**Step 1: Insert Data into Buildings**

INSERT INTO Buildings (name, address, city, state, total\_units, year\_built, amenities)

VALUES

('Southwyck', ‘1 Carriage Drive', ‘Scotch Plains', 'NJ', 10, 1980, 'Pool, Clubhouse, Roadways, Bridge’),

('Maple Residences', '456 Maple Ave', 'San Francisco', 'CA', 15, 2010, 'Gym, Parking Garage'),

('Oak Apartments', '789 Oak St', 'Portland', 'OR', 8, 2000, 'Outdoor Patio');

**Step 2: Insert Data into Units**

Each unit entry references a building\_id from the Buildings table. Here, we’ll assume the building\_ids assigned by the database are as follows:

• Sunset Towers: building\_id = 1

• Maple Residences: building\_id = 2

• Oak Apartments: building\_id = 3

INSERT INTO Units (building\_id, unit\_number, floor, type, occupancy\_status, owner\_id, monthly\_rent)

VALUES

(1, '101', 1, '1-bedroom', 'occupied', 1, 1500.00),

(1, '102', 1, 'studio', 'vacant', NULL, 1200.00),

(1, '201', 2, '2-bedroom', 'occupied', 2, 1800.00),

(2, '101', 1, 'studio', 'occupied', 3, 1300.00),

(2, '102', 1, '1-bedroom', 'vacant', NULL, 1600.00),

(3, '201', 2, '1-bedroom', 'occupied', 4, 1400.00),

(3, '301', 3, '2-bedroom', 'occupied', 5, 2000.00);

**Step 3: Insert Data into Unit/Groups**

Each group is linked to a building\_id to specify which building the group belongs to. Here are some examples of groups, such as floor-based groups and section groups within buildings.

INSERT INTO UnitGroups (building\_id, group\_name, description)

VALUES

(1, 'First Floor', 'All units on the first floor of Sunset Towers'),

(1, 'Second Floor', 'All units on the second floor of Sunset Towers'),

(2, 'First Floor', 'All units on the first floor of Maple Residences'),

(3, 'Premium Units', 'Top floor units in Oak Apartments');

**Step 4: Insert Data into Unit/Group/Memberships**

This table links specific units to groups, which allows units to belong to multiple groups if needed.

INSERT INTO UnitGroupMemberships (unit\_id, group\_id)

VALUES

(1, 1), -- Unit 101 in Southwyck is in the "First Floor" group

(2, 1), -- Unit 102 in Southwyck is in the "First Floor" group

(3, 2), -- Unit 201 in Southwyck is in the "Second Floor" group

(4, 3), -- Unit 101 in Maple Residences is in the "First Floor" group

(6, 4), -- Unit 201 in Oak Apartments is in the "Premium Units" group

(7, 4); -- Unit 301 in Oak Apartments is in the "Premium Units" group

**Verifying Data Relationships**

To check the relationships and verify that everything is working as expected, utilize some SELECT queries. Examples:

**1. List all units in a specific building (e.g., “Southwyck”)**

SELECT u.unit\_number, u.type, u.occupancy\_status

FROM Units u

JOIN Buildings b ON u.building\_id = b.building\_id

WHERE b.name = 'Sunset Towers';

**2. List all units on the “First Floor” group in any building**

SELECT u.unit\_number, b.name AS building\_name

FROM Units u

JOIN UnitGroupMemberships ugm ON u.unit\_id = ugm.unit\_id

JOIN UnitGroups g ON ugm.group\_id = g.group\_id

JOIN Buildings b ON u.building\_id = b.building\_id

WHERE g.group\_name = 'First Floor';

**3. Find all units associated with a “Premium Units” group in “Oak Apartments”**

SELECT u.unit\_number, u.floor, u.monthly\_rent

FROM Units u

JOIN UnitGroupMemberships ugm ON u.unit\_id = ugm.unit\_id

JOIN UnitGroups g ON ugm.group\_id = g.group\_id

JOIN Buildings b ON u.building\_id = b.building\_id

WHERE b.name = 'Oak Apartments' AND g.group\_name = 'Premium Units';