```
-- === 1. Create Star Schema Tables (Dimensions) ===

-- Create sequence for surrogate keys
CREATE SEQUENCE seq_dim_time START WITH 1 INCREMENT BY 1;
CREATE SEQUENCE seq_dim_customer START WITH 1 INCREMENT BY 1;
CREATE SEQUENCE seq_dim_loan START WITH 1 INCREMENT BY 1;
CREATE SEQUENCE seq_dim_region START WITH 1 INCREMENT BY 1;
CREATE SEQUENCE seq_dim_loan_status START WITH 1 INCREMENT BY 1;

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

-- Customer Dimension Table
CREATE TABLE dim_customer (
   customer_id INT PRIMARY KEY,
   customer_name VARCHAR2(100),
   customer_age INT,
   customer_gender VARCHAR2(10)
);

-- Loan Dimension Table
CREATE TABLE dim_loan (
   loan_id INT PRIMARY KEY,
   loan_type VARCHAR2(50),
   loan_amount DECIMAL(10, 2),
   interest_rate DECIMAL(5, 2),
   loan_status VARCHAR2(20)
);

-- Region Dimension Table
CREATE TABLE dim_region (
   region_id INT PRIMARY KEY,
   region_name VARCHAR2(50)
);
```

```
-- Loan Status Dimension Table
CREATE TABLE dim_loan_status (
   loan_status_id INT PRIMARY KEY,
   status_name VARCHAR2(50)
);

-- === 2. Create Fact Table ===
CREATE TABLE fact_loan_disbursement (
   disbursement_id INT PRIMARY KEY,
   time_id INT,
   customer_id INT,
   loan_id INT,
   region_id INT,
   loan_status_id INT,
   disbursement_amount DECIMAL(10, 2),
   FOREIGN KEY (time_id) REFERENCES dim_time(time_id),
   FOREIGN KEY (customer_id) REFERENCES dim_customer(customer_id),
   FOREIGN KEY (loan_id) REFERENCES dim_loan(loan_id),
   FOREIGN KEY (region_id) REFERENCES dim_region(region_id),
   FOREIGN KEY (loan_status_id) REFERENCES dim_loan_status(loan_status_id)
);

-- === 3. Insert Data into Star Schema (Using Sequences for Surrogate Keys) ===

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

-- Insert into dim_customer
INSERT INTO dim_customer (customer_id, customer_name, customer_age,
customer_gender)
```

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VALUES (seq_dim_customer.NEXTVAL, 'John Doe', 30, 'Male');
INSERT INTO dim_customer (customer_id, customer_name, customer_age,
customer_gender)
VALUES (seq_dim_customer.NEXTVAL, 'Jane Smith', 28, 'Female');
INSERT INTO dim_customer (customer_id, customer_name, customer_age,
customer_gender)
VALUES (seq_dim_customer.NEXTVAL, 'Jim Brown', 45, 'Male');
INSERT INTO dim_customer (customer_id, customer_name, customer_age,
customer_gender)
VALUES (seq_dim_customer.NEXTVAL, 'Jake White', 33, 'Male');
INSERT INTO dim_customer (customer_id, customer_name, customer_age,
customer_gender)
VALUES (seq_dim_customer.NEXTVAL, 'Jill Black', 38, 'Female');

-- Insert into dim_loan
INSERT INTO dim_loan (loan_id, loan_type, loan_amount, interest_rate,
loan_status)
VALUES (seq_dim_loan.NEXTVAL, 'Home Loan', 250000, 5.5, 'Approved');
INSERT INTO dim_loan (loan_id, loan_type, loan_amount, interest_rate,
loan_status)
VALUES (seq_dim_loan.NEXTVAL, 'Car Loan', 20000, 7.0, 'Pending');
INSERT INTO dim_loan (loan_id, loan_type, loan_amount, interest_rate,
loan_status)
VALUES (seq_dim_loan.NEXTVAL, 'Education Loan', 50000, 6.0, 'Approved');
INSERT INTO dim_loan (loan_id, loan_type, loan_amount, interest_rate,
loan_status)
VALUES (seq_dim_loan.NEXTVAL, 'Personal Loan', 10000, 8.0, 'Denied');
INSERT INTO dim_loan (loan_id, loan_type, loan_amount, interest_rate,
loan_status)
VALUES (seq_dim_loan.NEXTVAL, 'Home Loan', 300000, 5.2, 'Approved');

-- Insert into dim_region
INSERT INTO dim_region (region_id, region_name)
VALUES (seq_dim_region.NEXTVAL, 'North');
INSERT INTO dim_region (region_id, region_name)
VALUES (seq_dim_region.NEXTVAL, 'South');
INSERT INTO dim_region (region_id, region_name)
VALUES (seq_dim_region.NEXTVAL, 'East');
INSERT INTO dim_region (region_id, region_name)
VALUES (seq_dim_region.NEXTVAL, 'West');
```

```
-- Insert into dim_loan_status
INSERT INTO dim_loan_status (loan_status_id, status_name)
VALUES (seq_dim_loan_status.NEXTVAL, 'Approved');
INSERT INTO dim_loan_status (loan_status_id, status_name)
VALUES (seq_dim_loan_status.NEXTVAL, 'Pending');
INSERT INTO dim_loan_status (loan_status_id, status_name)
VALUES (seq_dim_loan_status.NEXTVAL, 'Denied');

-- Insert into fact_loan_disbursement
INSERT INTO fact_loan_disbursement (disbursement_id, time_id, customer_id,
loan_id, region_id, loan_status_id, disbursement_amount)
VALUES (seq_dim_time.NEXTVAL, 1, 1, 1, 1, 1, 250000);
INSERT INTO fact_loan_disbursement (disbursement_id, time_id, customer_id,
loan_id, region_id, loan_status_id, disbursement_amount)
VALUES (seq_dim_time.NEXTVAL, 2, 2, 2, 2, 2, 20000);
INSERT INTO fact_loan_disbursement (disbursement_id, time_id, customer_id,
loan_id, region_id, loan_status_id, disbursement_amount)
VALUES (seq_dim_time.NEXTVAL, 3, 3, 3, 3, 1, 50000);
INSERT INTO fact_loan_disbursement (disbursement_id, time_id, customer_id,
loan_id, region_id, loan_status_id, disbursement_amount)
VALUES (seq_dim_time.NEXTVAL, 4, 4, 4, 4, 3, 10000);
INSERT INTO fact_loan_disbursement (disbursement_id, time_id, customer_id,
loan_id, region_id, loan_status_id, disbursement_amount)
VALUES (seq_dim_time.NEXTVAL, 5, 5, 5, 1, 1, 300000);

-- === 4. Create Snowflake Schema Tables (With _snowflake Suffix) ===

-- Snowflake Region Table (Details about Region)
CREATE TABLE dim_region_snowflake (
    region_detail_id INT PRIMARY KEY,
    region_name VARCHAR2(50),
    region_population INT
);

-- Snowflake Loan Status Table (Details about Loan Status)
CREATE TABLE dim_loan_status_snowflake (
    loan_status_detail_id INT PRIMARY KEY,
    status_name VARCHAR2(50),
    status_description VARCHAR2(100)
);

-- === 5. Alter Fact Table to Add References to Snowflake Schema ===
ALTER TABLE fact_loan_disbursement ADD (region_detail_id INT);
ALTER TABLE fact_loan_disbursement ADD (loan_status_detail_id INT);

-- Add Foreign Keys to the Snowflake Dimensions
ALTER TABLE fact_loan_disbursement ADD CONSTRAINT fk_region_detail_id
FOREIGN KEY (region_detail_id) REFERENCES
dim_region_snowflake(region_detail_id);

ALTER TABLE fact_loan_disbursement ADD CONSTRAINT
fk_loan_status_detail_id
FOREIGN KEY (loan_status_detail_id) REFERENCES
dim_loan_status_snowflake(loan_status_detail_id);

-- === 6. Insert Data into Snowflake Schema Tables ===
-- Insert into dim_region_snowflake
INSERT INTO dim_region_snowflake VALUES (seq_dim_region.NEXTVAL,
'North', 5000000);
INSERT INTO dim_region_snowflake VALUES (seq_dim_region.NEXTVAL,
'South', 6000000);
INSERT INTO dim_region_snowflake VALUES (seq_dim_region.NEXTVAL, 'East',
4000000);
INSERT INTO dim_region_snowflake VALUES (seq_dim_region.NEXTVAL, 'West',
4500000);

-- Insert into dim_loan_status_snowflake
INSERT INTO dim_loan_status_snowflake VALUES
(seq_dim_loan_status.NEXTVAL, 'Approved', 'Loan successfully approved');
INSERT INTO dim_loan_status_snowflake VALUES
(seq_dim_loan_status.NEXTVAL, 'Pending', 'Loan is under review');
INSERT INTO dim_loan_status_snowflake VALUES
(seq_dim_loan_status.NEXTVAL, 'Denied', 'Loan request denied');

-- === 7. Perform OLAP Operations (SLICE, DICE, DRILL-DOWN, ROLL-UP, PIVOT)
===

-- SLICE OPERATION
BEGIN
```

```
  DBMS_OUTPUT.PUT_LINE('SLICE OPERATION: Displaying loans for North
Region');
END;
/
SELECT f.disbursement_id, c.customer_name, l.loan_type,
f.disbursement_amount
FROM fact_loan_disbursement f
JOIN dim_customer c ON f.customer_id = c.customer_id
JOIN dim_loan l ON f.loan_id = l.loan_id
JOIN dim_region r ON f.region_id = r.region_id
WHERE r.region_name = 'North';

-- DICE OPERATION
BEGIN
  DBMS_OUTPUT.PUT_LINE('DICE OPERATION: Displaying loans with approved
status and loan type Home Loan');
END;
/
SELECT f.disbursement_id, c.customer_name, l.loan_type,
f.disbursement_amount
FROM fact_loan_disbursement f
JOIN dim_customer c ON f.customer_id = c.customer_id
JOIN dim_loan l ON f.loan_id = l.loan_id
JOIN dim_loan_status ls ON f.loan_status_id = ls.loan_status_id
WHERE ls.status_name = 'Approved' AND l.loan_type = 'Home Loan';

-- DRILL-DOWN OPERATION
BEGIN
  DBMS_OUTPUT.PUT_LINE('DRILL-DOWN OPERATION: Displaying total loan
disbursement by loan type');
END;
/
SELECT l.loan_type, SUM(f.disbursement_amount) AS total_disbursement
FROM fact_loan_disbursement f
JOIN dim_loan l ON f.loan_id = l.loan_id
GROUP BY l.loan_type;

-- ROLL-UP OPERATION
BEGIN
```

```
  DBMS_OUTPUT.PUT_LINE('ROLL-UP OPERATION: Displaying total loan disbursement by year');
END;
/
SELECT t.year, SUM(f.disbursement_amount) AS total_disbursement
FROM fact_loan_disbursement f
JOIN dim_time t ON f.time_id = t.time_id
GROUP BY t.year
ORDER BY t.year;

-- PIVOT OPERATION
BEGIN
  DBMS_OUTPUT.PUT_LINE('PIVOT OPERATION: Displaying total loan disbursement by loan type for each region');
END;
/
SELECT *
FROM (
  SELECT r.region_name, l.loan_type, f.disbursement_amount
  FROM fact_loan_disbursement f
  JOIN dim_loan l ON f.loan_id = l.loan_id
  JOIN dim_region r ON f.region_id = r.region_id
)
PIVOT (SUM(disbursement_amount) FOR loan_type IN (
  'Home Loan' AS "Home Loan",
  'Car Loan' AS "Car Loan",
  'Education Loan' AS "Education Loan",
  'Personal Loan' AS "Personal Loan"
));
```