**Part 1**

*(B) Based on the database design and the information available in the scenario, produce an SQL script that creates appropriate tables:*

DROP DATABASE IF EXISTS myhomes;

CREATE DATABASE IF NOT EXISTS myhomes;

USE myhomes;

SELECT 'CREATING DATABASE STRUCTURE' as 'INFO';

DROP TABLE IF EXISTS representatives,

supervisors,

area\_rep,

sales\_area,

chief\_sales,

sales\_performance,

transactions,

customers,

properties,

regulations;

CREATE TABLE supervisors (

supervisor\_id INT NOT NULL,

first\_name VARCHAR(15) NOT NULL,

last\_name VARCHAR(15) NOT NULL,

PRIMARY KEY(supervisor\_id)

);

CREATE TABLE representatives (

emp\_id INT NOT NULL,

first\_name VARCHAR(15) NOT NULL,

last\_name VARCHAR(15) NOT NULL,

gender ENUM ('M', 'F') NOT NULL,

hire\_date DATE NOT NULL,

supervisor\_id INT,

PRIMARY KEY(emp\_id),

FOREIGN KEY(supervisor\_id) REFERENCES supervisors(supervisor\_id) ON DELETE CASCADE

);

CREATE TABLE sales\_area (

area\_code CHAR(5) NOT NULL,

area\_name VARCHAR(30) NOT NULL,

PRIMARY KEY(area\_code)

);

CREATE TABLE area\_rep (

emp\_id INT NOT NULL,

area\_code CHAR(5) NOT NULL,

customer\_id INT NOT NULL,

UNIQUE(customer\_id),

FOREIGN KEY (emp\_id) REFERENCES representatives (emp\_id) ON DELETE CASCADE,

FOREIGN KEY (area\_code) REFERENCES sales\_area (area\_code) ON DELETE CASCADE

);

CREATE TABLE chief\_sales (

manager\_id CHAR(5) NOT NULL,

first\_name VARCHAR(15) NOT NULL,

last\_name VARCHAR(15) NOT NULL,

area\_code CHAR(5) NOT NULL,

PRIMARY KEY(manager\_id),

FOREIGN KEY(area\_code) REFERENCES sales\_area(area\_code) ON DELETE CASCADE,

UNIQUE KEY(area\_code)

);

CREATE TABLE sales\_performance (

manager\_id CHAR(5) NOT NULL,

sales\_target INT NOT NULL,

sales\_performance CHAR(10) NOT NULL,

review\_date DATE NOT NULL,

FOREIGN KEY(manager\_id) REFERENCES chief\_sales(manager\_id) ON DELETE CASCADE

);

CREATE TABLE customers (

customer\_id INT NOT NULL,

first\_name VARCHAR(15) NOT NULL,

last\_name VARCHAR(15) NOT NULL,

emp\_id INT NOT NULL,

PRIMARY KEY(customer\_id),

FOREIGN KEY(emp\_id) REFERENCES representatives(emp\_id) ON DELETE CASCADE

);

CREATE TABLE properties (

property\_id CHAR(5) NOT NULL,

property\_type VARCHAR(15) NOT NULL,

address VARCHAR(50) NOT NULL,

PRIMARY KEY(property\_id)

);

CREATE TABLE transactions (

amount INT NOT NULL,

trans\_date DATE NOT NULL,

property\_id CHAR(5) NOT NULL,

emp\_id INT NOT NULL,

FOREIGN KEY(property\_id) REFERENCES properties(property\_id) ON DELETE CASCADE,

FOREIGN KEY(emp\_id) REFERENCES representatives(emp\_id) ON DELETE CASCADE

);

CREATE TABLE regulations (

regulation\_id CHAR(5) NOT NULL,

regulation\_type VARCHAR(25) NOT NULL,

description VARCHAR(50) NOT NULL,

property\_id CHAR(5),

FOREIGN KEY(property\_id) REFERENCES properties(property\_id) ON DELETE CASCADE

);

**Part 2**

This part is based on the database, design and implementation of the database for the ‘MyHomes’ scenario. *(A) Populate the database tables with some sample data :*

INSERT INTO supervisors VALUES(80001, ‘John’, 'Simmel'),

(80002, 'Kate', 'Sluis'),

(80003, 'Michael', 'Smith');

INSERT INTO representatives VALUES(10001, ‘John’, ‘Simmel’, ‘M', '2017-01-20’, 80001),

(10002, ‘Mary’, ‘Koblick’, 'F', '2018-09-01’, 80001),

(10003, ‘Michael’, ‘Jordon’, ‘M', '2018-05-23’, 80001),

(10004, ‘Jack’, ‘Lee’, ‘M', '2017-10-05’, 80001),

(10005, ‘Peac’, ‘Susan’, ‘F', '2015-03-15’, 80002),

(10006, 'Kate', 'Sluis', 'F', '2018-06-03', 80002),

(10007, 'Tom', 'Clifton', 'M', '2020-05-08', 80002),

(10008, 'Grace', 'Bamford', 'F', '2015-12-02', 80002),

(10009, 'William', 'David', 'M', '2019-04-08', 80003),

(10010, 'Michael', 'Smith', 'M', '2016-09-16', 80003),

(10011, 'Francis', 'Genin', 'M', '2017-01-15', 80003),

(10012, 'Cherry', 'Terkki', 'F', '2021-08-20', 80003);

INSERT INTO sales\_area VALUES('D001', 'Mill Hill'),

('D002', 'Kingston'),

('D003', 'Kensington'),

('D004', 'Sutton'),

('D005', 'Camden');

INSERT INTO area\_rep VALUES(10001, 'D002', 90009),

(10002, 'D005', 90006),

(10003, 'D001', 90002),

(10004, 'D004', 90003),

(10005, 'D002', 90005),

(10006, 'D002', 90013),

(10007, 'D001', 90007),

(10008, 'D004', 90012),

(10009, 'D003', 90010),

(10010, 'D005', 90011),

(10011, 'D003', 90004),

(10012, 'D004', 90014),

(10006, 'D003', 90008),

(10008, 'D005', 90001);

INSERT INTO chief\_sales VALUES('M001', ‘Mary’, ‘Koblick’, 'D001'),

('M002', ‘Jack’, 'Lee’, 'D002'),

('M003', 'Michael', 'Smith', 'D003'),

('M004', 'Kate', 'Sluis', 'D004'),

('M005', 'William', 'David', 'D005');

INSERT INTO sales\_performance VALUES('M001', 2000000, '70%', '2020-09-01'),

('M001', 2000000, '85%', '2020-11-21'),

('M002', 3000000, '66%', '2021-05-15'),

('M003', 3500000, '50%', '2021-03-09'),

('M003', 3500000, '70%', '2021-07-15'),

('M004', 2000000, '100%', '2022-03-20'),

('M005', 2500000, '45%', '2021-02-10'),

('M005', 2500000, '70%', '2021-08-10');

INSERT INTO customers VALUES(90001, 'Lisa', 'Johnson', 10008),

(90002, 'Michael', 'Davis', 10003),

(90003, 'Susan', 'Miller', 10004),

(90004, 'Robert', 'Garcia', 10011),

(90005, 'Linda', 'Martinez', 10005),

(90006, 'James', 'Anderson', 10002),

(90007, 'Patricia', 'Taylor', 10007),

(90008, 'William', 'Thomas', 10006),

(90009, 'Barbara', 'Jackson', 10001),

(90010, 'Karen', 'Martin', 10009),

(90011, 'Brian', 'Thompson', 10010),

(90012, 'Donna', 'Lewis', 10008),

(90013, 'Charles', 'Lee', 10006),

(90014, 'Jennifer', 'Walker', 10012);

INSERT INTO properties VALUES('P001', 'flat', '123 Maple Street, Springfield'),

('P002', 'flat', '456 Oak Lane, Greensboro'),

('P003', 'house', '789 Pine Avenue, Eugene'),

('P004', 'house', '1024 Birch Boulevard'),

('P005', 'flat', '1113 Elm Drive, Fargo'),

('P006', 'commercial', '1222 Cedar Court, Madison'),

('P007', 'commercial', '1341 Fir Terrace'),

('P008', 'flat', '1451 Sycamore Parkway'),

('P009', 'house', '1535 Hawthorn Place, Topeka'),

('P010', 'flat', '1630 Spruce Street, Augusta'),

('P011', 'bungalows', '1790 Aspen Drive, Dover'),

('P012', 'house', '2014 Redwood Crescent, Helena'),

('P013', 'flat', '2225 Willow Way, Santa Fe'),

('P014', 'commercial', '2390 Cherry Lane, Austin');

INSERT INTO transactions VALUES(150000, '2021-01-15', 'P001', 10012),

(200000, '2022-05-24', 'P002', 10011),

(180000, '2020-03-11', 'P003', 10010),

(135000, '2020-01-28', 'P004', 10008),

(220000, '2022-11-30', 'P005', 10008),

(210000, '2022-09-20', 'P006', 10007),

(205000, '2022-07-21', 'P007', 10005),

(250000, '2022-12-20', 'P008', 10006),

(170000, '2020-03-25', 'P009', 10004),

(175000, '2020-04-02', 'P010', 10003),

(220000, '2022-12-05', 'P011', 10002),

(230000, '2022-12-18', 'P012', 10009),

(185000, '2021-03-28', 'P013', 10001),

(195000, '2021-09-08', 'P014', 10003);

INSERT INTO regulations VALUES('R001', 'Health', 'Remove the damaged tree', 'P001'),

('R002', 'Safety', 'Need roft repair', 'P002'),

('R003', 'Fire', 'Smoke alarm install required', 'P003'),

('R001', 'Health', 'Remove the damaged tree', 'P004'),

('R002', 'Safety', 'Need roft repair', 'P005'),

('R003', 'Fire', 'Smoke alarm install required', 'P006'),

('R001', 'Health', 'Remove the damaged tree', 'P011'),

('R002', 'Safety', 'Need roft repair', 'P012'),

('R003', 'Fire', 'Smoke alarm install required', 'P013'),

('R001', 'Health', 'Remove the damaged tree', 'P013');

*(B) Answer the following queries (retrievals) using SQL*

*1) Display names of representatives, details of the properties they represent, and names of their supervisors.*

SELECT r.emp\_id, CONCAT(r.first\_name, ' ', r.last\_name) AS representative\_name, p.property\_id, p.property\_type, p.address, s.supervisor\_id, CONCAT(s.first\_name, ' ', s.last\_name) AS supervisor\_name

FROM representatives r

INNER JOIN supervisors s ON r.supervisor\_id = s.supervisor\_id

INNER JOIN transactions t ON t.emp\_id = r.emp\_id

INNER JOIN properties p ON t.property\_id = p.property\_id;

*2) Display details of customers together with details of their areas and names of the managers of their areas.*

SELECT c.customer\_id, CONCAT(c.first\_name, ' ', c.last\_name) AS customer\_name, sa.area\_code, sa.area\_name, cs.manager\_id, CONCAT(cs.first\_name, ' ', cs.last\_name) AS manager\_name

 FROM customers c

 INNER JOIN representatives r ON c.emp\_id = r.emp\_id

 INNER JOIN area\_rep ar ON ar.emp\_id = r.emp\_id

 INNER JOIN sales\_area sa ON ar.area\_code = sa.area\_code

 INNER JOIN chief\_sales cs ON cs.area\_code = sa.area\_code

WHERE c.customer\_id = ar.customer\_id

 ORDER BY c.customer\_id;