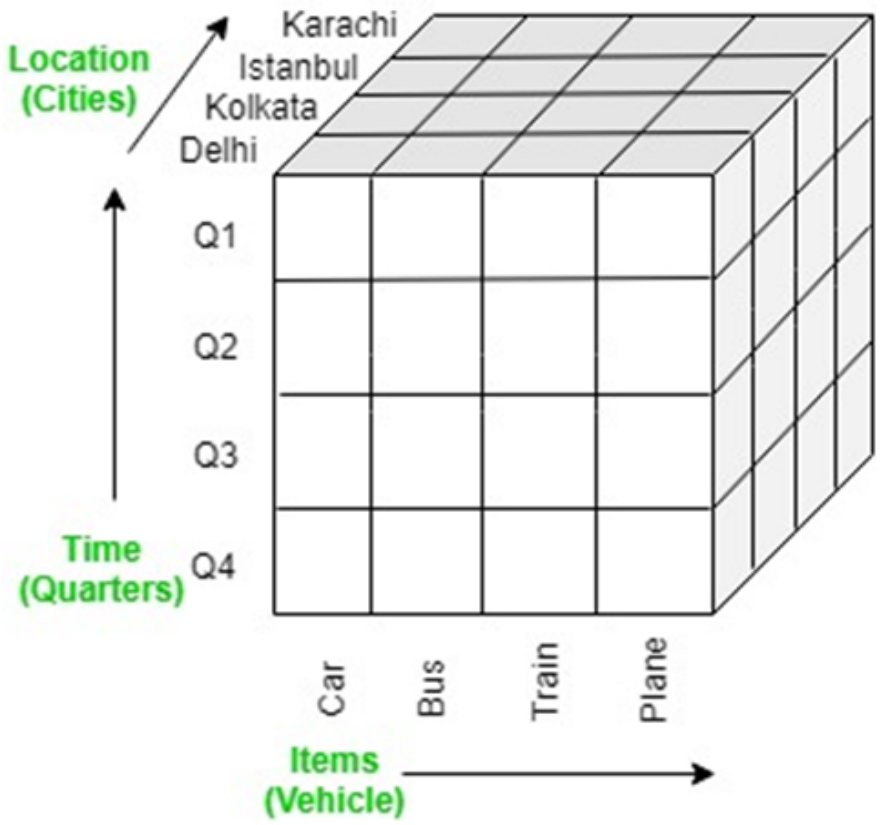
EXPERIMENT. NO: 03

Aim: Implementation of all dimension tables and fact tables and OLAP (in Oracle)

Theory:

In the multidimensional model, the records are organized into various dimensions, and each dimension includes multiple levels of abstraction described by concept hierarchies. This organization support users with the flexibility to view data from various perspectives. Several OLAP data cube operations exist to demonstrate these different views, allowing interactive queries and a search of the record at hand. Hence, OLAP supports a user-friendly environment for interactive data analysis.

Consider the OLAP operations which are to be performed on multidimensional data. The figure shows data cubes for sales of a shop. The cube contains the dimensions, location, time and item, where the location is aggregated about city values, time is aggregated concerning quarters, and an item is aggregated concerning item types.



OLAP operations:

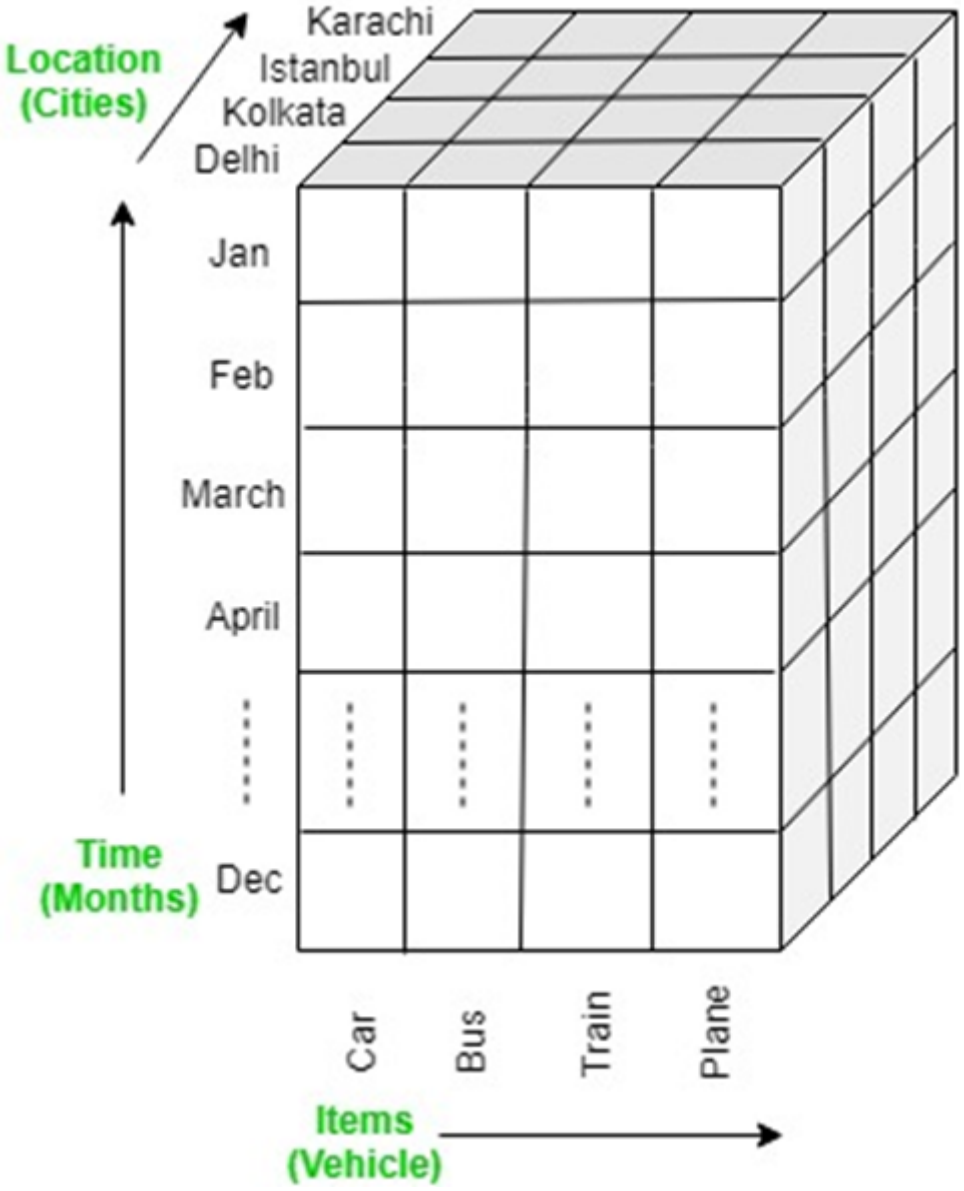
Five basic analytical operations can be performed on an OLAP cube:

1. Drill down:

   In drill-down operation, the less detailed data is converted into highly detailed data. It can be done by:

   - Moving down in the concept hierarchy
   - Adding a new dimension

In the cube given in the overview section, the drill-down operation is performed by moving down in the concept hierarchy of the Time dimension (Quarter -> Month).

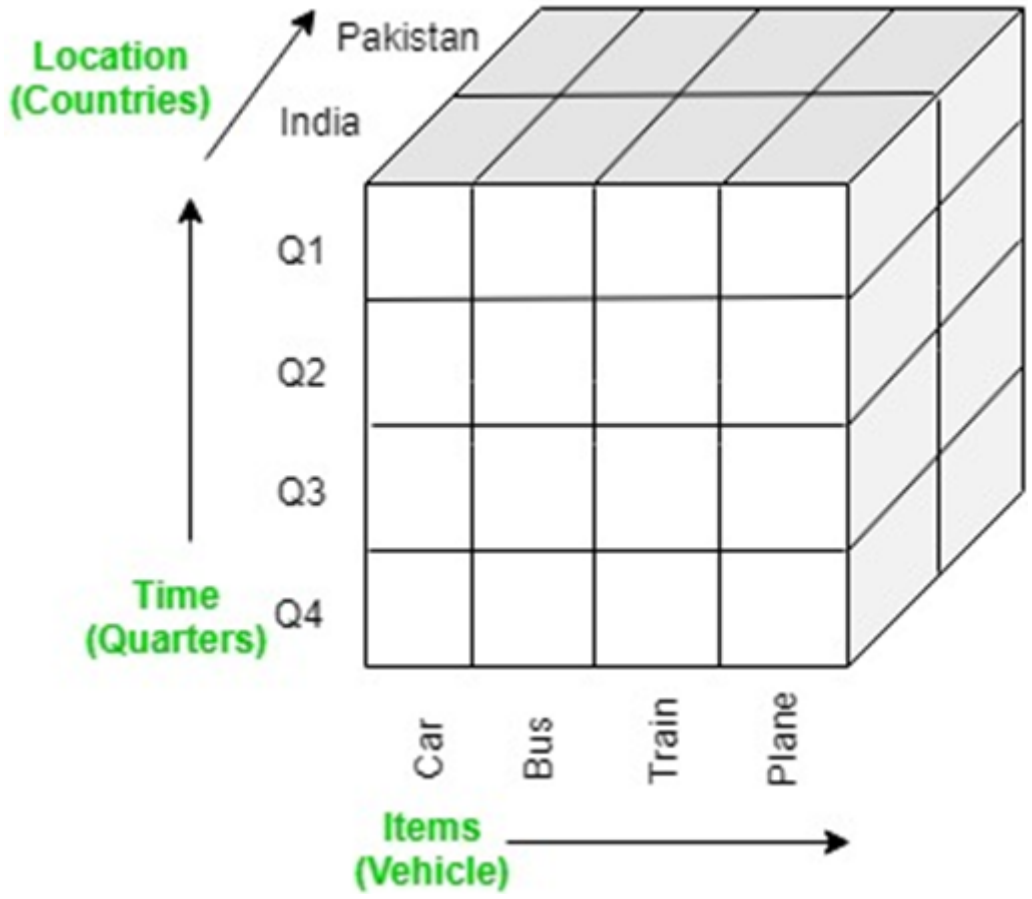


2. Roll up:

It is just the opposite of the drill-down operation. It performs aggregation on the OLAP cube. It can be done by:

- Climbing up in the concept hierarchy
- Reducing the dimensions

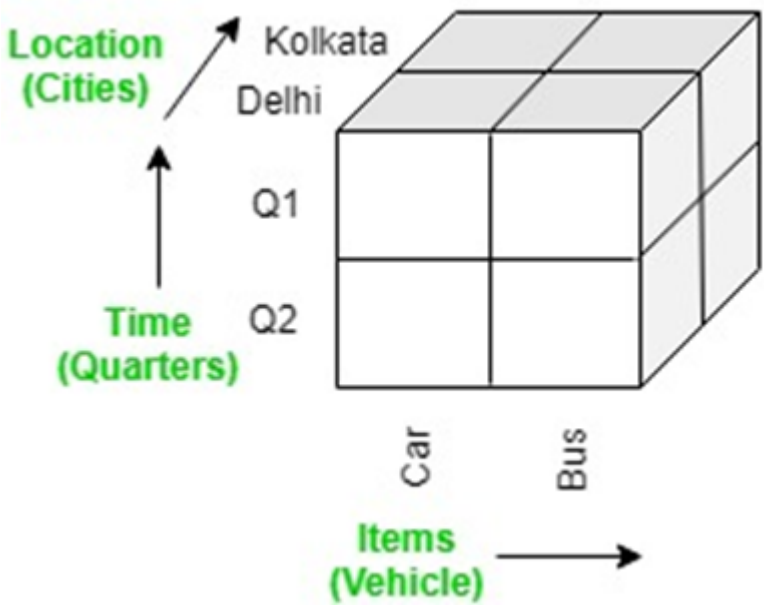
In the cube given in the overview section, the roll-up operation is performed by climbing up in the concept hierarchy of Location dimension (City -> Country).



3. Dice:

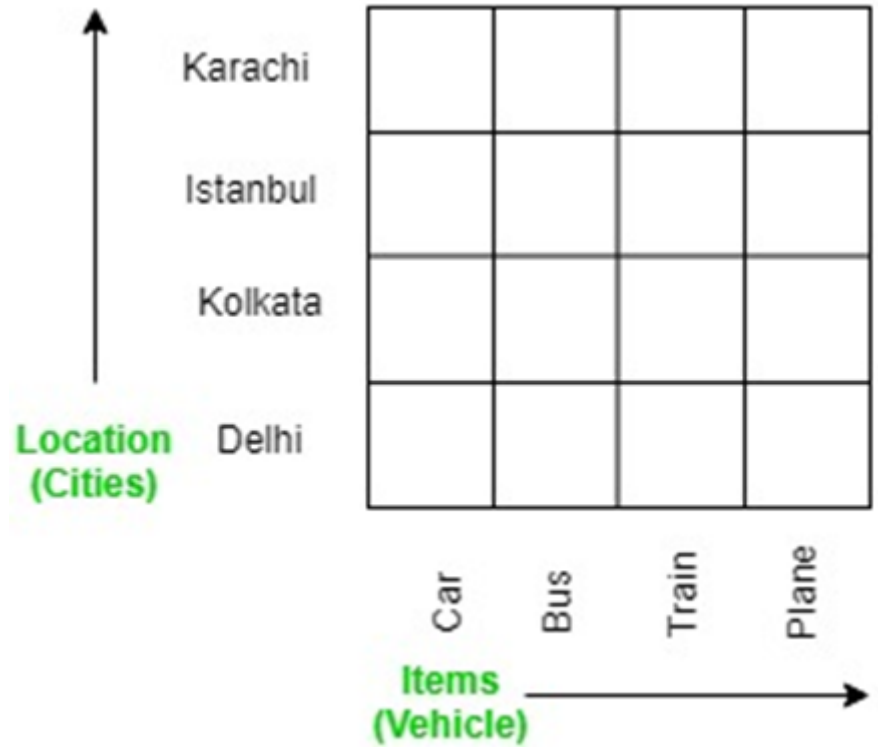
It selects a sub-cube from the OLAP cube by selecting two or more dimensions. In the cube given in the overview section, a sub-cube is selected by selecting the following dimensions with criteria:

- Location = “Delhi” or “Kolkata”
- Time = “Q1” or “Q2”
- Item = “Car” or “Bus”



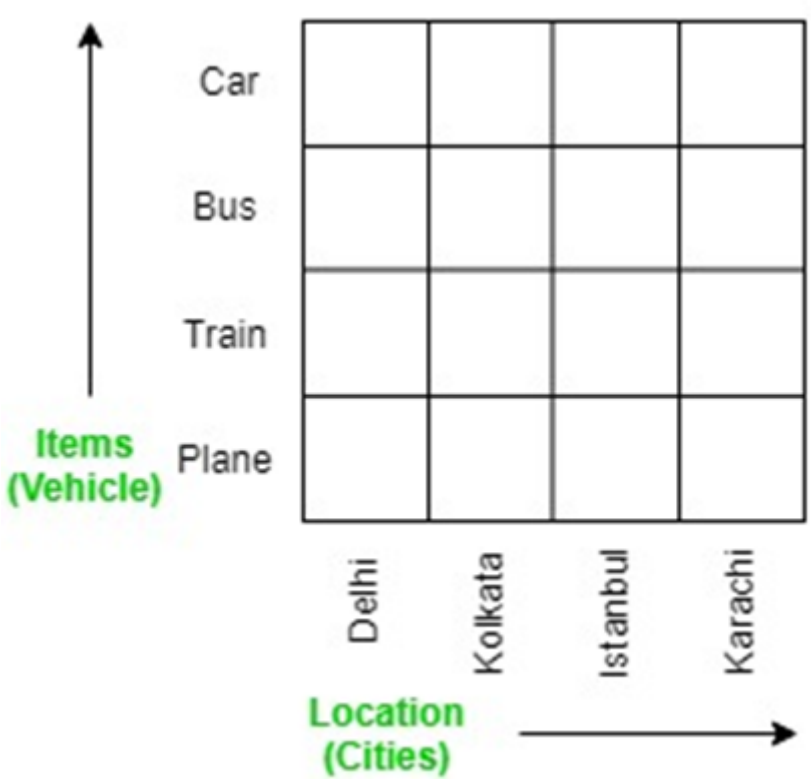
4. Slice:

It selects a single dimension from the OLAP cube which results in a new sub-cube creation. In the cube given in the overview section, Slice is performed on the dimension Time = “Q1”.



5. Pivot:

It is also known as rotation operation as it rotates the current view to get a new view of the representation. In the sub-cube obtained after the slice operation, performing the pivot operation gives a new view of it.



Code:

Creating Fact Table and Dimension tables.

DIMENSIONS TABLE – CITY DIMENSIONS

```
CREATE TABLE city_dim (
    city_id INT PRIMARY KEY,
    city_name VARCHAR(255),
    c_state VARCHAR(255),
    pincode VARCHAR(10)
);
```

DIMENSIONS TABLE – CONTACT DIMENSIONS

```
CREATE TABLE contact_dim (
    contact_id VARCHAR(255) PRIMARY KEY,
    phone VARCHAR(15),
    email VARCHAR(255)
);
```

DIMENSIONS TABLE – SUPPLIER DIMENSIONS

```
CREATE TABLE supplier_dim (
    supplier_id VARCHAR(255) PRIMARY KEY,
    supplier_name VARCHAR(255),
    contact_id INT
);
```

DIMENSIONS TABLE – PRODUCT DIMENSIONS

```
CREATE TABLE product_dim (
    product_id VARCHAR(255) PRIMARY KEY,
```

```
    product_name VARCHAR(255),
    product_category VARCHAR(255),
    product_brand VARCHAR(255)
);
```

DIMENSIONS TABLE – TRANSACTION_DATE DIMENSIONS

```
CREATE TABLE transaction_date_dim (
    arrival_date DATE,
    dispatch_date DATE,
    duration_in_warehouse INT
);
```

DIMENSIONS TABLE – WAREHOUSE DIMENSIONS

```
CREATE TABLE warehouse_dim (
    warehouse_id VARCHAR(255) PRIMARY KEY,
    warehouse_name VARCHAR(255),
    warehouse_location VARCHAR(255),
    city_id  INT
);
```

FACT TABLE - INVENTORY

```
CREATE TABLE inventory_management_fact (
    transaction_id INT PRIMARY KEY,
    product_id VARCHAR(255),
    warehouse_id VARCHAR(255),
    supplier_id VARCHAR(255),
    arrival_date_id DATE,
    dispatch_date_id DATE,
```

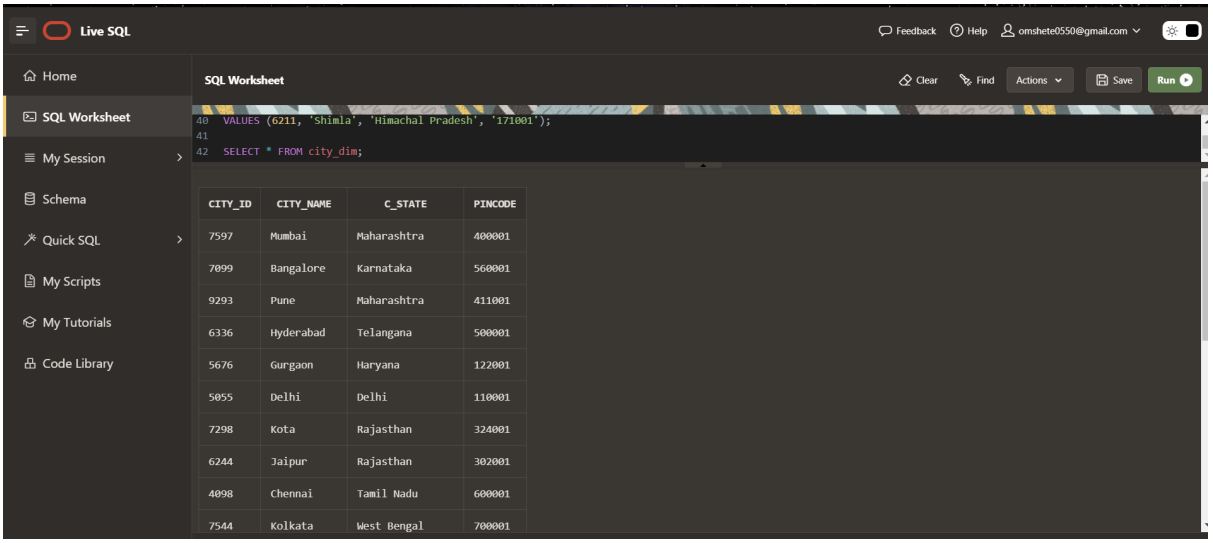
```
    number_of_boxes INT,
    FOREIGN KEY (product_id) REFERENCES product_dim(product_id),
    FOREIGN KEY (warehouse_id) REFERENCES warehouse_dim(warehouse_id),
    FOREIGN KEY (supplier_id) REFERENCES supplier_dim(supplier_id)
);
```

Inserting Values in the above tables:

city_dimension:

```
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (7597, 'Mumbai', 'Maharashtra', '400001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (7099, 'Bangalore', 'Karnataka', '560001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (9293, 'Pune', 'Maharashtra', '411001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (6336, 'Hyderabad', 'Telangana', '500001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (5676, 'Gurgaon', 'Haryana', '122001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (5055, 'Delhi', 'Delhi', '110001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
VALUES (7298, 'Kota', 'Rajasthan', '324001');
INSERT INTO city_dim (city_id, city_name, c_state, pincode)
```

```
VALUES (6244, 'Jaipur', 'Rajasthan', '302001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (4098, 'Chennai', 'Tamil Nadu', '600001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (7544, 'Kolkata', 'West Bengal', '700001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (6003, 'Ahmedabad', 'Gujarat', '380001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (8081, 'Lucknow', 'Uttar Pradesh', '226001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (5210, 'Chandigarh', 'Chandigarh', '160001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (7142, 'Bhopal', 'Madhya Pradesh', '462001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (6001, 'Patna', 'Bihar', '800001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (9012, 'Guwahati', 'Assam', '781001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (7659, 'Trivandrum', 'Kerala', '695001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (7245, 'Bhubaneswar', 'Odisha', '751001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (5222, 'Dehradun', 'Uttarakhand', '248001');

INSERT INTO city_dim (city_id, city_name, c_state, pincode)

VALUES (6211, 'Shimla', 'Himachal Pradesh', '171001');
```



contact_dim:

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C2483', '9988776655', 'xbarrett@example.com');

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C8454', '9876543210', 'vhernandez@example.com');

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C8265', '8899776644', 'cooperdavid@example.org');

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C3118', '7766554433', 'monica66@example.net');

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C7283', '9870123456', 'krivera@example.org');

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C7667', '9876012345', 'rosarioalbert@example.net');

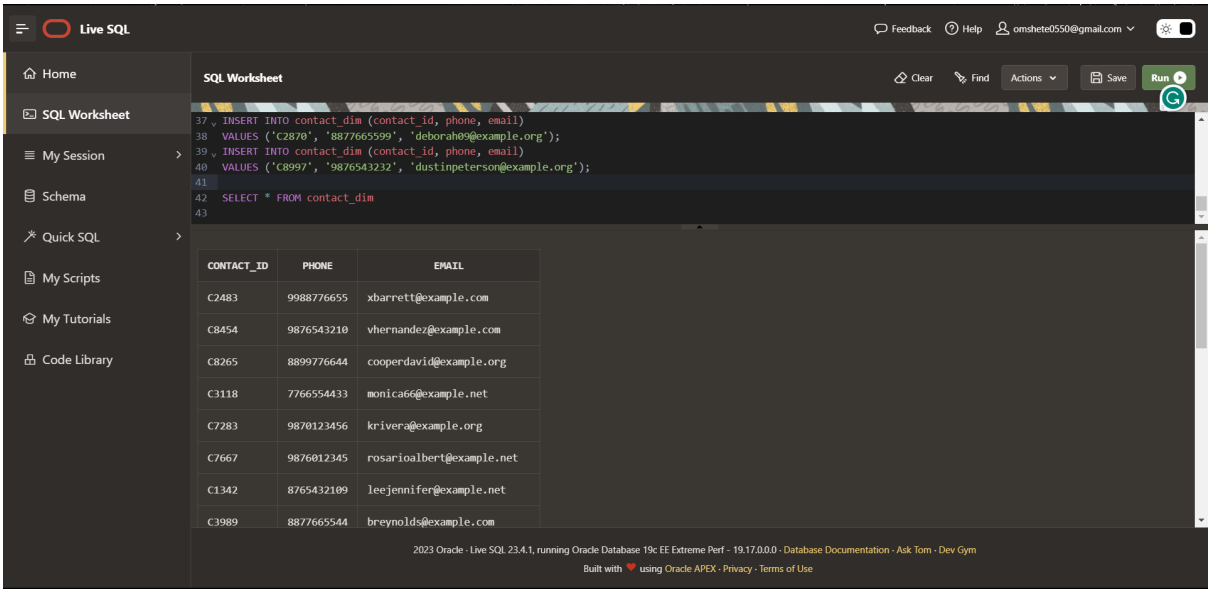
INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C1342', '8765432109', 'leejennifer@example.net');

INSERT INTO contact_dim (contact_id, phone, email)

VALUES ('C3989', '8877665544', 'breynolds@example.com');

```
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C1699', '9988001122', 'thompsonzachary@example.org');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C5700', '9012345678', 'robert84@example.org');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C9238', '9878998899', 'hoffmanbeth@example.net');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C7601', '9988778899', 'sdavis@example.net');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C5895', '9123456789', 'kristina32@example.net');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C9589', '8899889988', 'natalie47@example.org');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C1627', '9900990099', 'longashley@example.org');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C5607', '8765432101', 'coreywilson@example.org');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C9300', '8901234567', 'ebryan@example.com');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C8900', '9876543211', 'burkesharon@example.net');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C2870', '8877665599', 'deborah09@example.org');
INSERT INTO contact_dim (contact_id, phone, email)
VALUES ('C8997', '9876543232', 'dustinpeterson@example.org');
```



supplier_dimension:

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

VALUES ('S3535', 'Stewart, Clayton and Martinez', 'C2483');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

VALUES ('S7973', 'Carroll, Brady and Hancock', 'C8454');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

VALUES ('S2142', 'Singh-Johnson', 'C8265');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

VALUES ('S3115', 'Boyer Ltd', 'C3118');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

VALUES ('S8922', 'Davis Ltd', 'C7283');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

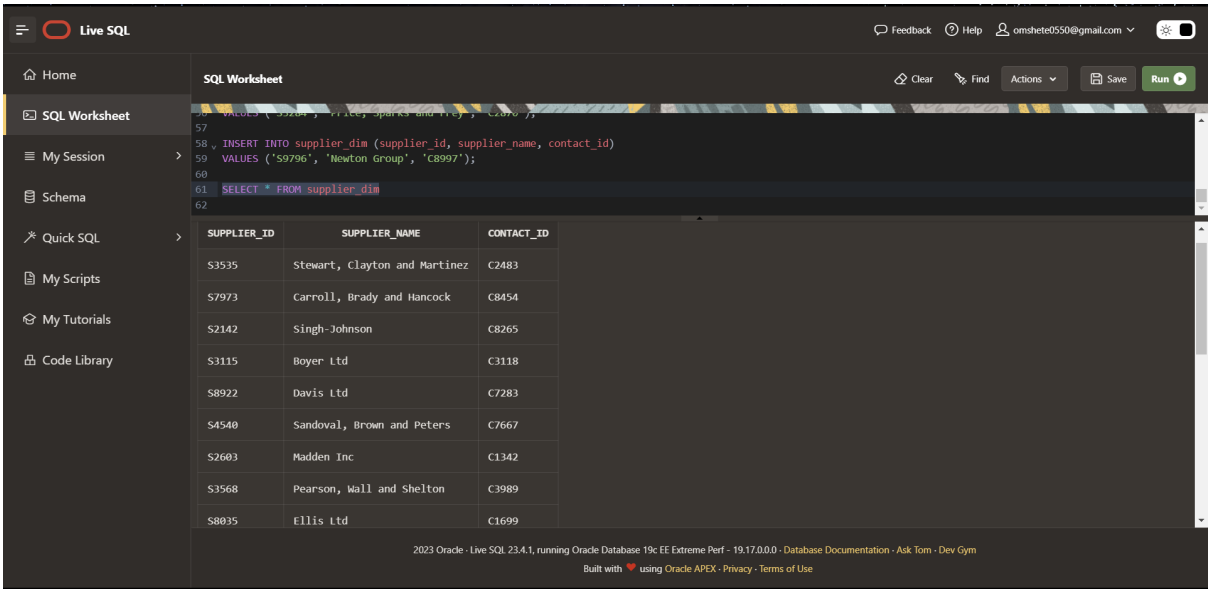
VALUES ('S4540', 'Sandoval, Brown and Peters', 'C7667');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

VALUES ('S2603', 'Madden Inc', 'C1342');

INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)

```
VALUES ('S3568', 'Pearson, Wall and Shelton', 'C3989');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S8035', 'Ellis Ltd', 'C1699');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S3141', 'Johnson Group', 'C5700');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S8420', 'Mccoy LLC', 'C9238');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S1561', 'Smith Ltd', 'C7601');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S8841', 'Small PLC', 'C5895');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S3895', 'Carney, Edwards and Chen', 'C9589');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S9366', 'Ruiz-Garcia', 'C1627');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S3534', 'Potter and Sons', 'C5607');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S7178', 'Rowe-Benitez', 'C9300');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S6126', 'Williamson, Ware and Martin', 'C8900');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S3284', 'Price, Sparks and Frey', 'C2870');
INSERT INTO supplier_dim (supplier_id, supplier_name, contact_id)
VALUES ('S9796', 'Newton Group', 'C8997');
```



product_dimension:

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P2859', 'Titan T27', 'watches', 'Titan');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P5937', 'Samsung QLED 21', 'tv', 'Samsung');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P1553', 'Philips Iron I4', 'Electrical App', 'Philips');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P7296', 'Nike Nex', 'Wear', 'Nike');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P9813', 'US Polo Black Denim', 'Wear', 'US Polo');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

```
VALUES ('P5206', 'Samsung Washing Machine', 'Electrical App', 'Samsung');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P1489', 'Reliance Hair Dryer', 'Electrical App', 'Reliance');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P9351', 'LG 42inch P32', 'tv', 'LG');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P4413', 'Sony Bravia S76', 'tv', 'Sony');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P3825', 'Fossil F31', 'watches', 'Fossil');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P7873', 'Giordano G21', 'watches', 'Giordano');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P1596', 'MI MicroLED M31', 'tv', 'MI');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P2693', 'Oneplus O8', 'tv', 'Oneplus');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P4110', 'NutriCook Mixer G21', 'Electrical App', 'NutriCook');

INSERT INTO product_dim (product_id, product_name, product_category,
product_brand)

VALUES ('P1235', 'DNMX Shirt S21', 'Wear', 'DNMX');
```

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P2301', 'DNMX Hoodie', 'Wear', 'DNMX');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P5882', 'Giordano G26', 'watches', 'Giordano');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

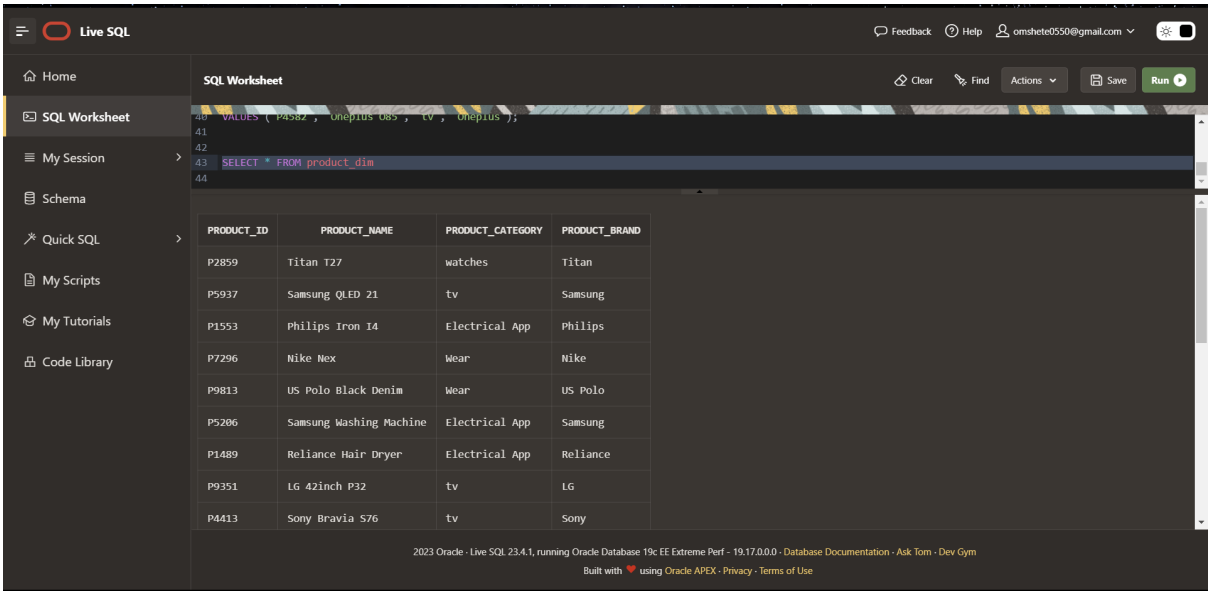
VALUES ('P7062', 'Sonata Kid K2', 'watches', 'Sonata');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P8087', 'Oneplus O20', 'tv', 'Oneplus');

INSERT INTO product_dim (product_id, product_name, product_category, product_brand)

VALUES ('P4582', 'Oneplus O85', 'tv', 'Oneplus');



transaction_date_dimension:

INSERT INTO transaction_date_dim (arrival_date, dispatch_date, duration_in_warehouse)

```
VALUES (TO_DATE('29-11-2021', 'DD-MM-YYYY'), TO_DATE('15-01-2023',
'DD-MM-YYYY'), 413);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('18-09-2021', 'DD-MM-YYYY'), TO_DATE('26-05-2022',
'DD-MM-YYYY'), 250);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('14-05-2021', 'DD-MM-YYYY'), TO_DATE('16-05-2022',
'DD-MM-YYYY'), 367);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('21-06-2021', 'DD-MM-YYYY'), TO_DATE('13-10-2021',
'DD-MM-YYYY'), 115);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('29-10-2022', 'DD-MM-YYYY'), TO_DATE('07-11-2022',
'DD-MM-YYYY'), 9);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('04-11-2022', 'DD-MM-YYYY'), TO_DATE('17-11-2022',
'DD-MM-YYYY'), 13);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('18-10-2020', 'DD-MM-YYYY'), TO_DATE('16-05-2023',
'DD-MM-YYYY'), 926);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('04-08-2022', 'DD-MM-YYYY'), TO_DATE('23-05-2023',
'DD-MM-YYYY'), 292);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)
```

```
VALUES (TO_DATE('01-11-2020', 'DD-MM-YYYY'), TO_DATE('09-10-2022',
'DD-MM-YYYY'), 712);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('11-09-2022', 'DD-MM-YYYY'), TO_DATE('20-01-2023',
'DD-MM-YYYY'), 131);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('15-03-2020', 'DD-MM-YYYY'), TO_DATE('08-05-2023',
'DD-MM-YYYY'), 1158);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('29-10-2022', 'DD-MM-YYYY'), TO_DATE('10-06-2023',
'DD-MM-YYYY'), 225);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('23-09-2022', 'DD-MM-YYYY'), TO_DATE('27-10-2022',
'DD-MM-YYYY'), 34);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('10-09-2020', 'DD-MM-YYYY'), TO_DATE('25-10-2022',
'DD-MM-YYYY'), 775);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('03-01-2020', 'DD-MM-YYYY'), TO_DATE('14-01-2023',
'DD-MM-YYYY'), 1093);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)

VALUES (TO_DATE('03-04-2020', 'DD-MM-YYYY'), TO_DATE('17-05-2022',
'DD-MM-YYYY'), 765);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date,
duration_in_warehouse)
```

VALUES (TO_DATE('29-10-2020', 'DD-MM-YYYY'), TO_DATE('27-11-2022', 'DD-MM-YYYY'), 753);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date, duration_in_warehouse)

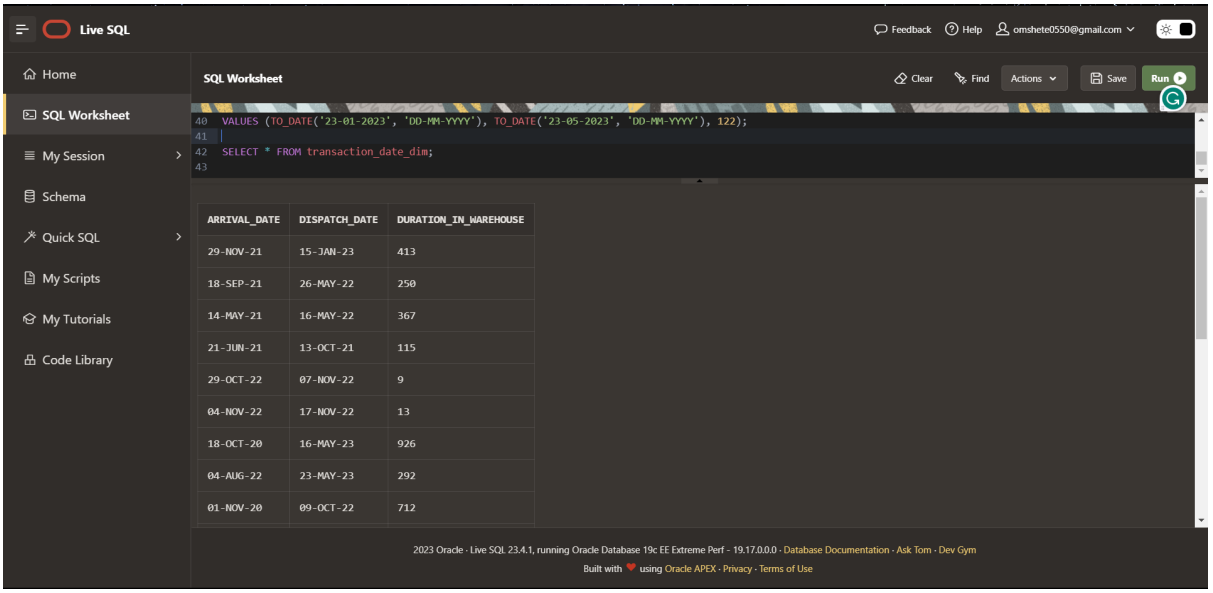
VALUES (TO_DATE('20-06-2022', 'DD-MM-YYYY'), TO_DATE('24-06-2023', 'DD-MM-YYYY'), 369);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date, duration_in_warehouse)

VALUES (TO_DATE('23-06-2023', 'DD-MM-YYYY'), TO_DATE('28-06-2023', 'DD-MM-YYYY'), 5);

INSERT INTO transaction_date_dim (arrival_date, dispatch_date, duration_in_warehouse)

VALUES (TO_DATE('23-01-2023', 'DD-MM-YYYY'), TO_DATE('23-05-2023', 'DD-MM-YYYY'), 122);



warehouse_dimension:

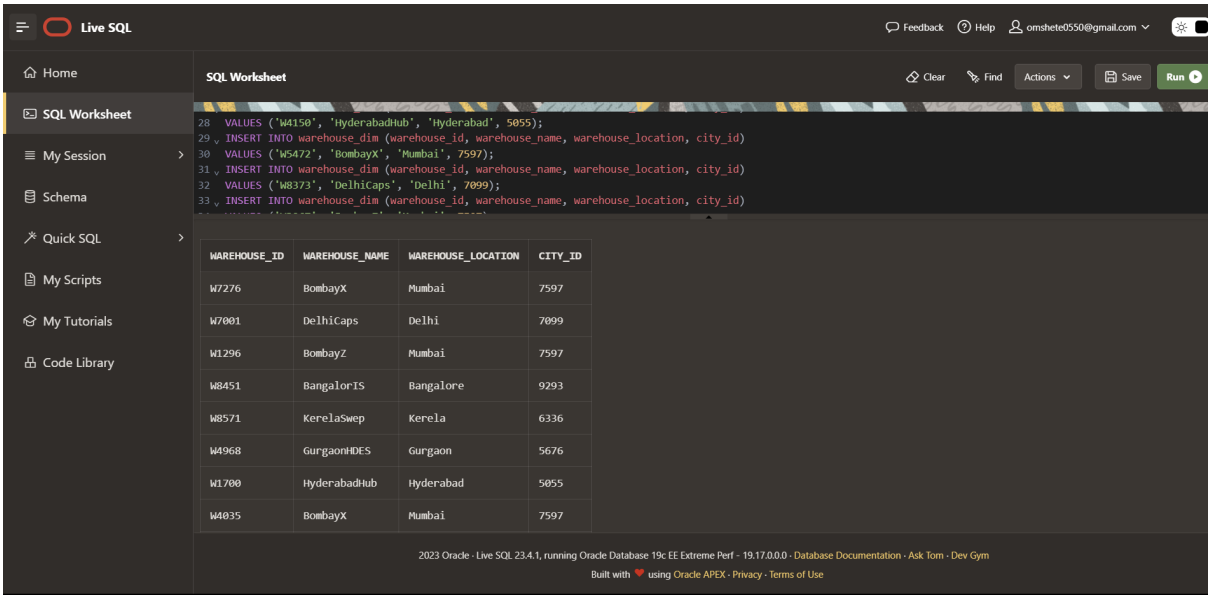
INSERT INTO warehouse_dim (warehouse_id, warehouse_name, warehouse_location, city_id)

VALUES ('W7276', 'BombayX', 'Mumbai', 7597);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name, warehouse_location, city_id)

```
VALUES ('W7001', 'DelhiCaps', 'Delhi', 7099);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W1296', 'BombayZ', 'Mumbai', 7597);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W8451', 'BangalorIS', 'Bangalore', 9293);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W8571', 'KerelaSwep', 'Kerela', 6336);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W4968', 'GurgaonHDES', 'Gurgaon', 5676);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W1700', 'HyderabadHub', 'Hyderabad', 5055);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W4035', 'BombayX', 'Mumbai', 7597);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W1934', 'DelhiCaps', 'Delhi', 7099);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W2006', 'BombayZ', 'Mumbai', 7597);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W5878', 'BangalorIS', 'Bangalore', 9293);
```

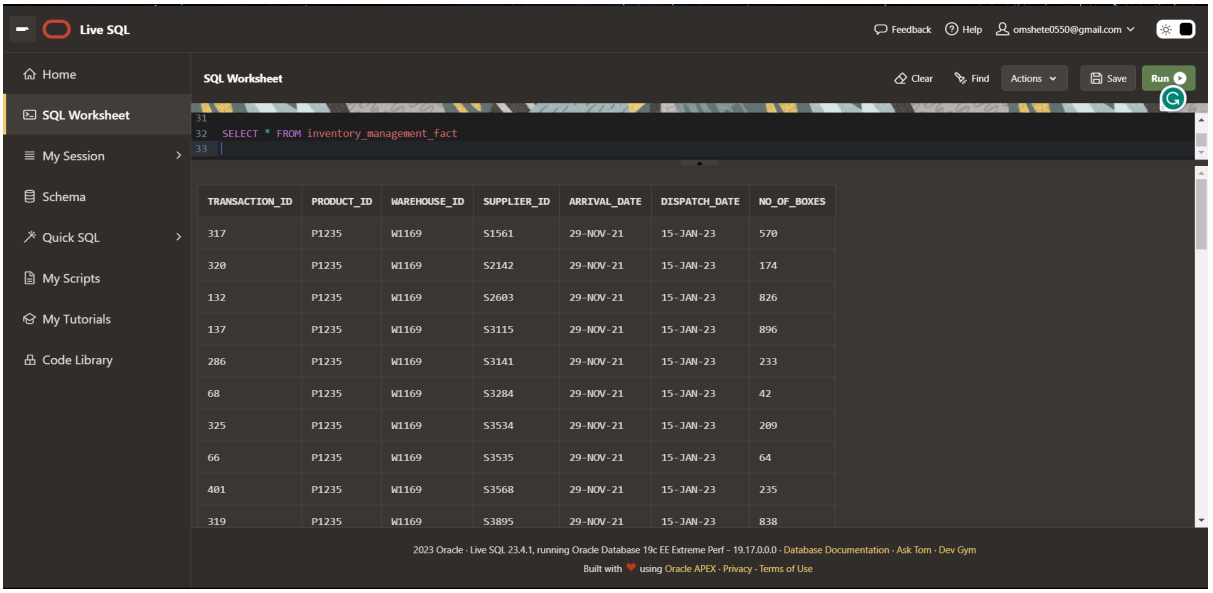
```
INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W1169', 'KerelaSwep', 'Kerela', 6336);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W6639', 'GurgaonHDES', 'Gurgaon', 5676);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W4150', 'HyderabadHub', 'Hyderabad', 5055);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W5472', 'BombayX', 'Mumbai', 7597);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W8373', 'DelhiCaps', 'Delhi', 7099);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W3067', 'BombayZ', 'Mumbai', 7597);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W1796', 'BangalorIS', 'Bangalore', 9293);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W4563', 'KerelaSwep', 'Kerela', 6336);

INSERT INTO warehouse_dim (warehouse_id, warehouse_name,
warehouse_location, city_id)

VALUES ('W1452', 'GurgaonHDES', 'Gurgaon', 5676);
```



inventory_fact_table:

```
CREATE TABLE inventory_management_fact AS
SELECT
    1 AS transaction_id,
    p.product_id,
    w.warehouse_id,
    s.supplier_id,
    ad.arrival_date,
    ad.dispatch_date,
    0 AS no_of_boxes
FROM
    product_dim p
CROSS JOIN
    warehouse_dim w
CROSS JOIN
```

```
    supplier_dim s
CROSS JOIN
    transaction_date_dim ad;


Inserting random values for transaction_id and no_of_boxes
BEGIN
    FOR rec IN (SELECT rowid, product_id FROM inventory_management_fact)
LOOP
        UPDATE inventory_management_fact
        SET
            transaction_id = ROUND(DBMS_RANDOM.VALUE(50, 500)),
            no_of_boxes = ROUND(DBMS_RANDOM.VALUE(1, 1000))
        WHERE rowid = rec.rowid;
    END LOOP;
    COMMIT;
END;
/


SELECT * FROM inventory_management_fact
```



1. **Slice:**

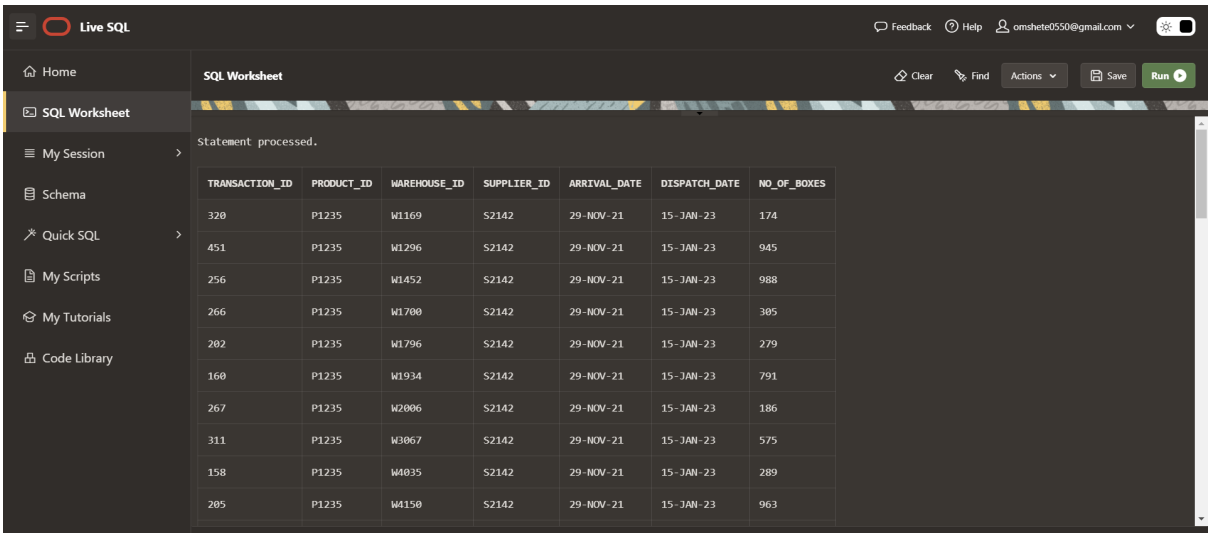
CREATE MATERIALIZED VIEW mv_slice1 AS

SELECT *

FROM inventory_management_fact

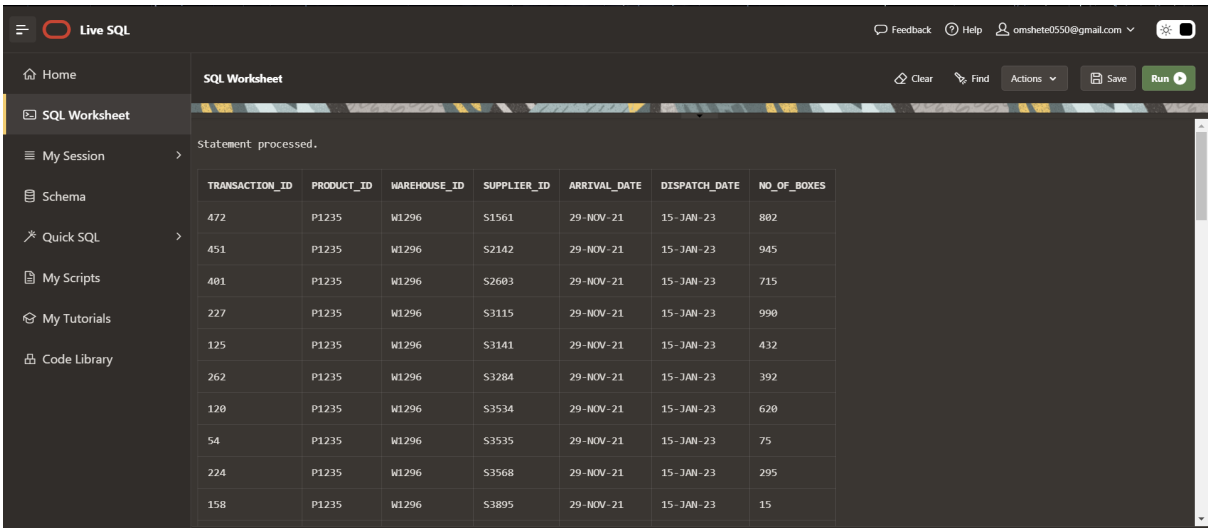
WHERE SUPPLIER_ID = 'S2142';

SELECT * FROM mv_slice1;



2. Dice

```
CREATE MATERIALIZED VIEW mv_dice AS
SELECT *
FROM inventory_management_fact
WHERE WAREHOUSE_ID = 'W1296' AND PRODUCT_ID = 'P1235';
SELECT * FROM mv_dice;
```

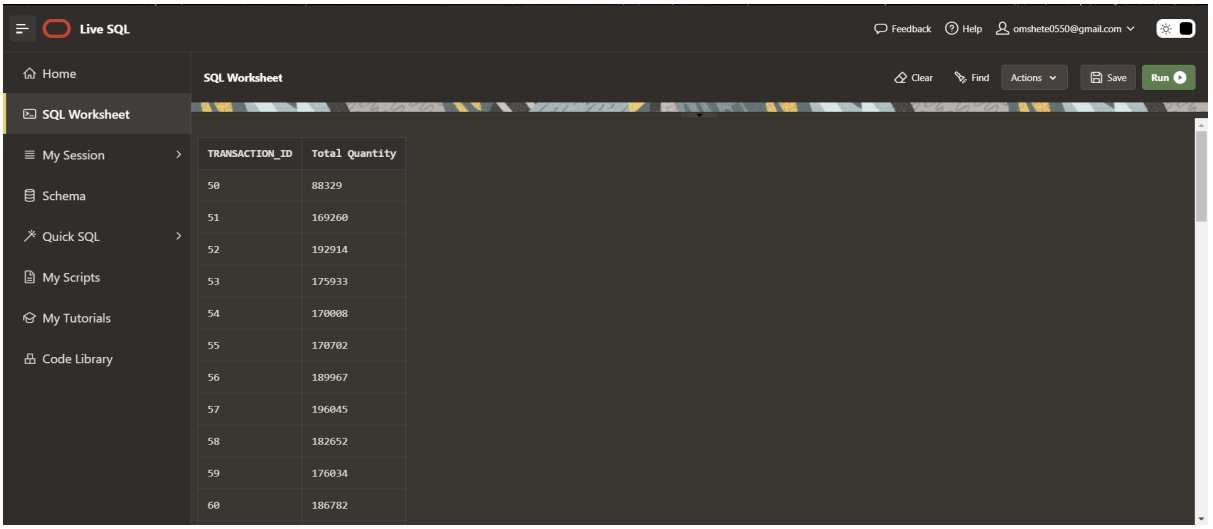


TRANSACTION_ID	PRODUCT_ID	WAREHOUSE_ID	SUPPLIER_ID	ARRIVAL_DATE	DISPATCH_DATE	NO_OF_BOXES
472	P1235	W1296	S1561	29-NOV-21	15-JAN-23	802
451	P1235	W1296	S2142	29-NOV-21	15-JAN-23	945
401	P1235	W1296	S2603	29-NOV-21	15-JAN-23	715
227	P1235	W1296	S3115	29-NOV-21	15-JAN-23	990
125	P1235	W1296	S3141	29-NOV-21	15-JAN-23	432
262	P1235	W1296	S3284	29-NOV-21	15-JAN-23	392
120	P1235	W1296	S3534	29-NOV-21	15-JAN-23	620
54	P1235	W1296	S3535	29-NOV-21	15-JAN-23	75
224	P1235	W1296	S3568	29-NOV-21	15-JAN-23	295
158	P1235	W1296	S3895	29-NOV-21	15-JAN-23	15

3. Rollup

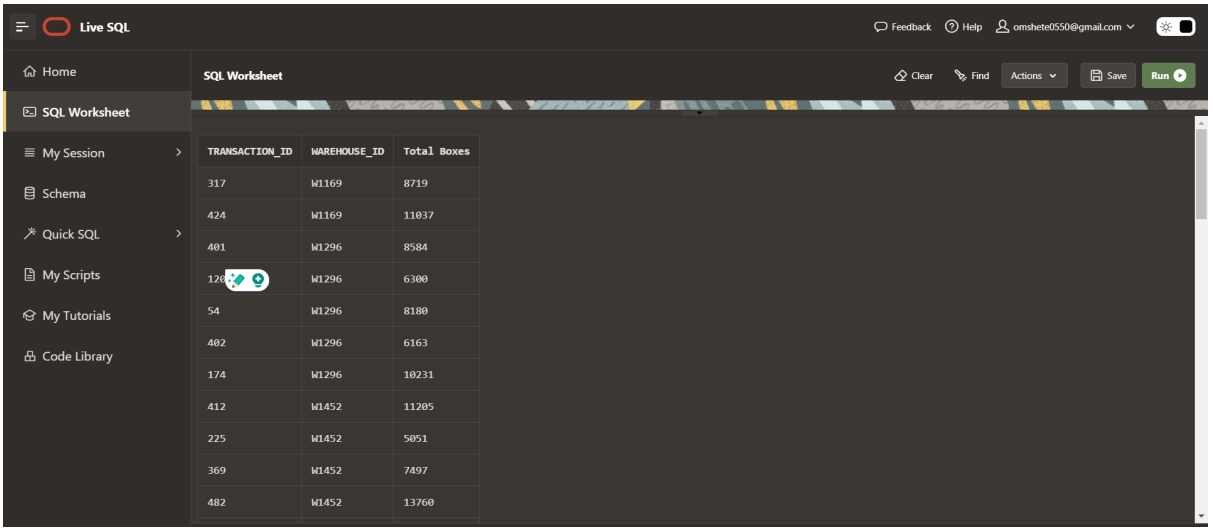
```
CREATE OR REPLACE VIEW vw_rollup AS
SELECT
   CASE
      WHEN GROUPING(TRANSACTION_ID) = 317 THEN 'Grand Total'
      ELSE TO_CHAR(TRANSACTION_ID)
   END AS TRANSACTION_ID,
   SUM(NO_OF_BOXES) AS "Total Quantity"
FROM inventory_management_fact
GROUP BY ROLLUP(TRANSACTION_ID);
```

```
CREATE MATERIALIZED VIEW mv_rollup_1 AS
SELECT * FROM vw_rollup;
```



4. Drilldown

```
CREATE OR REPLACE VIEW vw_drilldown AS
SELECT
    TRANSACTION_ID,
    WAREHOUSE_ID,
    SUM(no_of_boxes) AS "Total Boxes"
FROM inventory_management_fact
GROUP BY TRANSACTION_ID, WAREHOUSE_ID;

CREATE MATERIALIZED VIEW mv_drilldown AS
SELECT * FROM vw_drilldown;
```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Find
Actions
Save
Run
TRANSACTION_ID WAREHOUSE_ID Total Boxes
317 W1169 8719
424 W1169 11037
401 W1296 8584
126 W1296 6300
54 W1296 8180
402 W1296 6163
174 W1296 10231
412 W1452 11205
225 W1452 5051
369 W1452 7497
482 W1452 13760