```
-- === 1. Create Sequences for Surrogate Keys ===

-- Sequence for Time Dimension Table
CREATE SEQUENCE seq_time_id START WITH 1 INCREMENT BY 1;

-- Sequence for Hotel Dimension Table
CREATE SEQUENCE seq_hotel_id START WITH 1 INCREMENT BY 1;

-- Sequence for Room Dimension Table
CREATE SEQUENCE seq_room_id START WITH 1 INCREMENT BY 1;

-- Sequence for Customer Dimension Table
CREATE SEQUENCE seq_customer_id START WITH 1 INCREMENT BY 1;

-- Sequence for IPD Service Dimension Table
CREATE SEQUENCE seq_ipd_service_id START WITH 1 INCREMENT BY 1;

-- Sequence for Fact Table Booking ID
CREATE SEQUENCE seq_booking_id START WITH 1 INCREMENT BY 1;

-- === 2. Create Star Schema Tables (Dimensions) ===

-- Time Dimension Table with Surrogate Key
CREATE TABLE dim_time (
   time_id INT PRIMARY KEY,
   year INT,
   quarter INT,
   month INT,
   day INT
);

-- Hotel Dimension Table with Surrogate Key
CREATE TABLE dim_hotel (
   hotel_id INT PRIMARY KEY,
   hotel_name VARCHAR2(50),
   hotel_location VARCHAR2(50)
);

-- Room Dimension Table with Surrogate Key
CREATE TABLE dim_room (
    room_id INT PRIMARY KEY,
    room_type VARCHAR2(50),
    room_price DECIMAL(10, 2)
);

-- Customer Dimension Table with Surrogate Key
CREATE TABLE dim_customer (
    customer_id INT PRIMARY KEY,
    customer_name VARCHAR2(100),
    customer_type_name VARCHAR2(50)
);

-- IPD (In-Patient Department) Dimension Table with Surrogate Key
CREATE TABLE dim_ipd_service (
    ipd_service_id INT PRIMARY KEY,
    ipd_service_name VARCHAR2(50)
);

-- === 3. Create Fact Table ===
CREATE TABLE fact_occupancy (
    booking_id INT PRIMARY KEY,
    time_id INT,
    hotel_id INT,
    room_id INT,
    customer_id INT,
    ipd_service_id INT,
    total_charge DECIMAL(10, 2),
    FOREIGN KEY (time_id) REFERENCES dim_time(time_id),
    FOREIGN KEY (hotel_id) REFERENCES dim_hotel(hotel_id),
    FOREIGN KEY (room_id) REFERENCES dim_room(room_id),
    FOREIGN KEY (customer_id) REFERENCES dim_customer(customer_id),
    FOREIGN KEY (ipd_service_id) REFERENCES dim_ipd_service(ipd_service_id)
);

-- === 4. Insert Data into Star Schema ===

-- Insert into dim_time (Explicitly using sequence)
INSERT INTO dim_time (time_id, year, quarter, month, day) VALUES
(seq_time_id.NEXTVAL, 2025, 1, 1, 1);
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```
INSERT INTO dim_time (time_id, year, quarter, month, day) VALUES
(seq_time_id.NEXTVAL, 2025, 1, 2, 5);
INSERT INTO dim_time (time_id, year, quarter, month, day) VALUES
(seq_time_id.NEXTVAL, 2025, 2, 3, 10);
INSERT INTO dim_time (time_id, year, quarter, month, day) VALUES
(seq_time_id.NEXTVAL, 2025, 3, 4, 15);
INSERT INTO dim_time (time_id, year, quarter, month, day) VALUES
(seq_time_id.NEXTVAL, 2025, 4, 5, 20);

-- Insert into dim_hotel (Explicitly using sequence)
INSERT INTO dim_hotel (hotel_id, hotel_name, hotel_location) VALUES
(seq_hotel_id.NEXTVAL, 'Hotel A', 'City X');
INSERT INTO dim_hotel (hotel_id, hotel_name, hotel_location) VALUES
(seq_hotel_id.NEXTVAL, 'Hotel B', 'City Y');
INSERT INTO dim_hotel (hotel_id, hotel_name, hotel_location) VALUES
(seq_hotel_id.NEXTVAL, 'Hotel C', 'City Z');
INSERT INTO dim_hotel (hotel_id, hotel_name, hotel_location) VALUES
(seq_hotel_id.NEXTVAL, 'Hotel D', 'City X');
INSERT INTO dim_hotel (hotel_id, hotel_name, hotel_location) VALUES
(seq_hotel_id.NEXTVAL, 'Hotel E', 'City Y');

-- Insert into dim_room (Explicitly using sequence)
INSERT INTO dim_room (room_id, room_type, room_price) VALUES
(seq_room_id.NEXTVAL, 'Single', 100);
INSERT INTO dim_room (room_id, room_type, room_price) VALUES
(seq_room_id.NEXTVAL, 'Double', 150);
INSERT INTO dim_room (room_id, room_type, room_price) VALUES
(seq_room_id.NEXTVAL, 'Suite', 200);
INSERT INTO dim_room (room_id, room_type, room_price) VALUES
(seq_room_id.NEXTVAL, 'Single', 120);
INSERT INTO dim_room (room_id, room_type, room_price) VALUES
(seq_room_id.NEXTVAL, 'Double', 180);

-- Insert into dim_customer (Explicitly using sequence)
INSERT INTO dim_customer (customer_id, customer_name,
customer_type_name) VALUES (seq_customer_id.NEXTVAL, 'John Doe', 'VIP');
INSERT INTO dim_customer (customer_id, customer_name,
customer_type_name) VALUES (seq_customer_id.NEXTVAL, 'Jane Smith',
'Regular');
```

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INSERT INTO dim_customer (customer_id, customer_name,
customer_type_name) VALUES (seq_customer_id.NEXTVAL, 'Jim Brown', 'VIP');
INSERT INTO dim_customer (customer_id, customer_name,
customer_type_name) VALUES (seq_customer_id.NEXTVAL, 'Jake White',
'Regular');
INSERT INTO dim_customer (customer_id, customer_name,
customer_type_name) VALUES (seq_customer_id.NEXTVAL, 'Jill Black', 'VIP');

-- Insert into dim_ipd_service (Explicitly using sequence)
INSERT INTO dim_ipd_service (ipd_service_id, ipd_service_name) VALUES
(seq_ipd_service_id.NEXTVAL, 'Surgery');
INSERT INTO dim_ipd_service (ipd_service_id, ipd_service_name) VALUES
(seq_ipd_service_id.NEXTVAL, 'Emergency');
INSERT INTO dim_ipd_service (ipd_service_id, ipd_service_name) VALUES
(seq_ipd_service_id.NEXTVAL, 'Consultation');
INSERT INTO dim_ipd_service (ipd_service_id, ipd_service_name) VALUES
(seq_ipd_service_id.NEXTVAL, 'Check-up');
INSERT INTO dim_ipd_service (ipd_service_id, ipd_service_name) VALUES
(seq_ipd_service_id.NEXTVAL, 'Therapy');

-- Insert into fact_occupancy (Explicitly using sequence)
INSERT INTO fact_occupancy (booking_id, time_id, hotel_id, room_id,
customer_id, ipd_service_id, total_charge)
VALUES (seq_booking_id.NEXTVAL, 1, 1, 1, 1, 1, 200);
INSERT INTO fact_occupancy (booking_id, time_id, hotel_id, room_id,
customer_id, ipd_service_id, total_charge)
VALUES (seq_booking_id.NEXTVAL, 2, 2, 2, 2, 2, 300);
INSERT INTO fact_occupancy (booking_id, time_id, hotel_id, room_id,
customer_id, ipd_service_id, total_charge)
VALUES (seq_booking_id.NEXTVAL, 3, 3, 3, 3, 3, 250);
INSERT INTO fact_occupancy (booking_id, time_id, hotel_id, room_id,
customer_id, ipd_service_id, total_charge)
VALUES (seq_booking_id.NEXTVAL, 4, 4, 4, 4, 4, 350);
INSERT INTO fact_occupancy (booking_id, time_id, hotel_id, room_id,
customer_id, ipd_service_id, total_charge)
VALUES (seq_booking_id.NEXTVAL, 5, 5, 5, 5, 5, 400);

-- === 5. Create Snowflake Schema Tables (With _snowflake Suffix) ===

-- Snowflake Hotel Location Dimension Table
```

```
CREATE TABLE dim_hotel_location_snowflake (
   location_id INT PRIMARY KEY,
   location_name VARCHAR2(50)
);

-- Snowflake Room Type Dimension Table
CREATE TABLE dim_room_type_snowflake (
   room_type_id INT PRIMARY KEY,
   room_type_name VARCHAR2(50)
);

-- === 6. Alter Fact Table to Add References to Snowflake Schema ===
ALTER TABLE fact_occupancy ADD (location_id INT);
ALTER TABLE fact_occupancy ADD (room_type_id INT);

-- Add Foreign Keys to the Snowflake Dimensions
ALTER TABLE fact_occupancy ADD CONSTRAINT fk_location_id FOREIGN KEY
(location_id) REFERENCES dim_hotel_location_snowflake(location_id);
ALTER TABLE fact_occupancy ADD CONSTRAINT fk_room_type_id FOREIGN KEY
(room_type_id) REFERENCES dim_room_type_snowflake(room_type_id);

-- === 7. Insert Data into Snowflake Schema Tables ===

-- Insert into dim_hotel_location_snowflake
INSERT INTO dim_hotel_location_snowflake (location_id, location_name)
VALUES (seq_hotel_id.NEXTVAL, 'City X');
INSERT INTO dim_hotel_location_snowflake (location_id, location_name)
VALUES (seq_hotel_id.NEXTVAL, 'City Y');
INSERT INTO dim_hotel_location_snowflake (location_id, location_name)
VALUES (seq_hotel_id.NEXTVAL, 'City Z');
INSERT INTO dim_hotel_location_snowflake (location_id, location_name)
VALUES (seq_hotel_id.NEXTVAL, 'City X');
INSERT INTO dim_hotel_location_snowflake (location_id, location_name)
VALUES (seq_hotel_id.NEXTVAL, 'City Y');

-- Insert into dim_room_type_snowflake
INSERT INTO dim_room_type_snowflake (room_type_id, room_type_name)
VALUES (seq_room_id.NEXTVAL, 'Single');
INSERT INTO dim_room_type_snowflake (room_type_id, room_type_name)
VALUES (seq_room_id.NEXTVAL, 'Double');
```

```
INSERT INTO dim_room_type_snowflake (room_type_id, room_type_name)
VALUES (seq_room_id.NEXTVAL, 'Suite');
INSERT INTO dim_room_type_snowflake (room_type_id, room_type_name)
VALUES (seq_room_id.NEXTVAL, 'Single');
INSERT INTO dim_room_type_snowflake (room_type_id, room_type_name)
VALUES (seq_room_id.NEXTVAL, 'Double');

-- === 8. Perform OLAP Operations (SLICE, DICE, DRILL-DOWN, ROLL-UP, PIVOT)
===

-- === SLICE OPERATION ===
BEGIN
   DBMS_OUTPUT.PUT_LINE('SLICE OPERATION: Displaying bookings for Hotel
ID = 1');
END;
/
SELECT f.booking_id, h.hotel_name, r.room_type, c.customer_name,
i.ipd_service_name, f.total_charge
FROM fact_occupancy f
JOIN dim_hotel h ON f.hotel_id = h.hotel_id
JOIN dim_room r ON f.room_id = r.room_id
JOIN dim_customer c ON f.customer_id = c.customer_id
JOIN dim_ipd_service i ON f.ipd_service_id = i.ipd_service_id
WHERE f.hotel_id = 1;

-- === DICE OPERATION ===
BEGIN
   DBMS_OUTPUT.PUT_LINE('DICE OPERATION: Displaying bookings with VIP
customers and room price greater than 100');
END;
/
SELECT f.booking_id, h.hotel_name, r.room_type, c.customer_name,
f.total_charge
FROM fact_occupancy f
JOIN dim_hotel h ON f.hotel_id = h.hotel_id
JOIN dim_room r ON f.room_id = r.room_id
JOIN dim_customer c ON f.customer_id = c.customer_id
WHERE r.room_price > 100 AND c.customer_type_name = 'VIP';

-- === DRILL-DOWN OPERATION ===
BEGIN
   DBMS_OUTPUT.PUT_LINE('DRILL-DOWN OPERATION: Displaying total
revenue by year and month');
END;
/
SELECT t.year, t.month, SUM(f.total_charge) AS total_revenue
FROM fact_occupancy f
JOIN dim_time t ON f.time_id = t.time_id
GROUP BY t.year, t.month
ORDER BY t.year, t.month;

-- === ROLL-UP OPERATION ===
BEGIN
   DBMS_OUTPUT.PUT_LINE('ROLL-UP OPERATION: Displaying total revenue
aggregated by year and month');
END;
/
SELECT t.year, t.month, SUM(f.total_charge) AS total_revenue
FROM fact_occupancy f
JOIN dim_time t ON f.time_id = t.time_id
GROUP BY t.year, t.month
ORDER BY t.year, t.month;

-- === PIVOT OPERATION ===
BEGIN
   DBMS_OUTPUT.PUT_LINE('PIVOT OPERATION: Displaying total charge per
room type for each month');
END;
/
SELECT *
FROM (
   SELECT r.room_type, t.month, f.total_charge
   FROM fact_occupancy f
   JOIN dim_room r ON f.room_id = r.room_id
   JOIN dim_time t ON f.time_id = t.time_id
)
PIVOT (
   SUM(total_charge)
   FOR month IN (1 AS "January", 2 AS "February", 3 AS "March", 4 AS "April", 5
AS "May")
);
```