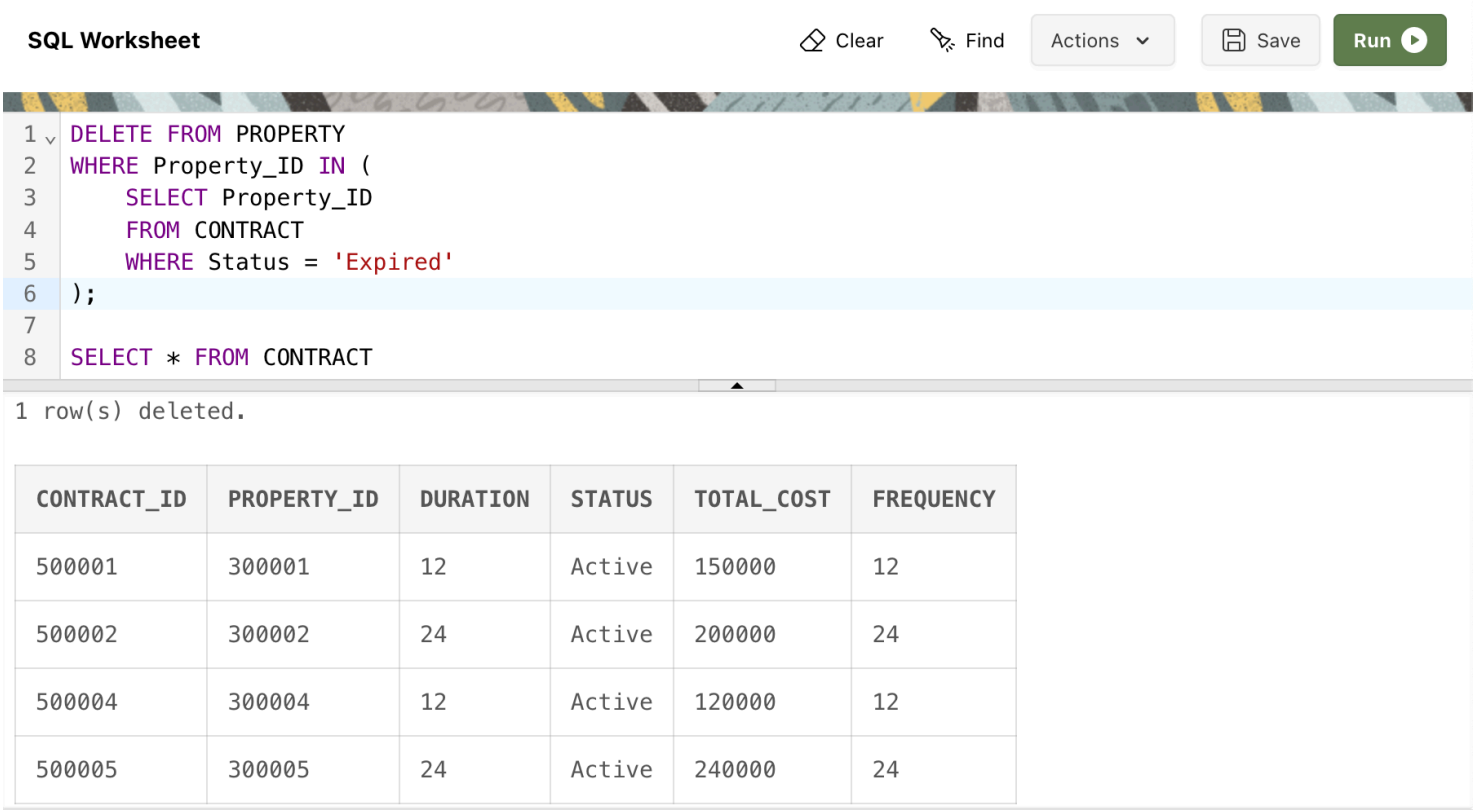
CONTRACT_ID	PROPERTY_ID	DURATION	STATUS	TOTAL_COST	FREQUENCY
500001	300001	12	Active	150000	12
500002	300002	24	Active	200000	24
500003	300003	36	Expired	300000	36
500004	300004	12	Active	120000	12
500005	300005	24	Active	240000	24

SQL

```
UPDATE CONTRACT
SET Status = 'Expired'
WHERE Duration > 24;
```

4. Deleting a record based on a condition.

Condition: Delete properties associated with expired contracts



CONTRACT_ID	PROPERTY_ID	DURATION	STATUS	TOTAL_COST	FREQUENCY
500001	300001	12	Active	150000	12
500002	300002	24	Active	200000	24
500004	300004	12	Active	120000	12
500005	300005	24	Active	240000	24

SQL

```
DELETE FROM PROPERTY
WHERE Property_ID IN (
   SELECT Property_ID
   FROM CONTRACT
   WHERE Status = 'Expired'
);
```

5. Retrieving records from two different relations based on specific conditions. (Use join)

Condition: **Retrieve the details of clients who have viewed properties with an area greater than the average area of all properties**

SQL Worksheet

Clear Find Actions Save Run

```
2  FROM CLIENT
3  WHERE Client_ID IN (
4      SELECT DISTINCT V.Client_ID
5      FROM VIEWS_PROPERTY V
6      JOIN PROPERTY P ON V.Property_ID = P.Property_ID
7      WHERE P.Area > (SELECT AVG(Area) FROM PROPERTY)
8  );
9
```

CLIENT_ID	OCCUPATION
100014	Chef
100015	Student

Download CSV

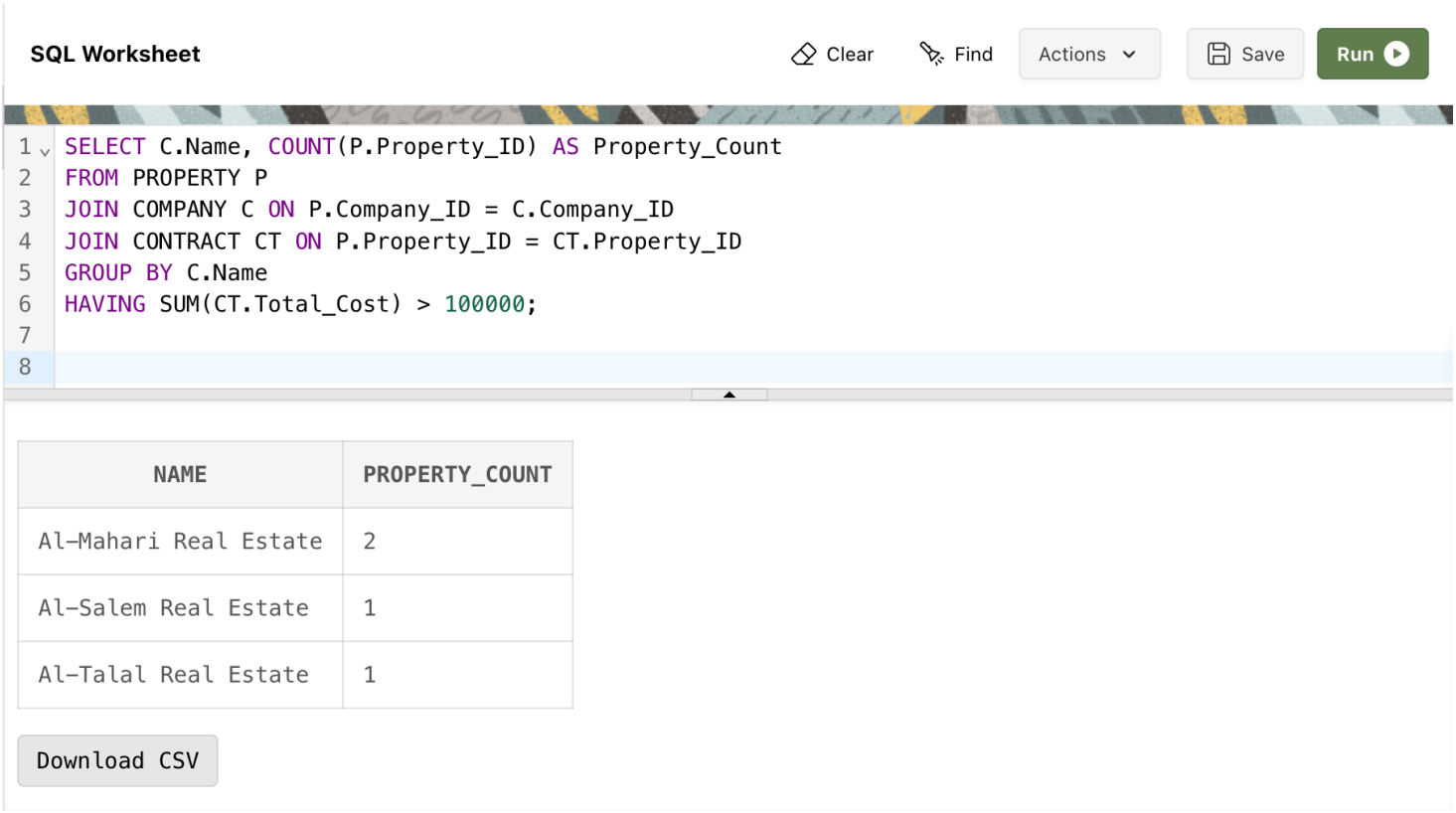
2 rows selected.

SQL

```
SELECT *
FROM CLIENT
WHERE Client_ID IN (
   SELECT DISTINCT V.Client_ID
   FROM VIEWS_PROPERTY V
   JOIN PROPERTY P ON V.Property_ID = P.Property_ID
   WHERE P.Area > (SELECT AVG(Area) FROM PROPERTY)
);
```

6. Retrieving records from two different relations based on specific conditions. (Use join and aggregate functions)

Condition: **Retrieve the count of properties managed by each company where the total cost of contracts for those properties is greater than $100,000**



NAME	PROPERTY_COUNT
Al-Mahari Real Estate	2
Al-Salem Real Estate	1
Al-Talal Real Estate	1

Download CSV

SQL

```
SELECT C.Name, COUNT(P.Property_ID) AS Property_Count
FROM PROPERTY P
JOIN COMPANY C ON P.Company_ID = C.Company_ID
JOIN CONTRACT CT ON P.Property_ID = CT.Property_ID
GROUP BY C.Name
HAVING SUM(CT.Total_Cost) > 100000;
```