INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REAL STATE MANAGEMENT SYSTEM

Prepared for Tata Realty and Infrastructure Ltd.

PROJeCt RePORt

COURSE CODE : CSE-2424.

COURSE TITLE : Database Management System.

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REAL STATE MANAGEMENT SYSTEM

ASSUME COMPANY : TATA REALTY AND INSURANCE LTD.

ABSTRACT

This project is about "Real Estate Management", Assume a Real Estate company named "Tata Realty and Infrastructure Ltd".This company is our client.

This project is to designed for streamline and optimize the operations of real estate management companies. REMS offers a user-friendly interface and a wide range of features to facilitate efficient property management, enhance customer satisfaction, and drive business growth.

The REMS platform provides robust functionalities such as property listing management, agent and client management, contract management, and viewing scheduling. With its intuitive design, users can easily navigate through the system, ensuring a seamless experience in handling various aspects of real estate operations.

INTRODUCTION

Boost your speed-to-market with automation solutions designed for specialty Real Estate.It's a complete solution for Optimize property listings, agent-client interactions, contracts, and viewing schedules. Boost operational efficiency, enhance customer satisfaction, and drive business growth. Gain valuable insights through reporting and analytics. Existing manual system of real estate management system takes long time to manage client-agents records.

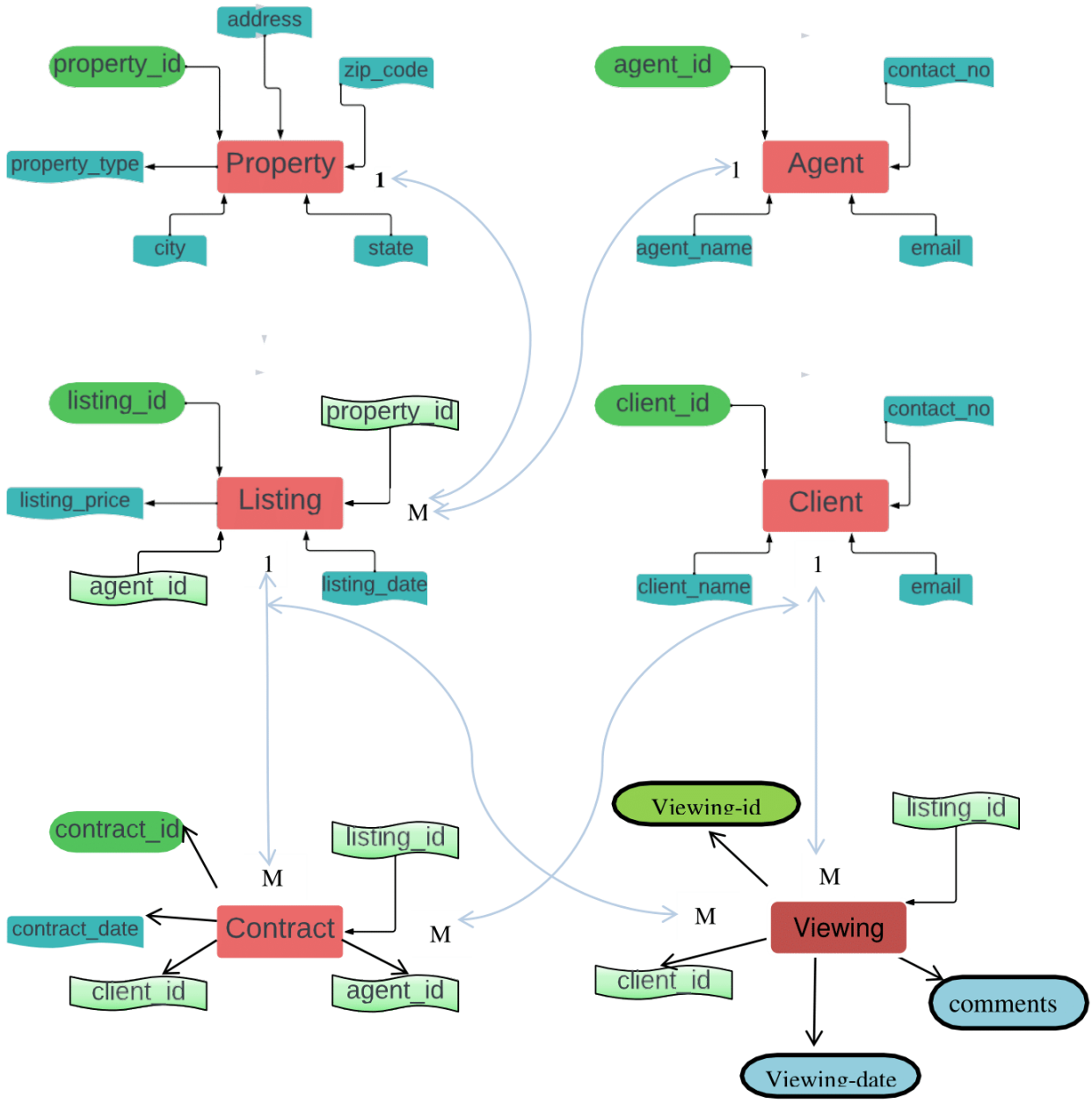
E R D I A G R A M

Real State Management System

20-06-23

Diagram Key:

- Property
- Agent
- Listing
- Client
- Viewing
- Contract



Arefin Hossain

SCEMA

1. Property - (Property_Id, Property_Type, Address, City, State, Zip, , No_of_bedrooms, No_of_bathrooms)
2. Agent - (Agent_Id, Agent_Name, Contact_Number, Email)
3. Client - (Client_Id, Client_Name, Contact_Number, Email)
4. Listing - (Listing_Id, Property_Id, Agent_Id, Listing_Price, Listing_Date)
5. Viewing - (Viewing_Id, Listing_Id, Client_Id, Viewing_Date, Comments)
6. Constract - (Constract_Id, Listing_Id, Client_Id, Agent_Id, Constract_Date, Constract_Terms)

DDL STATEMENTS & TABLES WITH DATA

PROPERTY SQL

```
create table Property (
      property_id number primary key,
      property_type varchar2(30) not null,
      address varchar2(25) not null,
     city varchar2(20),
      state varchar2(12),
      zip number(6) not null,
      price number(21) not null,
      no_of_bedrooms number(10),
      no_of_bathrooms number(10)
 );
```

PROPERTY TABLE

EDIT	PROPERTY_ID	PROPERTY_TYPE	ADDRESS	CITY	ZIP	PRICE	NO_OF_BEDROOMS	NO_OF_BATHROOMS
	1	House	123 Main St	New York	10001	50000	3	2
	2	Apartment	456 Elm St	Los Angeles	90001	1200000	2	2
	3	Condo	789 Oak St	Miami	33101	800000	1	1
	4	House	321 Pine St	Chicago	60601	700000	4	3
	5	Townhouse	987 Maple St	San Francisco	94101	900000	3	2
	11	House	246 Park Ave	Philadelphia	19101	850000	4	3
	12	Apartment	753 Sunset Blvd	Atlanta	30301	700000	2	2
	13	Condo	951 Lakeview Dr	Houston	77001	950000	3	2
	14	House	654 Oakridge Rd	Seattle	98101	1600000	5	4
	15	Townhouse	852 Pineview Ave	Miami	33101	1100000	3	3

row(s) 1 - 10 of 10

AGENT SQL

```
create table Agent(
        agent_id number primary key,
        agent_name varchar2(30) not null,
        contact_no number(38) not null,
        email varchar2(35) not null
);
```

AGENT TABLE

EDIT	AGENT_ID	AGENT_NAME	CONTACT_NO	EMAIL
	3	Michael Brown	5559876	michael.brown@example.com
	1	John Smith	5551234	john.smith@example.com
	2	Sarah Johnson	5555678	sarah.johnson@example.com
	4	Emily Davis	5554321	emily.davis@example.com
	5	David Wilson	5558765	david.wilson@example.com
	11	Ryan Miller	5552222	ryan.miller@example.com
	12	Ashley Wilson	5553333	ashley.wilson@example.com
	13	Christopher Taylor	5554444	christopher.taylor@example.com
	14	Olivia Davis	5555555	olivia.davis@example.com
	15	Daniel Thompson	5556666	daniel.thompson@example.com

row(s) 1 - 10 of 10

CLIENT SQL

```
create table Client(
        client_id number primary key,
        client_name varchar2(30) not null,
        contact_no number(38) not null,
        email varchar2(35) not null
);
```

CLIENT TABLE

EDIT	CLIENT_ID	CLIENT_NAME	CONTACT_NO	EMAIL
	1	Jane Anderson	5551111	jane.anderson@example.com
	2	Mark Johnson	5552222	mark.johnson@example.com
	3	Lisa Miller	5553333	lisa.miller@example.com
	4	Robert Thompson	5554444	robert.thompson@example.com
	5	Emma Davis	5555555	emma.davis@example.com
	11	Benjamin Martinez	5557777	benjamin.martinez@example.com
	12	Victoria Adams	5558888	victoria.adams@example.com
	13	Samuel Turner	5559999	samuel.turner@example.com
	14	Lily Harris	5550000	lily.harris@example.com
	15	Matthew Clark	5551111	matthew.clark@example.com
				row(s) 1 - 10 of 10

LISTING SQL

```
create table Listing(
        listing_id number primary key, property_id, agent_id,
        foreign key (property_id) references property(property_id),
        foreign key (agent_id) references agent(agent_id),
        listing_price number(38) not null,
        listing_date date
);
```

LISTING TABLE

EDIT	LISTING_ID	PROPERTY_ID	AGENT_ID	LISTING_PRICE	LISTING_DATE
	1	1	1	550000	01-JUN-23
	2	2	2	1300000	02-JUN-23
	3	3	3	1300000	03-JUN-23
	4	4	1	720000	04-JUN-23
	5	5	1	950000	05-JUN-23
	11	11	11	1500000	20-JUN-23
	12	12	12	1850000	21-JUN-23
	13	13	13	1900000	17-JUN-23
	14	14	14	1300000	18-JUN-23
	15	15	15	2700000	19-JUN-23

row(s) 1 - 10 of 10

VIEWING SQL

```
create table Viewing(
        viewing_id number primary key, listing_id, client_id,
```

```
        foreign key (listing_id) references listing(listing_id),
        foreign key (client_id) references client(client_id),
        viewing_date date not null,
        comments varchar2(38)
);
```

VIEWING TABLE

EDIT	VIEWING_ID	LISTING_ID	CLIENT_ID	VIEWING_DATE	COMMENTS
	1	1	1	06-JUN-23	Interested in the backyard space
	2	2	2	07-JUN-23	Loved the ocean view
	3	3	3	08-JUN-23	Looking for a larger kitchen
	4	1	4	09-JUN-23	Spacious living room
	5	5	5	10-JUN-23	Need extra parking space
	11	11	11	20-JUN-23	Interested in the backyard pool
	12	12	12	21-JUN-23	Looking for a pet-friendly building
	13	13	13	22-JUN-23	Need a spacious home office
	14	14	14	23-JUN-23	Impressed with the modern kitchen
	15	15	15	24-JUN-23	Seeking a waterfront property

row(s) 1 - 10 of 10

CONTRACT SQL

```
Create table Contract(
        Contract_id number primary key, listing_id, client_id, agent_id,
        foreign key (listing_id) references listing(listing_id),
        foreign key (client_id) references client(client_id),
        foreign key (agent_id) references agent(agent_id),
        contract_date date not null,
        contract_terms varchar2(38)
);
```

CONTRACT TABLE

EDIT	CONTRACT_ID	LISTING_ID	CLIENT_ID	AGENT_ID	CONTRACT_DATE	CONTRACT_TERMS
	1	1	1	1	11-JUN-23	30-day closing
	2	2	2	2	12-JUN-23	60-day closing
	3	3	3	3	13-JUN-23	Cash offer
	4	4	4	1	14-JUN-23	Seller concessions requested
	5	5	5	4	15-JUN-23	Home inspection contingency
	6	11	11	11	25-JUN-23	Financing contingency
	7	12	12	12	26-JUN-23	45-day closing
	8	13	13	13	27-JUN-23	Home warranty included
	9	14	14	14	28-JUN-23	Seller to pay closing costs
	10	15	15	15	29-JUN-23	Contingent upon sale of current home

row(s) 1 - 10 of 10

A) SEARCHING DATA IN POSSIBLE WAYS (AT LEAST 13 WAYS) TABLE

Question 01 : Calculate the average listing price:

Answer:

```
SELECT AVG(listing_price) AS average_price
FROM Listing;
```

AVERAGE_PRICE
1407000

1 rows returned in 0.00 seconds

Question 02 : Retrieve the number of properties in each city:

Answer:

```
SELECT city, COUNT(*)AS property_count
FROM Property GROUP BY city;
```

CITY	PROPERTY_COUNT
San Francisco	1
Atlanta	1
Seattle	1
New York	1
Philadelphia	1
Los Angeles	1
Chicago	1
Miami	2
Houston	1

9 rows returned in 0.00 seconds

Question 03 : Retrieve all properties in the city of New York:

Answer:

```
SELECT * FROM Property
WHERE city = 'New York';
```

PROPERTY_ID	PROPERTY_TYPE	ADDRESS	CITY	ZIP	PRICE	NO_OF_BEDROOMS	NO_OF_BATHROOMS
1	House	123 Main St	New York	10001	50000	3	2

1 rows returned in 0.00 seconds CSV Export

Question 04 : Retrieve all agents:

Answer:

```
SELECT * FROM Agent;
```

AGENT_ID	AGENT_NAME	CONTACT_NO	EMAIL
3	Michael Brown	5559876	michael.brown@example.com
1	John Smith	5551234	john.smith@example.com
2	Sarah Johnson	5555678	sarah.johnson@example.com
4	Emily Davis	5554321	emily.davis@example.com
5	David Wilson	5558765	david.wilson@example.com
11	Ryan Miller	5552222	ryan.miller@example.com
12	Ashley Wilson	5553333	ashley.wilson@example.com
13	Christopher Taylor	5554444	christopher.taylor@example.com
14	Olivia Davis	5555555	olivia.davis@example.com
15	Daniel Thompson	5556666	daniel.thompson@example.com

10 rows returned in 0.00 seconds CSV Export

Question 05 : Retrieve all listings:

Answer:

```
SELECT * FROM Listing;
```

LISTING_ID	PROPERTY_ID	AGENT_ID	LISTING_PRICE	LISTING_DATE
1	1	1	550000	01-JUN-23
2	2	2	1300000	02-JUN-23
3	3	3	1300000	03-JUN-23
4	4	1	720000	04-JUN-23
5	5	1	950000	05-JUN-23
11	11	11	1500000	20-JUN-23
12	12	12	1850000	21-JUN-23
13	13	13	1900000	17-JUN-23
14	14	14	1300000	18-JUN-23
15	15	15	2700000	19-JUN-23

10 rows returned in 0.00 seconds CSV Export

Question 06 : Retrieve the listings with listing_price less than $600,000:

Answer:

```
SELECT * FROM
Listing WHERE listing_price < 600000;
```

LISTING_ID	PROPERTY_ID	AGENT_ID	LISTING_PRICE	LISTING_DATE
1	1	1	550000	01-JUN-23

1 rows returned in 0.02 seconds CSV Export

Question 07 : Retrieve the client with client_id = 1:

Answer:

```
SELECT * FROM Client
WHERE client_id = 1;
```

CLIENT_ID	CLIENT_NAME	CONTACT_NO	EMAIL
1	Jane Anderson	5551111	updated@example.com

1 rows returned in 0.00 seconds CSV Export

Question 08 : Calculate the sum of listing prices:

Answer:

```
SELECT SUM(listing_price) AS total_price FROM
Listing;
```

TOTAL_PRICE
14070000

1 rows returned in 0.00 seconds

Question 09 : Retrieve the number of properties in each city:

```
Answer:
SELECT city, COUNT(*)
AS property_count FROM Property
GROUP BY city;
```

CITY	PROPERTY_COUNT
San Francisco	1
Atlanta	1
Seattle	1
New York	1
Philadelphia	1
Los Angeles	1
Chicago	1
Miami	2
Houston	1

9 rows returned in 0.00 seconds

Question 10 : Calculate the average listing price for each

Answer:

```
SELECT property_type, AVG(listing_price) AS FROM Listing
JOIN Property ON Listing.property_id = Property.property_id
GROUP BY property_type;
```

PROPERTY_TYPE	AVERAGE_PRICE
Townhouse	1825000
Condo	1600000
House	1017500
Apartment	1575000

4 rows returned in 0.00 seconds CSV

Question 11 : Sorting Client Data:

Answer:

```
SELECT * FROM Client ORDER BY
client_id asc, client_name desc;
```

CLIENT_ID	CLIENT_NAME	CONTACT_NO	EMAIL
1	Jane Anderson	5551111	updated@example.com
2	Mark Johnson	5552222	mark.johnson@example.com
3	Lisa Miller	5553333	lisa.miller@example.com
4	Robert Thompson	5554444	robert.thompson@example.com
5	Emma Davis	5555555	emma.davis@example.com
11	Benjamin Martinez	5557777	benjamin.martinez@example.com
12	Victoria Adams	5558888	victoria.adams@example.com
13	Samuel Turner	5559999	samuel.turner@example.com
14	Lily Harris	5550000	lily.harris@example.com
15	Matthew Clark	5551111	matthew.clark@example.com

10 rows returned in 0.00 seconds CSV Export

Question 12 : Like Operator used into filtering:

Answer:

```
SELECT * FROM viewing
where comments like'%f%'
```

VIEWING_ID	LISTING_ID	CLIENT_ID	VIEWING_DATE	COMMENTS
3	3	3	08-JUN-23	Looking for a larger kitchen
12	12	12	21-JUN-23	Looking for a pet-friendly building
13	13	13	22-JUN-23	Need a spacious home office
15	15	15	24-JUN-23	Seeking a waterfront property

4 rows returned in 0.00 seconds CSV Export

Question 13 : Retrive a seller who sold not property:

Answer:

```
SELECT * FROM Agent
WHERE agent_id NOT IN (SELECT DISTINCT agent_id FROM
Listing);
```

AGENT_ID	AGENT_NAME	CONTACT_NO	EMAIL
4	Emily Davis	5554321	emily.davis@example.com
5	David Wilson	5558765	david.wilson@example.com

2 rows returned in 0.05 seconds CSV Export

B) ALL TYPES OF SUB-QUERIES

Question 01 : Find the clients who have made contracts for properties listed by the top 5 agents with the highest number of list:

Answer:

```
SELECT client_id, client_name
FROM Client
WHERE client_id IN (
    SELECT client_id
    FROM Contract
    WHERE listing_id IN (
        SELECT listing_id
        FROM Listing
        WHERE agent_id IN (
            SELECT agent_id
            FROM (
                SELECT agent_id
                FROM Agent
                ORDER BY (SELECT COUNT(*) FROM Listing WHERE
          Agent.agent_id = Listing.agent_id) DESC
            )
            WHERE ROWNUM <= 5
        )
    )
);
```

CLIENT_ID	CLIENT_NAME
1	Jane Anderson
11	Benjamin Martinez
2	Mark Johnson
5	Emma Davis
4	Robert Thompson
3	Lisa Miller
12	Victoria Adams

7 rows returned in 0.02 seconds

Question 02 : Find the agents who have listed properties with a listing price higher than the average listing price:

Answer:

```
SELECT agent_id, agent_name FROM Agent WHERE agent_id IN
 (SELECT agent_id
 FROM Listing
 WHERE listing_price > (
     SELECT AVG(listing_price) FROM Listing
 )
);
```

AGENT_ID	AGENT_NAME
11	Ryan Miller
13	Christopher Taylor
12	Ashley Wilson
15	Daniel Thompson

4 rows returned in 0.00 seconds

Question 03 : Retrieve the clients who have made contracts for properties with a listing price higher than the average listing price average listing price

Answer:

```
SELECT client_id, client_name
FROM Client
WHERE client_id IN (
   SELECT client_id
   FROM Contract
   WHERE listing_id IN (
       SELECT listing_id
       FROM Listing
       WHERE listing_price > (
           SELECT AVG(listing_price)
           FROM Listing
       )
   )
```

CLIENT_ID	CLIENT_NAME
11	Benjamin Martinez
13	Samuel Turner
12	Victoria Adams
15	Matthew Clark

4 rows returned in 0.00 seconds

PL/SQL

Question 01 : Retrieve client information along with agent details:

Answer:

```
DECLARE
     client_id   Client.client_id%TYPE;
     client_name Client.client_name%TYPE;
     agent_id    Agent.agent_id%TYPE;
     agent_name  Agent.agent_name%TYPE;
BEGIN
-- Cursor to fetch client information
FOR client_rec IN (SELECT c.client_id, c.client_name, a.agent_id,
                                                       a.agent_name

                   FROM Client c
                   JOIN Contract con ON con.client_id = c.client_id
                   JOIN Listing l ON l.listing_id = con.listing_id
                   JOIN Agent a ON a.agent_id = l.agent_id)

LOOP
     client_id := client_rec.client_id;
     client_name := client_rec.client_name;
     agent_id := client_rec.agent_id;
     agent_name := client_rec.agent_name;

 -- Display the result
 DBMS_OUTPUT.PUT_LINE('Client ID: ' || client_id || ', Client Name: ' ||
                                                      client_name);

 DBMS_OUTPUT.PUT_LINE('Agent ID: ' || agent_id || ', Agent Name: ' ||
                                                    agent_name);

 DBMS_OUTPUT.PUT_LINE('-----------------------------------------------
');
END LOOP;
END;
/
```

```
Client ID: 1, Client Name: Jane Anderson
Agent ID: 1, Agent Name: John Smith
--------------------------------------------------
Client ID: 2, Client Name: Mark Johnson
Agent ID: 2, Agent Name: Sarah Johnson
--------------------------------------------------
Client ID: 3, Client Name: Lisa Miller
Agent ID: 3, Agent Name: Michael Brown
--------------------------------------------------
Client ID: 4, Client Name: Robert Thompson
Agent ID: 1, Agent Name: John Smith
--------------------------------------------------
Client ID: 5, Client Name: Emma Davis
Agent ID: 1, Agent Name: John Smith
--------------------------------------------------
Client ID: 11, Client Name: Benjamin Martinez
Agent ID: 11, Agent Name: Ryan Miller
--------------------------------------------------
Client ID: 12, Client Name: Victoria Adams
Agent ID: 12, Agent Name: Ashley Wilson
--------------------------------------------------
Client ID: 13, Client Name: Samuel Turner
Agent ID: 13, Agent Name: Christopher Taylor
--------------------------------------------------
Client ID: 14, Client Name: Lily Harris
Agent ID: 14, Agent Name: Olivia Davis
--------------------------------------------------
Client ID: 15, Client Name: Matthew Clark
Agent ID: 15, Agent Name: Daniel Thompson
--------------------------------------------------

Statement processed.
```

THE END

Thank you!!

|^|ASSALAMUALAIKUM|^|