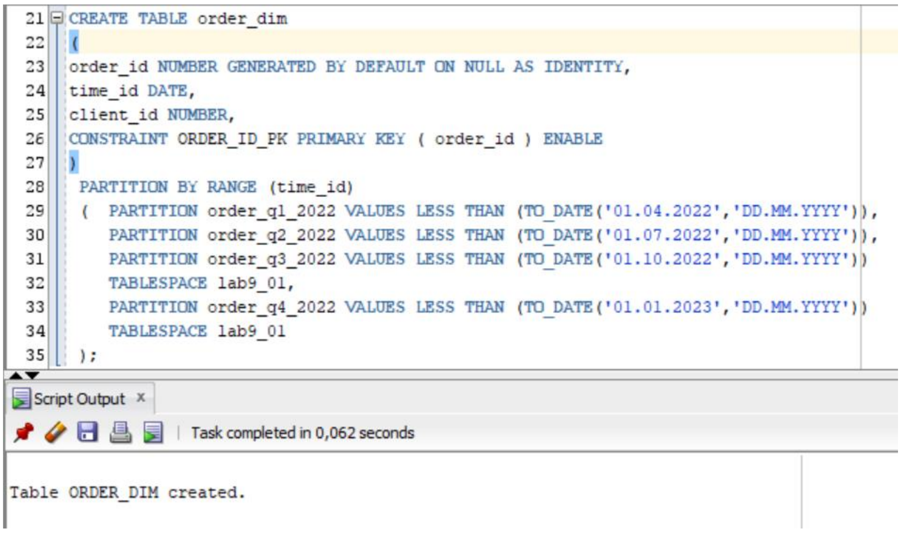
Lab report #9
Sadovskaya Veronika

Task 1 - CREATE Example of Range partitioning

1) Range Composite

Create table using Range Partitioning

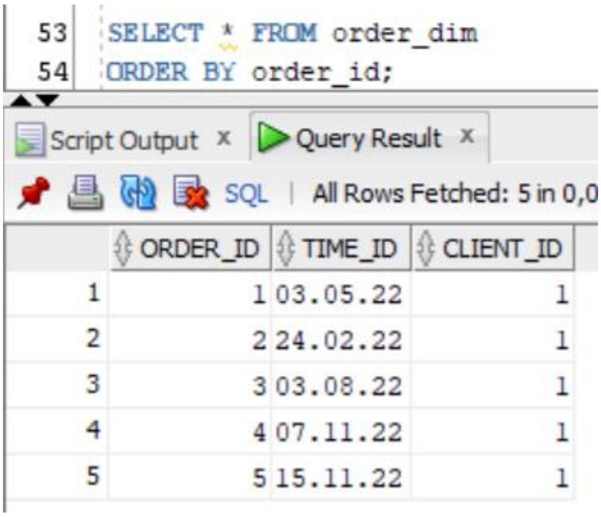


```
CREATE TABLE order_dim
(
order_id NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
time_id DATE,
client_id NUMBER,
CONSTRAINT ORDER_ID_PK PRIMARY KEY ( order_id ) ENABLE
)
 PARTITION BY RANGE (time_id)
 (  PARTITION order_q1_2022 VALUES LESS THAN (TO_DATE('01.04.2022','DD.MM.YYYY')),
    PARTITION order_q2_2022 VALUES LESS THAN (TO_DATE('01.07.2022','DD.MM.YYYY')),
    PARTITION order_q3_2022 VALUES LESS THAN (TO_DATE('01.10.2022','DD.MM.YYYY'))
    TABLESPACE lab9_01,
    PARTITION order_q4_2022 VALUES LESS THAN (TO_DATE('01.01.2023','DD.MM.YYYY'))
    TABLESPACE lab9_01
 );
```

Task completed in 0,062 seconds

```
Table ORDER_DIM created.
```

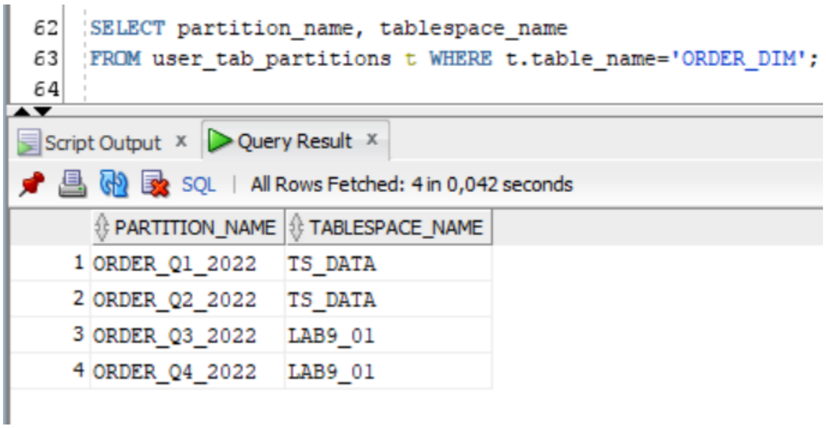
Select from table



```
SELECT * FROM order_dim
ORDER BY order_id;
```

All Rows Fetched: 5 in 0,0

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	03.05.22	1
2	2	24.02.22	1
3	3	03.08.22	1
4	4	07.11.22	1
5	5	15.11.22	1

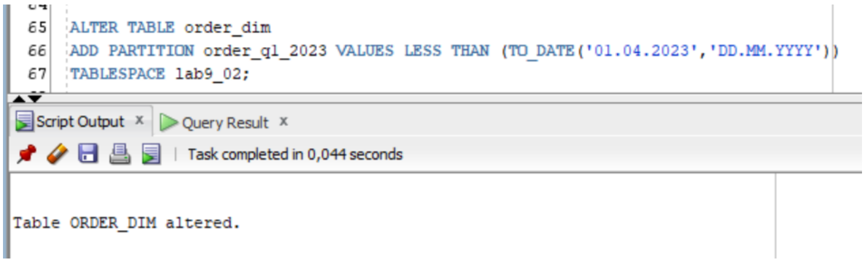


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 4 in 0,042 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_2022	LAB9_01

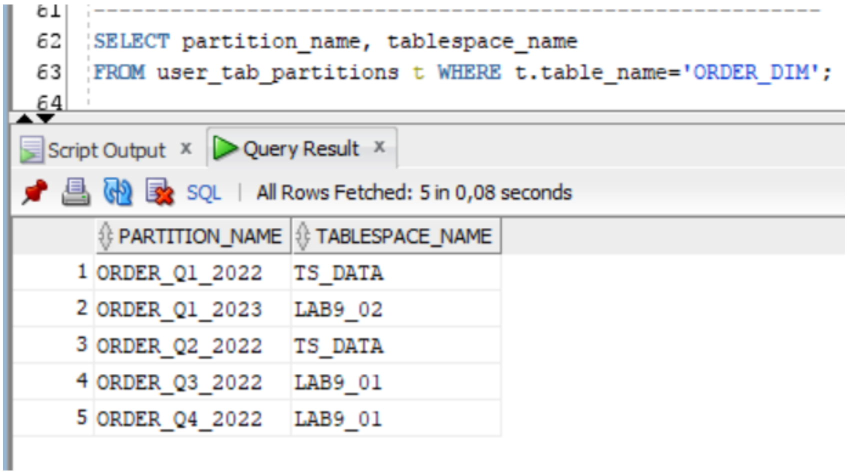
a) Add partition



```sql
ALTER TABLE order_dim
ADD PARTITION order_q1_2023 VALUES LESS THAN (TO_DATE('01.04.2023','DD.MM.YYYY'))
TABLESPACE lab9_02;
```

Task completed in 0,044 seconds

```
Table ORDER_DIM altered.
```

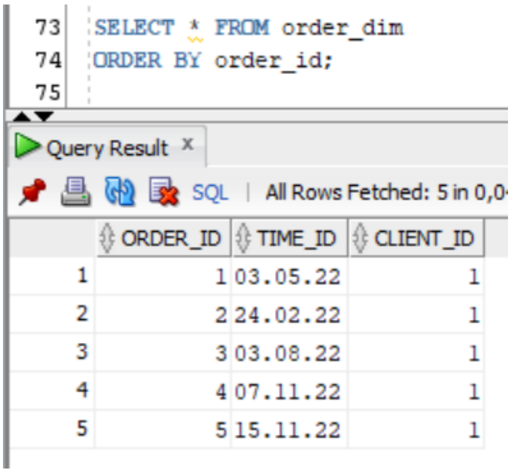


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 5 in 0,08 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q1_2023	LAB9_02
3	ORDER_Q2_2022	TS_DATA
4	ORDER_Q3_2022	LAB9_01
5	ORDER_Q4_2022	LAB9_01

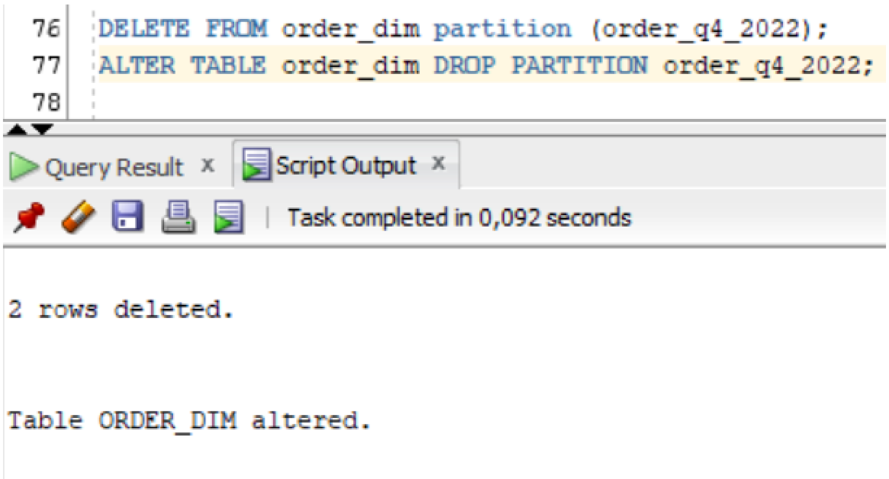
b) Drop partition



```sql
SELECT * FROM order_dim
ORDER BY order_id;
```

All Rows Fetched: 5 in 0,0

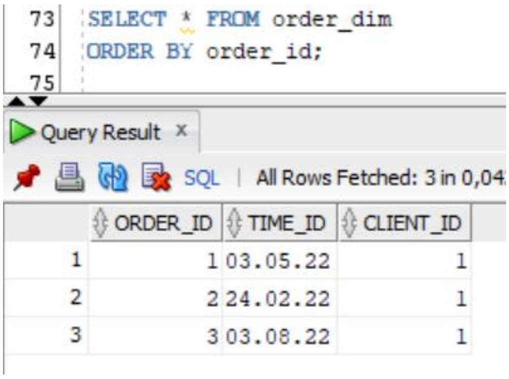
	ORDER_ID	TIME_ID	CLIENT_ID
1	1	03.05.22	1
2	2	24.02.22	1
3	3	03.08.22	1
4	4	07.11.22	1
5	5	15.11.22	1



```
DELETE FROM order_dim partition (order_q4_2022);
ALTER TABLE order_dim DROP PARTITION order_q4_2022;
```

Task completed in 0,092 seconds

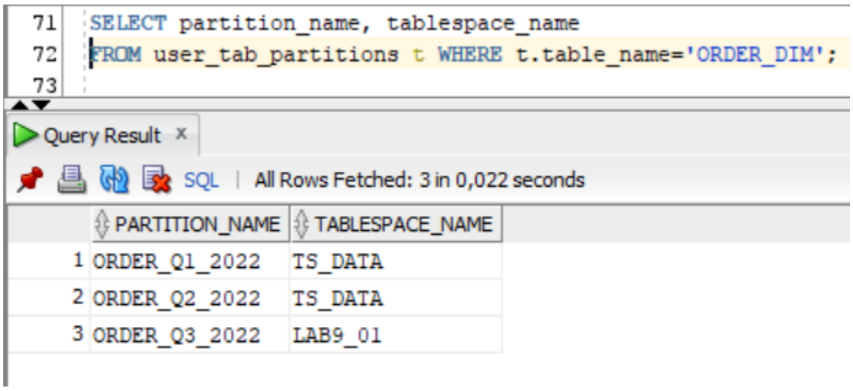
```
2 rows deleted.


Table ORDER_DIM altered.
```



```
SELECT * FROM order_dim
ORDER BY order_id;
```

All Rows Fetched: 3 in 0,04

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	03.05.22	1
2	2	24.02.22	1
3	3	03.08.22	1

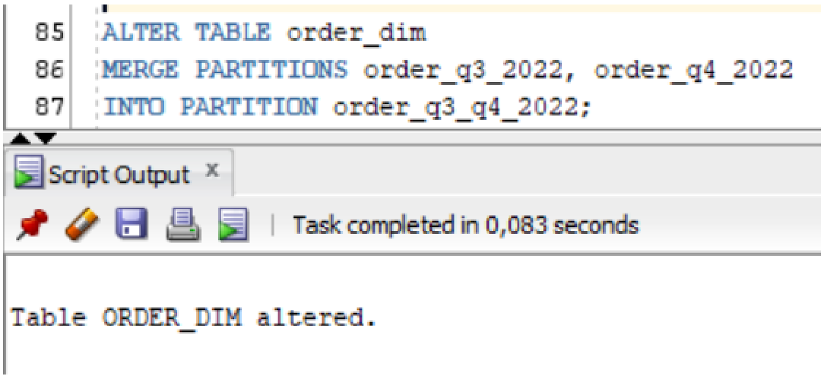


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 3 in 0,022 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01

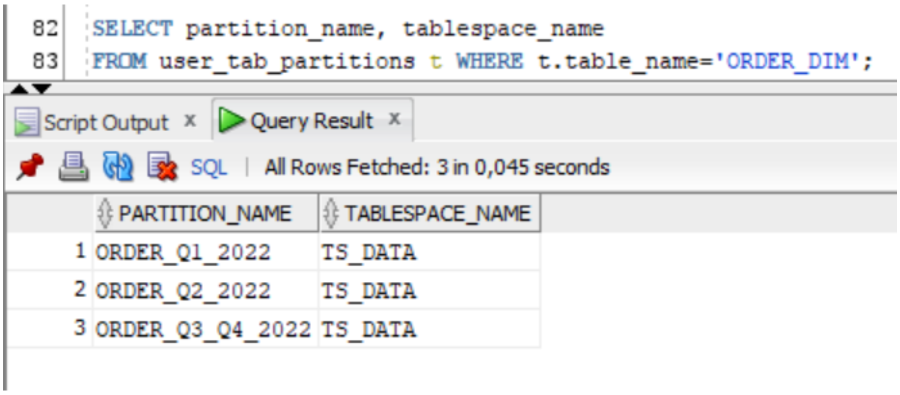
c) Merge partitions



```
ALTER TABLE order_dim
MERGE PARTITIONS order_q3_2022, order_q4_2022
INTO PARTITION order_q3_q4_2022;
```

Task completed in 0,083 seconds

```
Table ORDER_DIM altered.
```

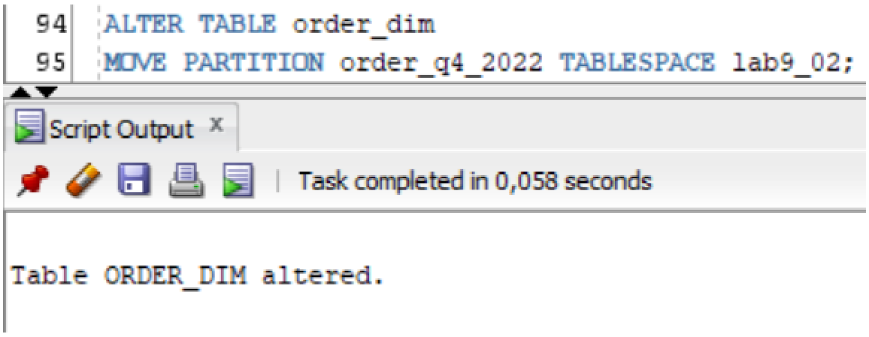


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 3 in 0,045 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_Q4_2022	TS_DATA

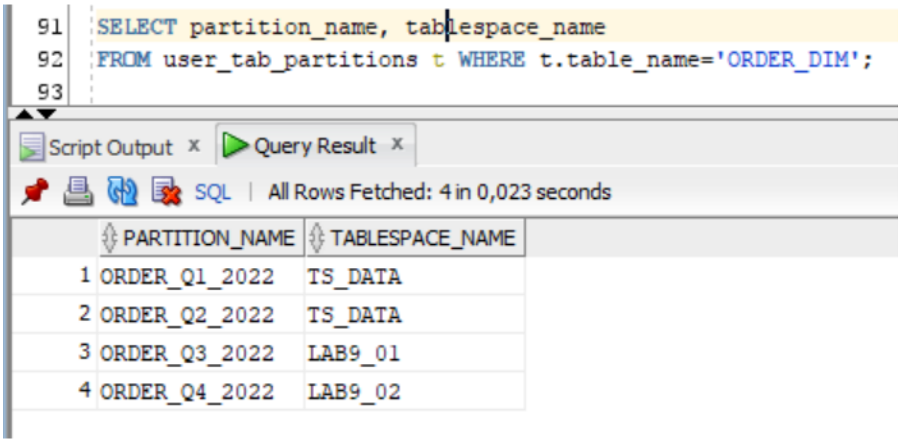
d) Move partition



```sql
ALTER TABLE order_dim
MOVE PARTITION order_q4_2022 TABLESPACE lab9_02;
```

Task completed in 0,058 seconds

```
Table ORDER_DIM altered.
```

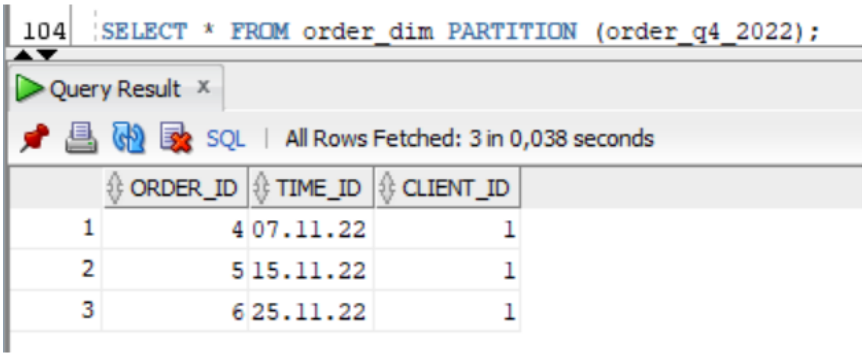


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 4 in 0,023 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_2022	LAB9_02

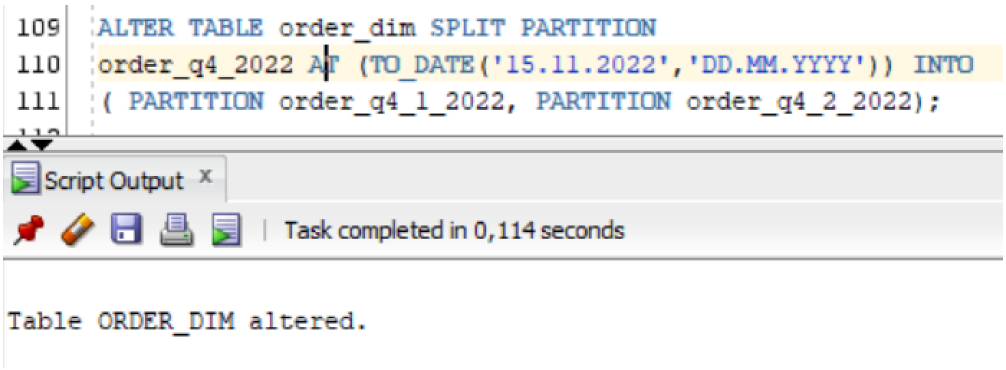
e) Split partition



```sql
SELECT * FROM order_dim PARTITION (order_q4_2022);
```

All Rows Fetched: 3 in 0,038 seconds

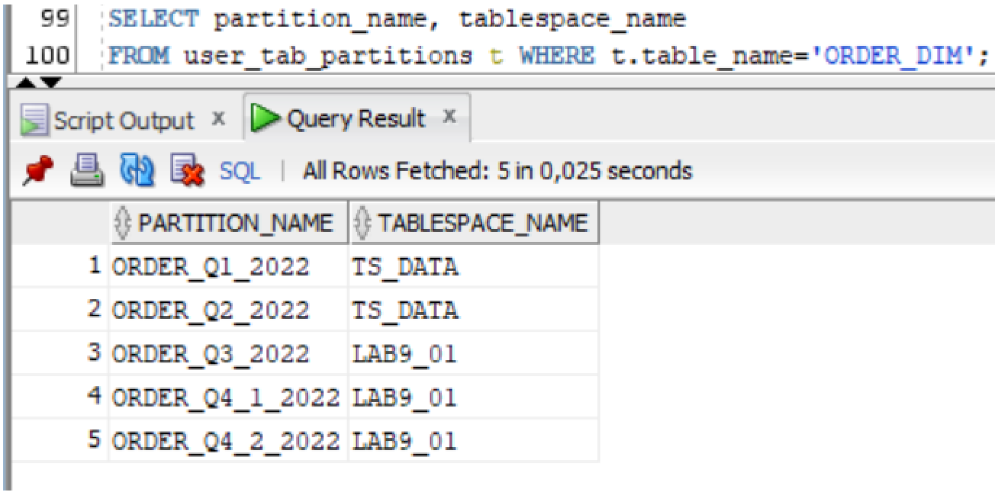
	ORDER_ID	TIME_ID	CLIENT_ID
1	4	07.11.22	1
2	5	15.11.22	1
3	6	25.11.22	1



```
ALTER TABLE order_dim SPLIT PARTITION
order_q4_2022 AT (TO_DATE('15.11.2022','DD.MM.YYYY')) INTO
( PARTITION order_q4_1_2022, PARTITION order_q4_2_2022);
```

Task completed in 0,114 seconds

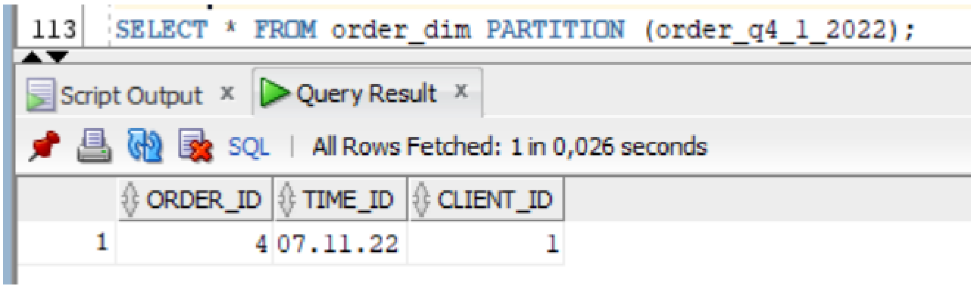
```
Table ORDER_DIM altered.
```



```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 5 in 0,025 seconds

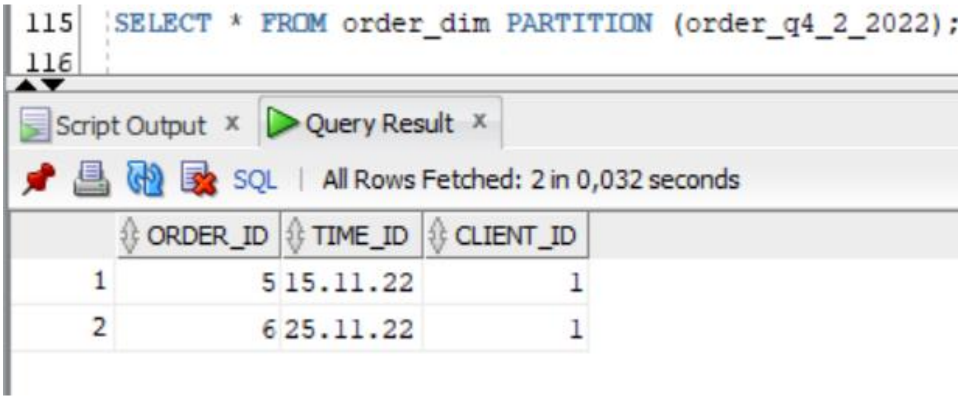
	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_1_2022	LAB9_01
5	ORDER_Q4_2_2022	LAB9_01



```
SELECT * FROM order_dim PARTITION (order_q4_1_2022);
```

All Rows Fetched: 1 in 0,026 seconds

	ORDER_ID	TIME_ID	CLIENT_ID
1	4	07.11.22	1

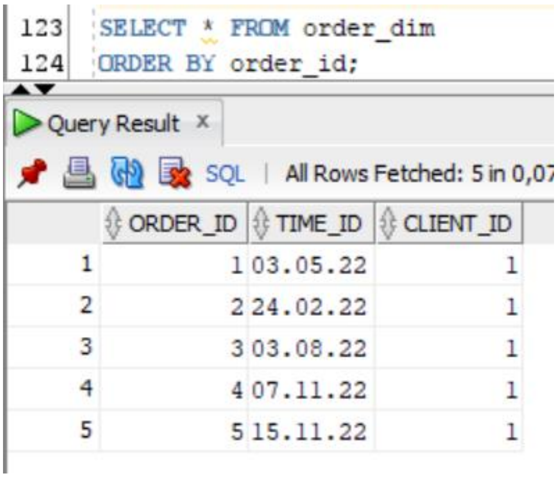


```
SELECT * FROM order_dim PARTITION (order_q4_2_2022);
```

All Rows Fetched: 2 in 0,032 seconds

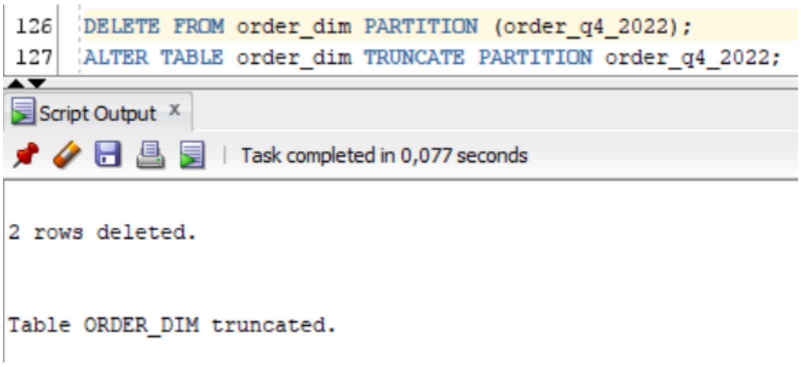
	ORDER_ID	TIME_ID	CLIENT_ID
1	5	15.11.22	1
2	6	25.11.22	1

f) Truncate partition



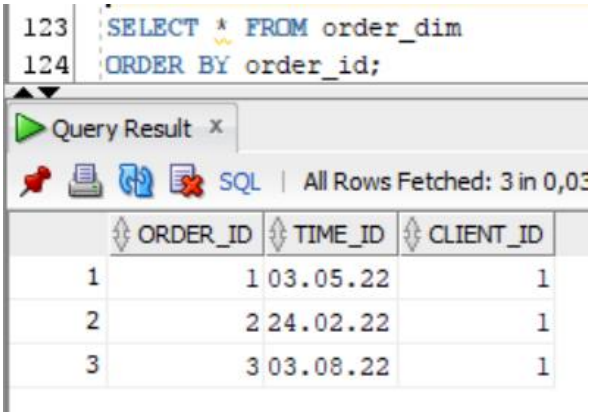
```
SELECT * FROM order_dim
ORDER BY order_id;
```

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	03.05.22	1
2	2	24.02.22	1
3	3	03.08.22	1
4	4	07.11.22	1
5	5	15.11.22	1



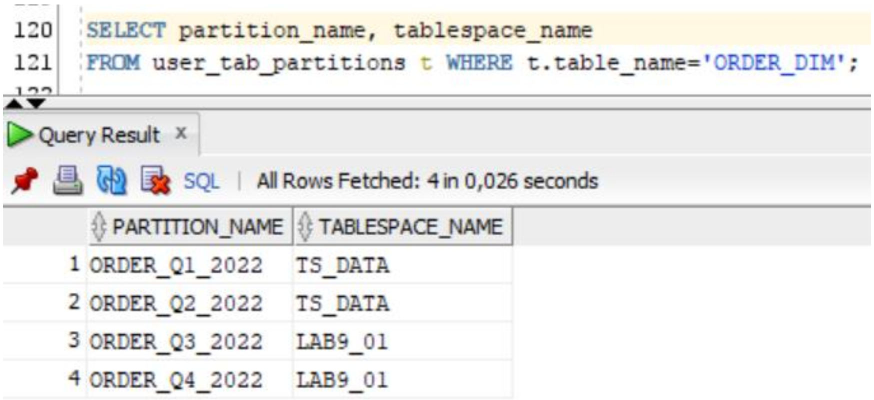
```
DELETE FROM order_dim PARTITION (order_q4_2022);
ALTER TABLE order_dim TRUNCATE PARTITION order_q4_2022;
```

```
2 rows deleted.


Table ORDER_DIM truncated.
```



```
SELECT * FROM order_dim
ORDER BY order_id;
```

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	03.05.22	1
2	2	24.02.22	1
3	3	03.08.22	1

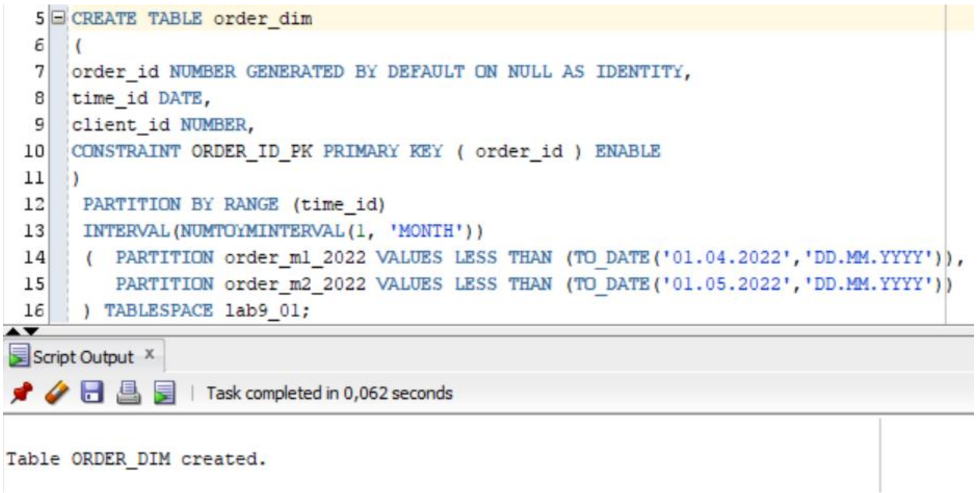


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_2022	LAB9_01

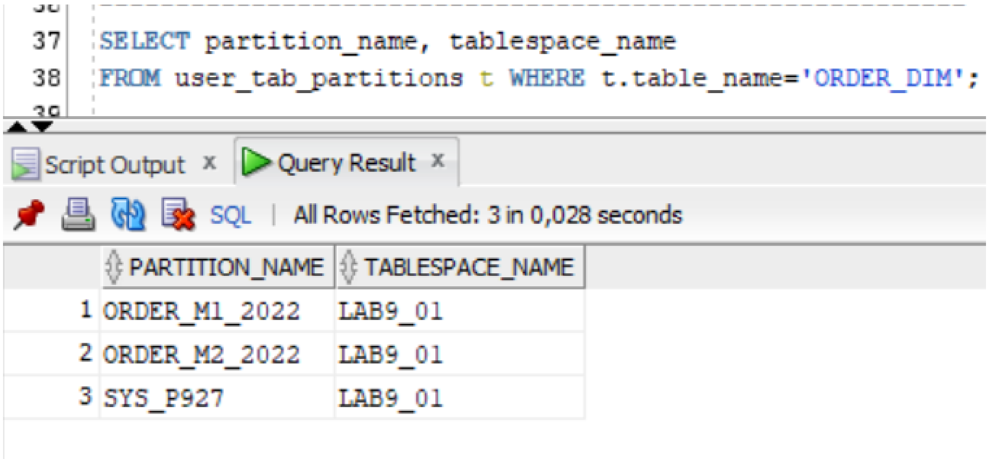
2) Interval Composite

Create table using Interval partitioning



```
CREATE TABLE order_dim
(
order_id NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
time_id DATE,
client_id NUMBER,
CONSTRAINT ORDER_ID_PK PRIMARY KEY ( order_id ) ENABLE
)
 PARTITION BY RANGE (time_id)
 INTERVAL(NUMTOYMINTERVAL(1, 'MONTH'))
 (  PARTITION order_m1_2022 VALUES LESS THAN (TO_DATE('01.04.2022','DD.MM.YYYY')),
    PARTITION order_m2_2022 VALUES LESS THAN (TO_DATE('01.05.2022','DD.MM.YYYY'))
 ) TABLESPACE lab9_01;
```

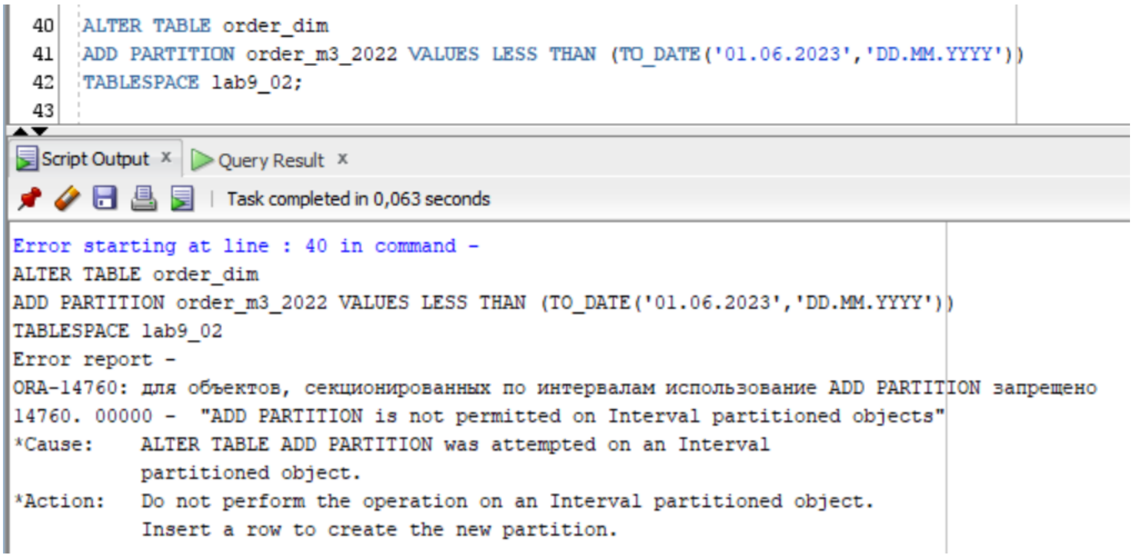
```
Table ORDER_DIM created.
```



```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_M1_2022	LAB9_01
2	ORDER_M2_2022	LAB9_01
3	SYS_P927	LAB9_01

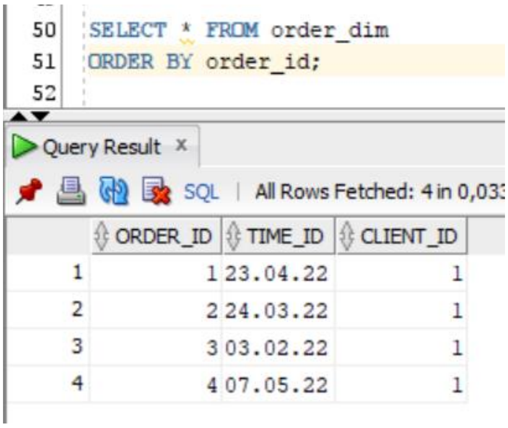
a) Add partition



```
ALTER TABLE order_dim
ADD PARTITION order_m3_2022 VALUES LESS THAN (TO_DATE('01.06.2023','DD.MM.YYYY'))
TABLESPACE lab9_02;
```

```
Error starting at line : 40 in command -
ALTER TABLE order_dim
ADD PARTITION order_m3_2022 VALUES LESS THAN (TO_DATE('01.06.2023','DD.MM.YYYY'))
TABLESPACE lab9_02
Error report -
ORA-14760: для объектов, секционированных по интервалам использование ADD PARTITION запрещено
14760. 00000 -  "ADD PARTITION is not permitted on Interval partitioned objects"
*Cause:    ALTER TABLE ADD PARTITION was attempted on an Interval
           partitioned object.
*Action:   Do not perform the operation on an Interval partitioned object.
           Insert a row to create the new partition.
```

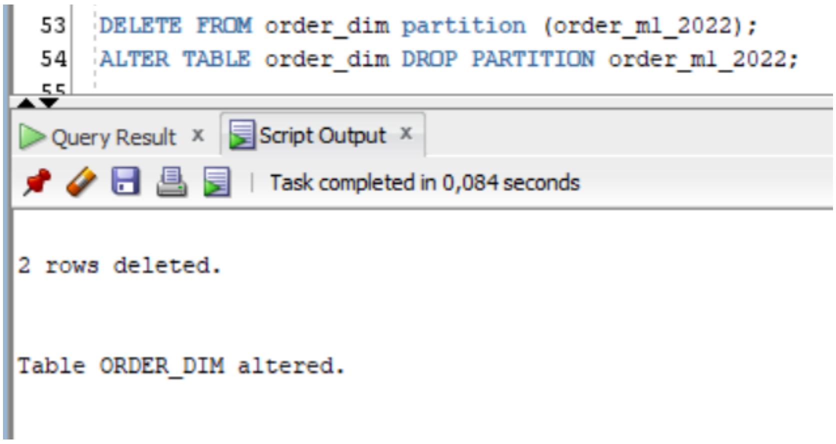
b) Drop partition



```sql
SELECT * FROM order_dim
ORDER BY order_id;
```

All Rows Fetched: 4 in 0,033

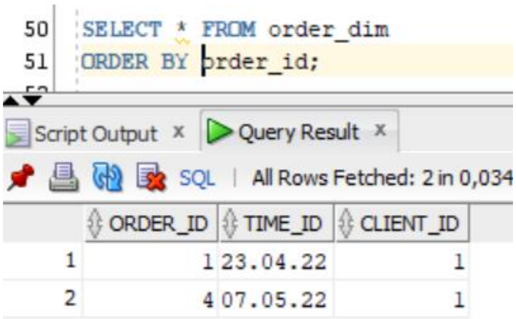
	ORDER_ID	TIME_ID	CLIENT_ID
1	1	23.04.22	1
2	2	24.03.22	1
3	3	03.02.22	1
4	4	07.05.22	1



```sql
DELETE FROM order_dim partition (order_ml_2022);
ALTER TABLE order_dim DROP PARTITION order_ml_2022;
```

Task completed in 0,084 seconds

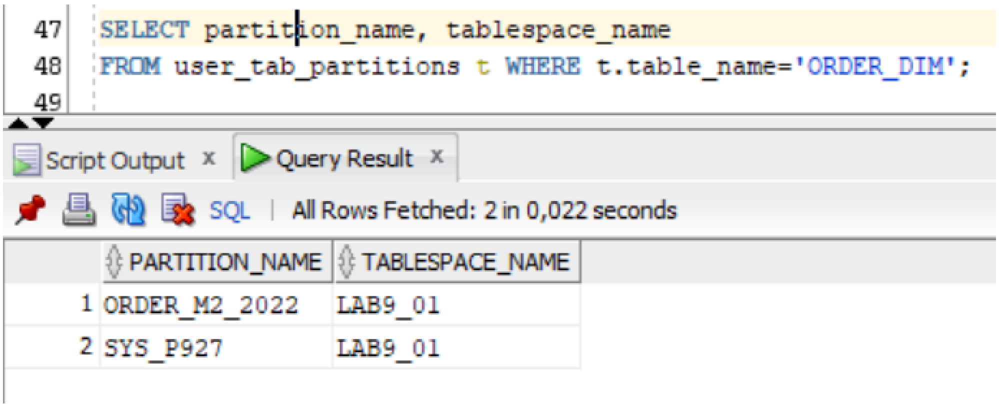
```
2 rows deleted.


Table ORDER_DIM altered.
```



```sql
SELECT * FROM order_dim
ORDER BY order_id;
```

All Rows Fetched: 2 in 0,034

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	23.04.22	1
2	4	07.05.22	1

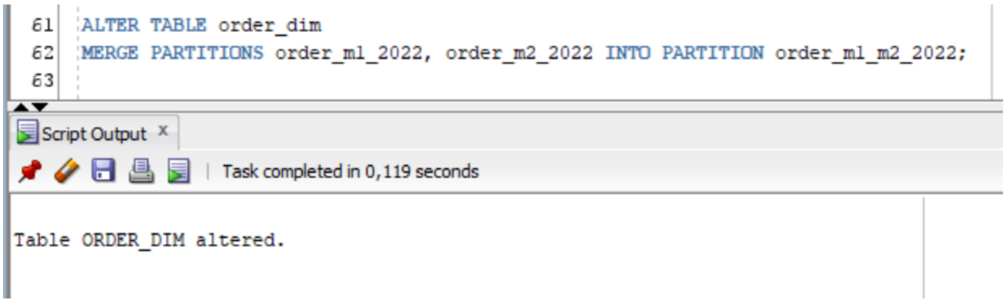


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 2 in 0,022 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_M2_2022	LAB9_01
2	SYS_P927	LAB9_01

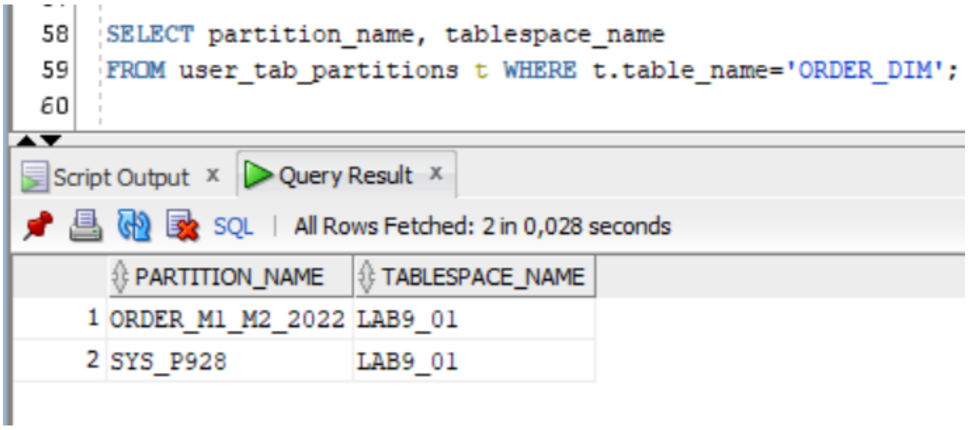
c) Merge partitions



```sql
ALTER TABLE order_dim
MERGE PARTITIONS order_m1_2022, order_m2_2022 INTO PARTITION order_m1_m2_2022;
```

Task completed in 0,119 seconds

```
Table ORDER_DIM altered.
```

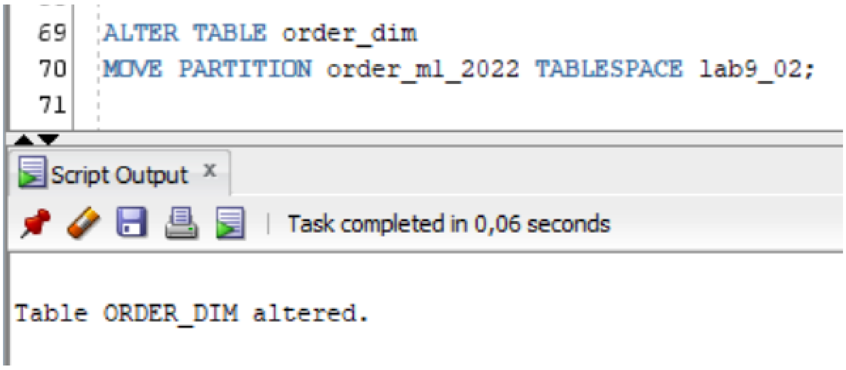


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 2 in 0,028 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_M1_M2_2022	LAB9_01
2	SYS_P928	LAB9_01

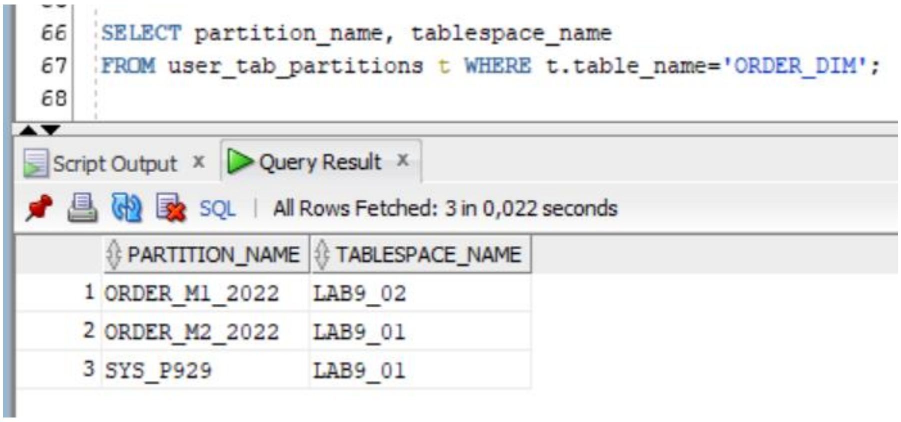
d) Move partition



```sql
ALTER TABLE order_dim
MOVE PARTITION order_m1_2022 TABLESPACE lab9_02;
```

Task completed in 0,06 seconds

```
Table ORDER_DIM altered.
```

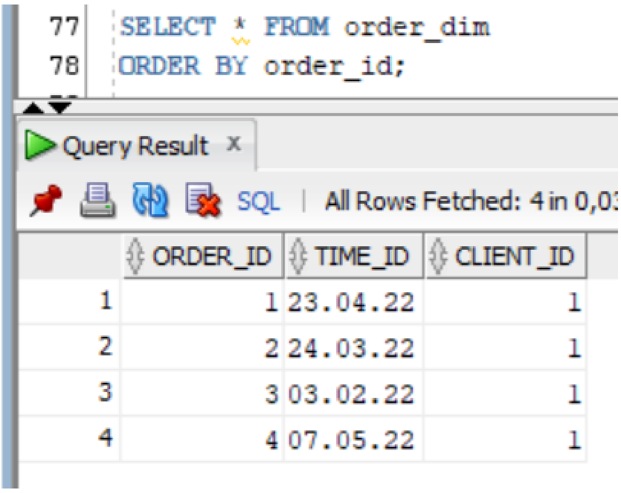


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

All Rows Fetched: 3 in 0,022 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_M1_2022	LAB9_02
2	ORDER_M2_2022	LAB9_01
3	SYS_P929	LAB9_01

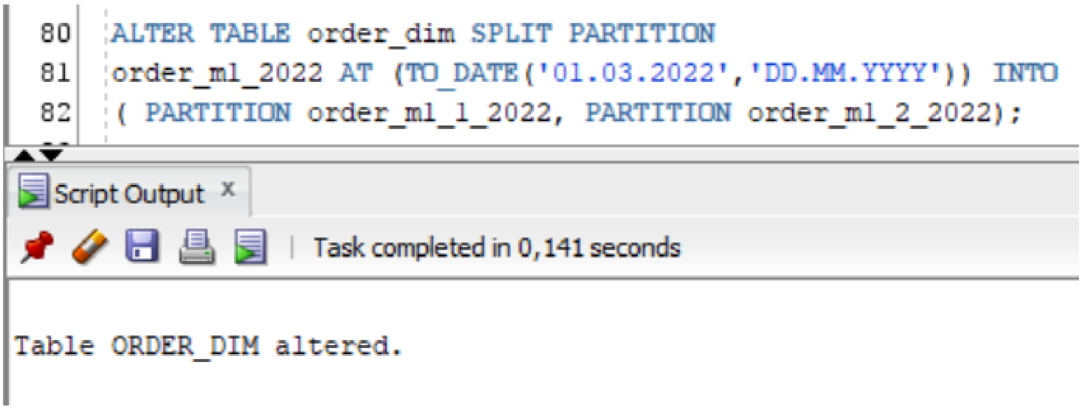
e) Split partition



```
SELECT * FROM order_dim
ORDER BY order_id;
```

All Rows Fetched: 4 in 0,0

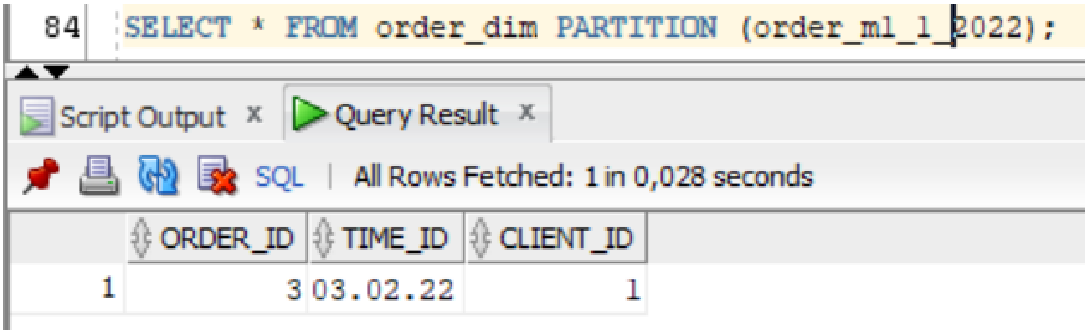
	ORDER_ID	TIME_ID	CLIENT_ID
1	1	23.04.22	1
2	2	24.03.22	1
3	3	03.02.22	1
4	4	07.05.22	1



```
ALTER TABLE order_dim SPLIT PARTITION
order_ml_2022 AT (TO_DATE('01.03.2022','DD.MM.YYYY')) INTO
( PARTITION order_ml_1_2022, PARTITION order_ml_2_2022);
```

Task completed in 0,141 seconds

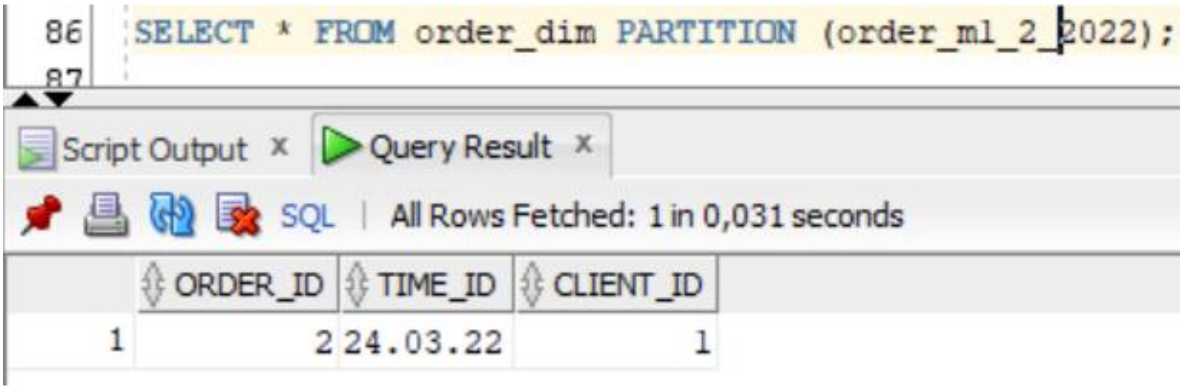
```
Table ORDER_DIM altered.
```



```
SELECT * FROM order_dim PARTITION (order_ml_1_2022);
```

All Rows Fetched: 1 in 0,028 seconds

	ORDER_ID	TIME_ID	CLIENT_ID
1	3	03.02.22	1

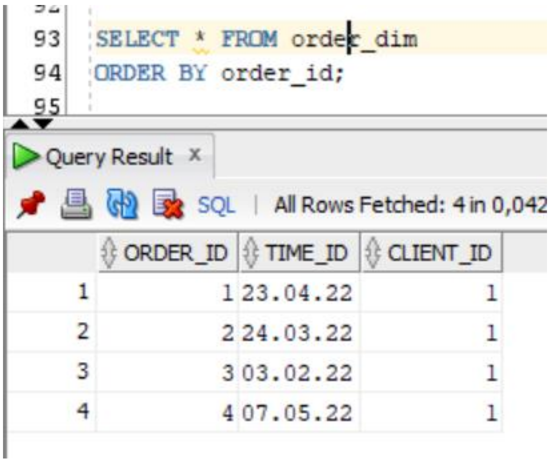


```
SELECT * FROM order_dim PARTITION (order_ml_2_2022);
```

All Rows Fetched: 1 in 0,031 seconds

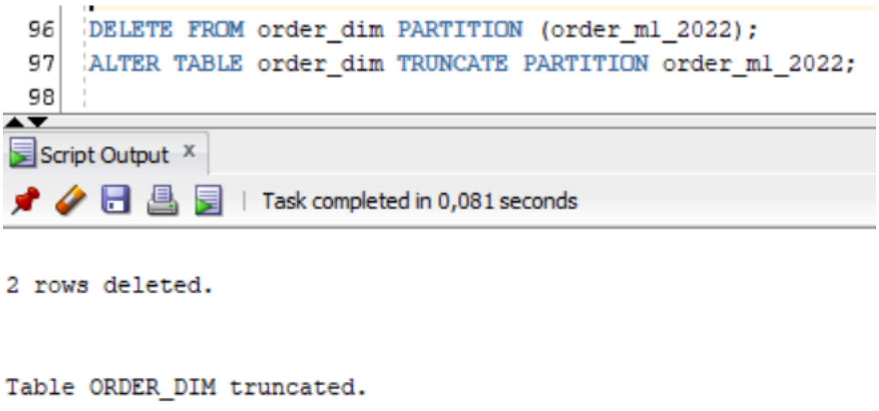
	ORDER_ID	TIME_ID	CLIENT_ID
1	2	24.03.22	1

f) Truncate partition



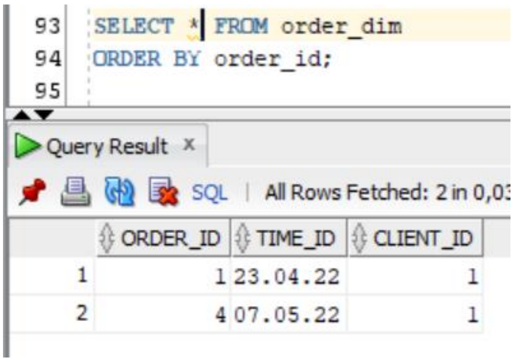
```
SELECT * FROM order_dim
ORDER BY order_id;
```

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	23.04.22	1
2	2	24.03.22	1
3	3	03.02.22	1
4	4	07.05.22	1



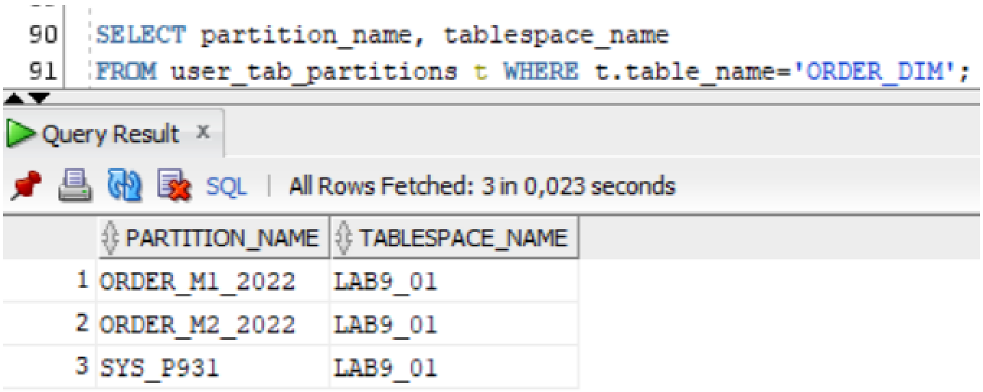
```
DELETE FROM order_dim PARTITION (order_m1_2022);
ALTER TABLE order_dim TRUNCATE PARTITION order_m1_2022;
```

```
2 rows deleted.


Table ORDER_DIM truncated.
```



```
SELECT * FROM order_dim
ORDER BY order_id;
```

	ORDER_ID	TIME_ID	CLIENT_ID
1	1	23.04.22	1
2	4	07.05.22	1

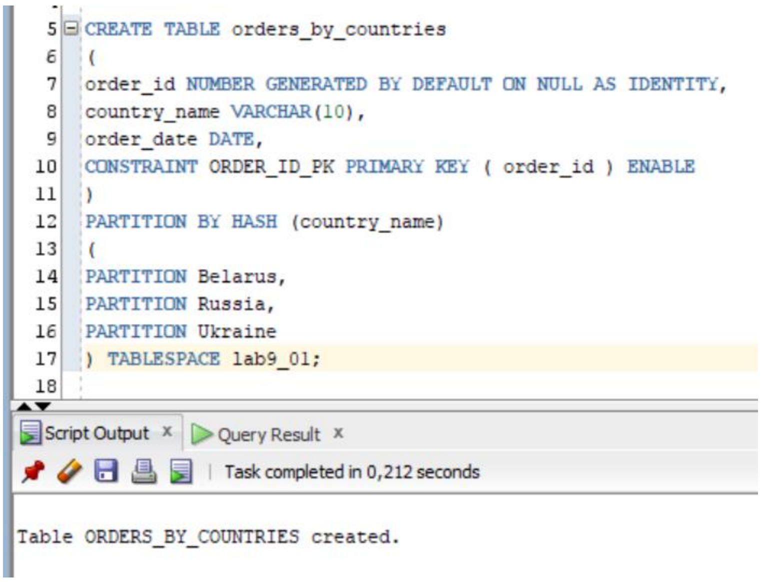


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_DIM';
```

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_M1_2022	LAB9_01
2	ORDER_M2_2022	LAB9_01
3	SYS_P931	LAB9_01

3) Hash

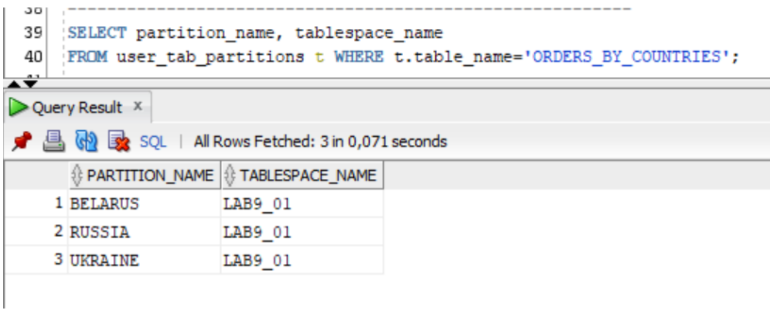
Create table using Hash partitioning



```
CREATE TABLE orders_by_countries
(
order_id NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
country_name VARCHAR(10),
order_date DATE,
CONSTRAINT ORDER_ID_PK PRIMARY KEY ( order_id ) ENABLE
)
PARTITION BY HASH (country_name)
(
PARTITION Belarus,
PARTITION Russia,
PARTITION Ukraine
) TABLESPACE lab9_01;
```

Task completed in 0,212 seconds

```
Table ORDERS_BY_COUNTRIES created.
```

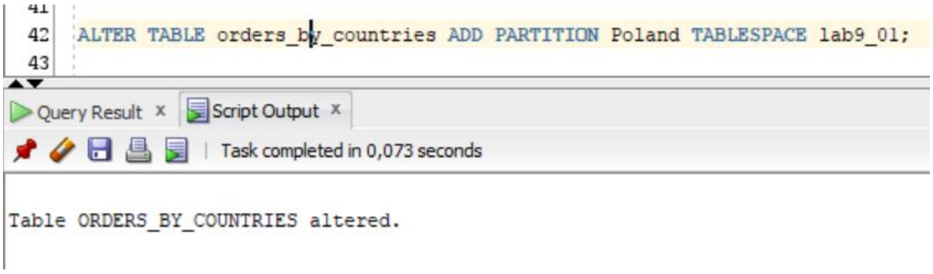


```
------------------------------------------------------------
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_COUNTRIES';
```

All Rows Fetched: 3 in 0,071 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	BELARUS	LAB9_01
2	RUSSIA	LAB9_01
3	UKRAINE	LAB9_01

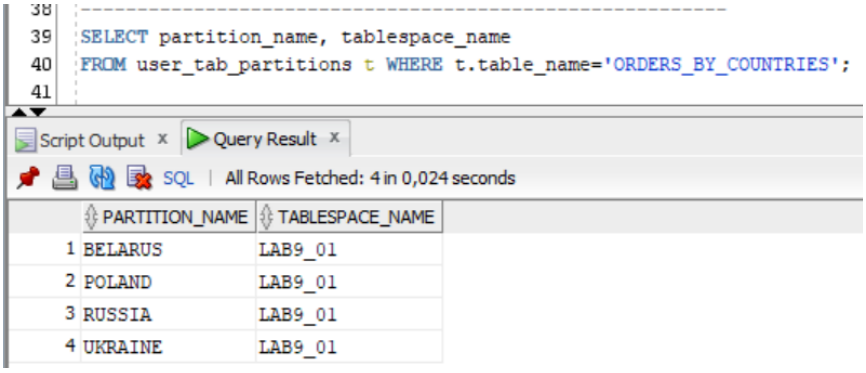
a) Add partitions



```
ALTER TABLE orders_by_countries ADD PARTITION Poland TABLESPACE lab9_01;
```

Task completed in 0,073 seconds

```
Table ORDERS_BY_COUNTRIES altered.
```

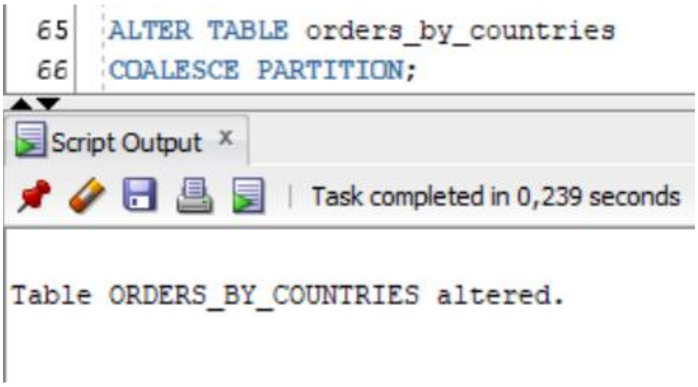


```
------------------------------------------------------------
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_COUNTRIES';
```

All Rows Fetched: 4 in 0,024 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	BELARUS	LAB9_01
2	POLAND	LAB9_01
3	RUSSIA	LAB9_01
4	UKRAINE	LAB9_01

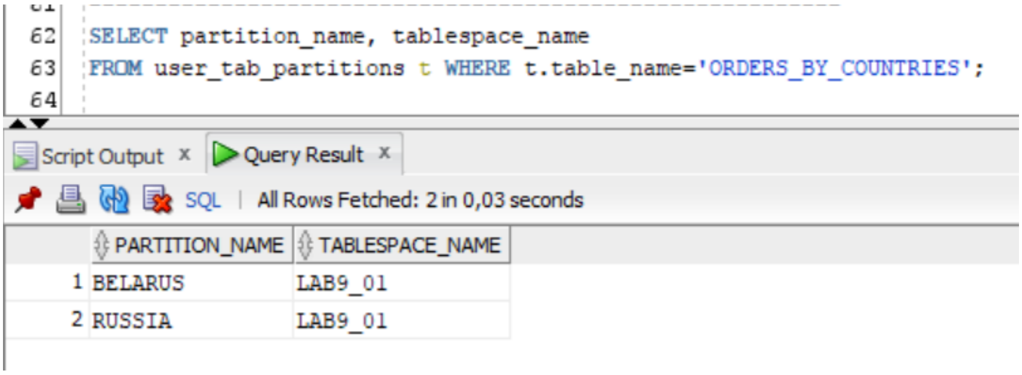
b) Coalesce partition



```
ALTER TABLE orders_by_countries
COALESCE PARTITION;
```

Task completed in 0,239 seconds

```
Table ORDERS_BY_COUNTRIES altered.
```

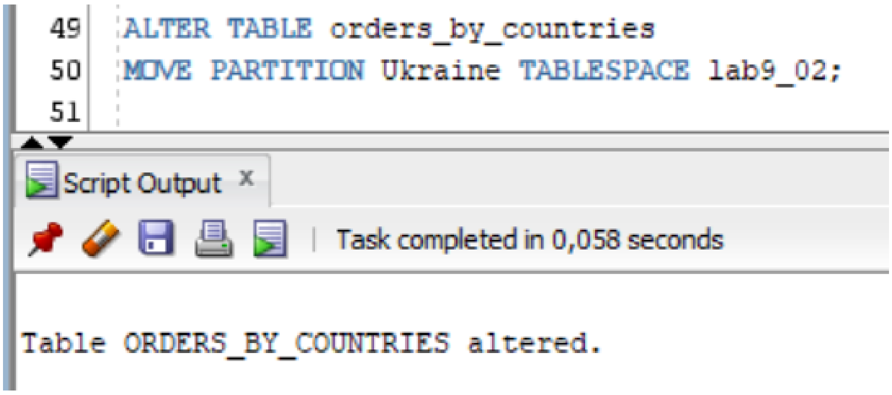


```
----------------------------------------------------------------
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_COUNTRIES';
```

All Rows Fetched: 2 in 0,03 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	BELARUS	LAB9_01
2	RUSSIA	LAB9_01

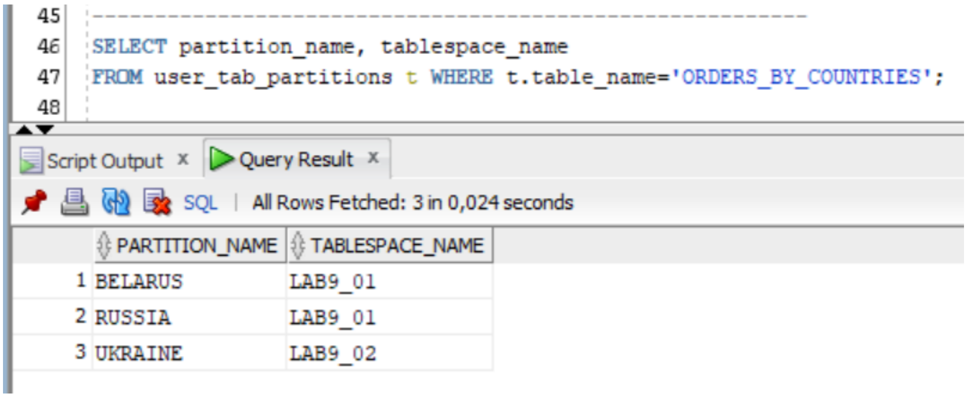
c) Move partition



```
ALTER TABLE orders_by_countries
MOVE PARTITION Ukraine TABLESPACE lab9_02;
```

Task completed in 0,058 seconds

```
Table ORDERS_BY_COUNTRIES altered.
```

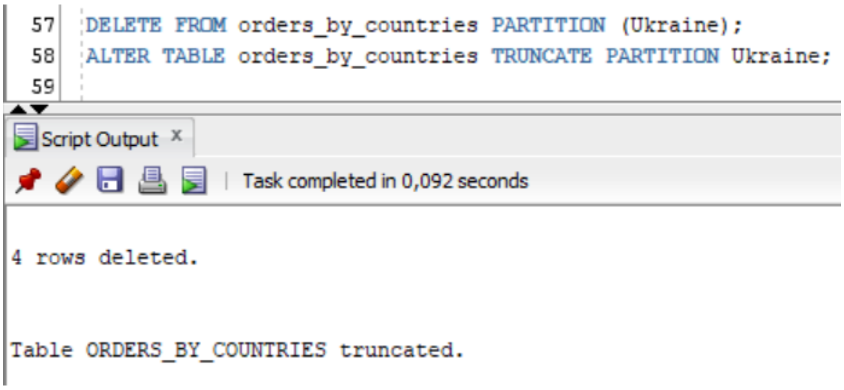


```
----------------------------------------------------------------
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_COUNTRIES';
```

All Rows Fetched: 3 in 0,024 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	BELARUS	LAB9_01
2	RUSSIA	LAB9_01
3	UKRAINE	LAB9_02

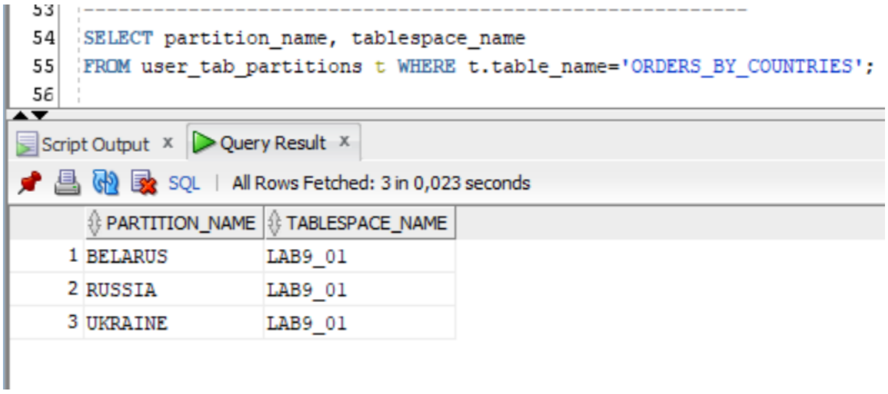
d) Truncate partition



```
DELETE FROM orders_by_countries PARTITION (Ukraine);
ALTER TABLE orders_by_countries TRUNCATE PARTITION Ukraine;
```

Task completed in 0,092 seconds

```
4 rows deleted.


Table ORDERS_BY_COUNTRIES truncated.
```



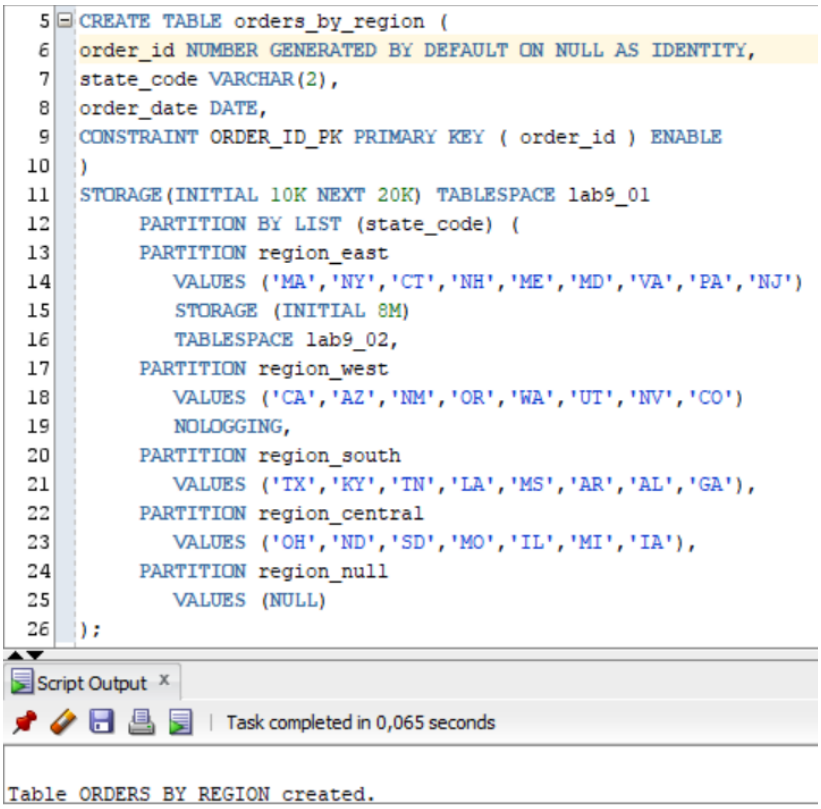
```
-----------------------------------------------------------
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_COUNTRIES';
```

All Rows Fetched: 3 in 0,023 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	BELARUS	LAB9_01
2	RUSSIA	LAB9_01
3	UKRAINE	LAB9_01

4) List Composite

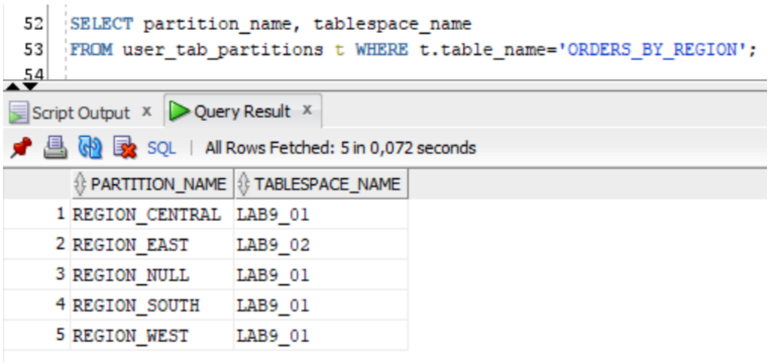
Create table using list partitioning



```
CREATE TABLE orders_by_region (
order_id NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
state_code VARCHAR(2),
order_date DATE,
CONSTRAINT ORDER_ID_PK PRIMARY KEY ( order_id ) ENABLE
)
STORAGE(INITIAL 10K NEXT 20K) TABLESPACE lab9_01
     PARTITION BY LIST (state_code) (
     PARTITION region_east
        VALUES ('MA','NY','CT','NH','ME','MD','VA','PA','NJ')
        STORAGE (INITIAL 8M)
        TABLESPACE lab9_02,
     PARTITION region_west
        VALUES ('CA','AZ','NM','OR','WA','UT','NV','CO')
        NOLOGGING,
     PARTITION region_south
        VALUES ('TX','KY','TN','LA','MS','AR','AL','GA'),
     PARTITION region_central
        VALUES ('OH','ND','SD','MO','IL','MI','IA'),
     PARTITION region_null
        VALUES (NULL)
);
```

Task completed in 0,065 seconds

```
Table ORDERS_BY_REGION created.
```

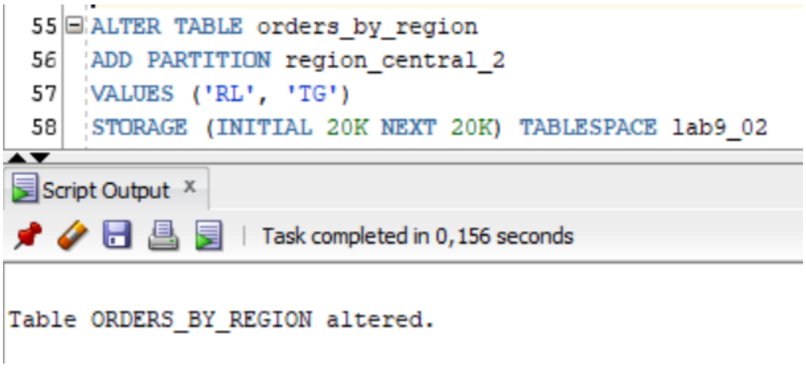


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

All Rows Fetched: 5 in 0,072 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL	LAB9_01
2	REGION_EAST	LAB9_02
3	REGION_NULL	LAB9_01
4	REGION_SOUTH	LAB9_01
5	REGION_WEST	LAB9_01

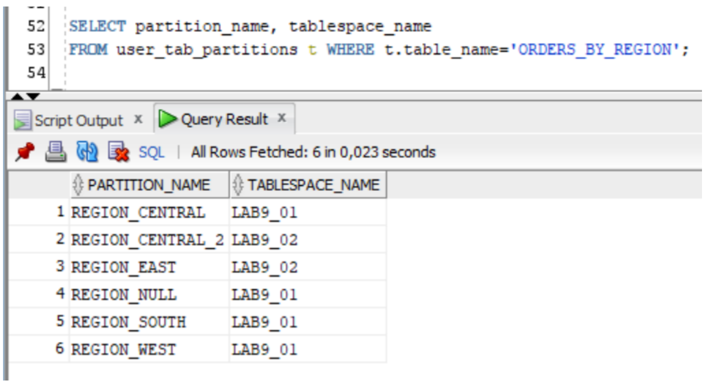
a) Add partition



```
ALTER TABLE orders_by_region
ADD PARTITION region_central_2
VALUES ('RL', 'TG')
STORAGE (INITIAL 20K NEXT 20K) TABLESPACE lab9_02
```

Task completed in 0,156 seconds

```
Table ORDERS_BY_REGION altered.
```

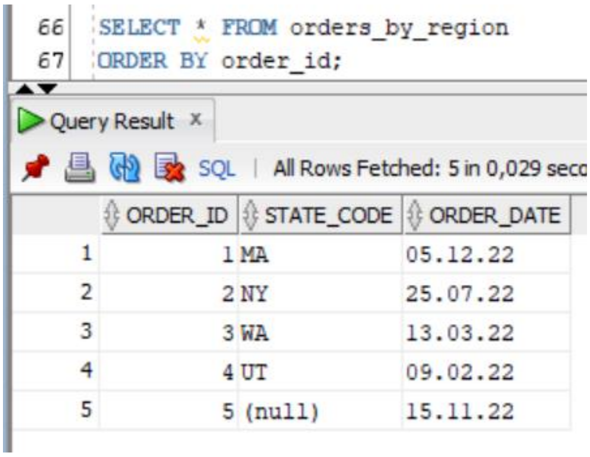


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

All Rows Fetched: 6 in 0,023 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL	LAB9_01
2	REGION_CENTRAL_2	LAB9_02
3	REGION_EAST	LAB9_02
4	REGION_NULL	LAB9_01
5	REGION_SOUTH	LAB9_01
6	REGION_WEST	LAB9_01

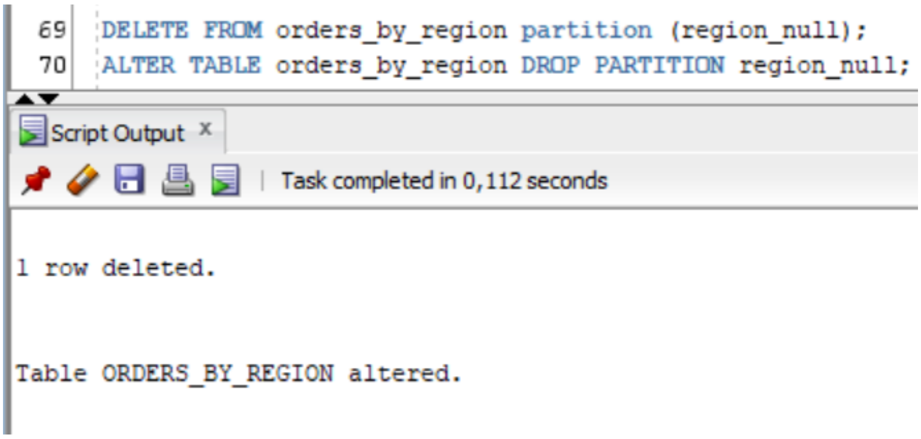
b) Drop partition



```
SELECT * FROM orders_by_region
ORDER BY order_id;
```

All Rows Fetched: 5 in 0,029 seco

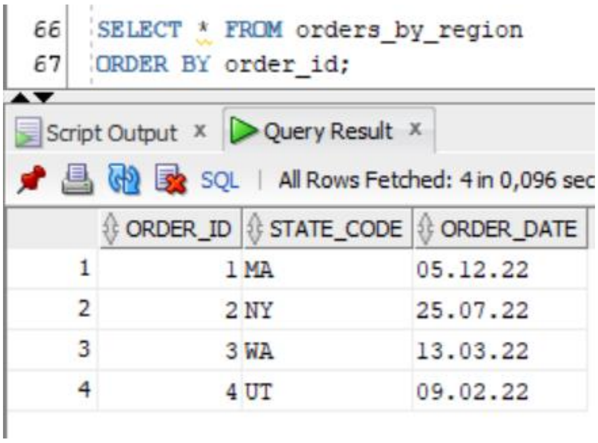
	ORDER_ID	STATE_CODE	ORDER_DATE
1	1	MA	05.12.22
2	2	NY	25.07.22
3	3	WA	13.03.22
4	4	UT	09.02.22
5	5	(null)	15.11.22



```
DELETE FROM orders_by_region partition (region_null);
ALTER TABLE orders_by_region DROP PARTITION region_null;
```

Task completed in 0,112 seconds

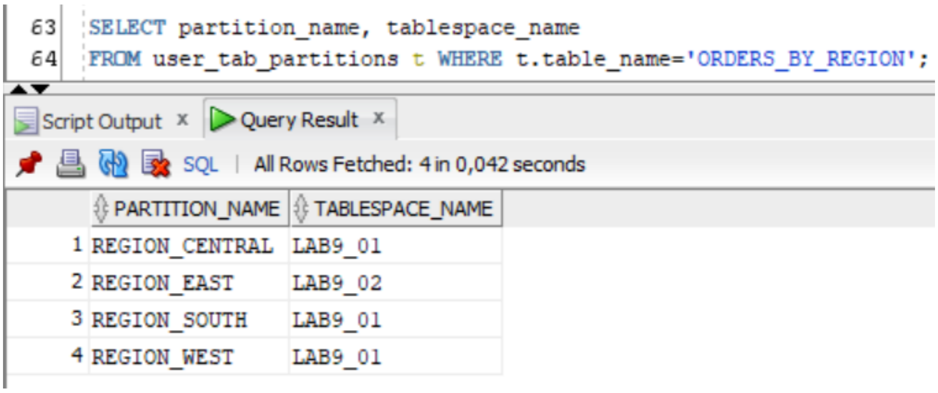
```
1 row deleted.


Table ORDERS_BY_REGION altered.
```



```
SELECT * FROM orders_by_region
ORDER BY order_id;
```

All Rows Fetched: 4 in 0,096 sec

	ORDER_ID	STATE_CODE	ORDER_DATE
1	1	MA	05.12.22
2	2	NY	25.07.22
3	3	WA	13.03.22
4	4	UT	09.02.22

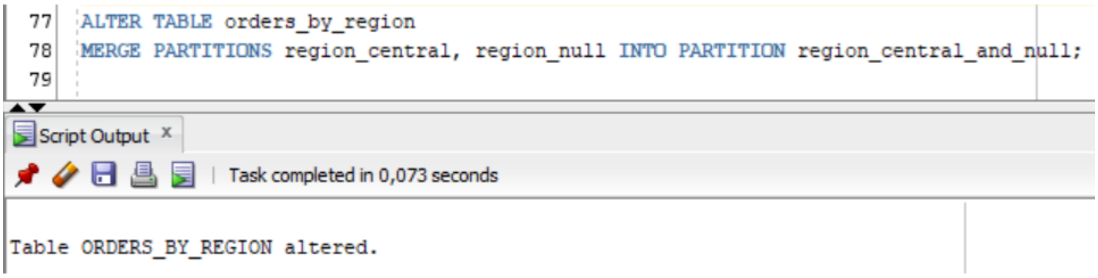


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

All Rows Fetched: 4 in 0,042 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL	LAB9_01
2	REGION_EAST	LAB9_02
3	REGION_SOUTH	LAB9_01
4	REGION_WEST	LAB9_01

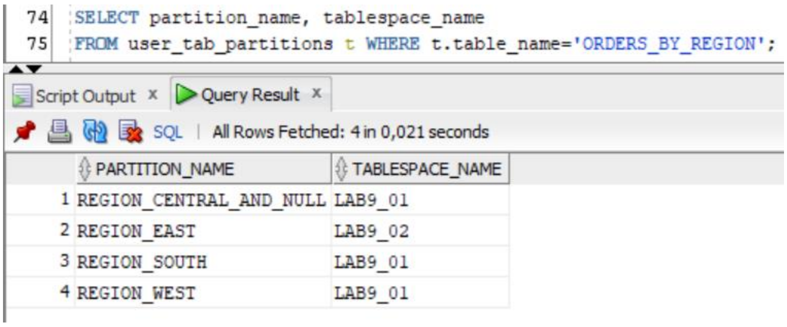
c) Merge partitions



```
ALTER TABLE orders_by_region
MERGE PARTITIONS region_central, region_null INTO PARTITION region_central_and_null;
```

Task completed in 0,073 seconds

```
Table ORDERS_BY_REGION altered.
```

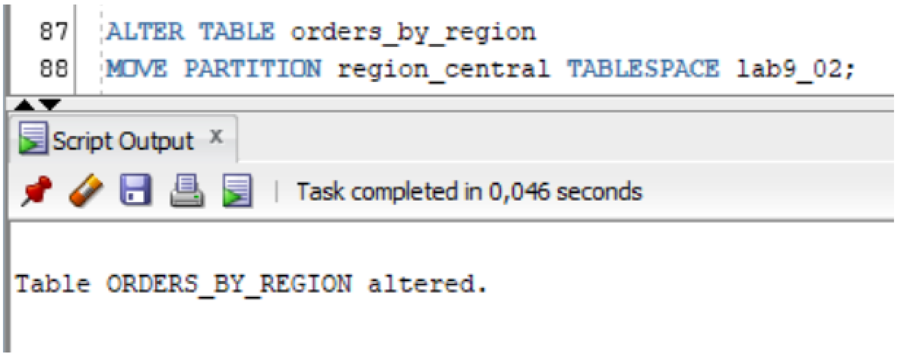


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

All Rows Fetched: 4 in 0,021 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL_AND_NULL	LAB9_01
2	REGION_EAST	LAB9_02
3	REGION_SOUTH	LAB9_01
4	REGION_WEST	LAB9_01

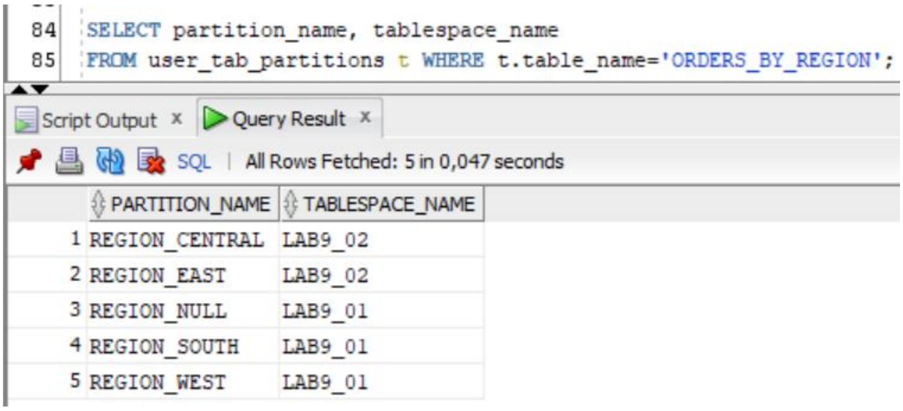
d) Move partition



```sql
ALTER TABLE orders_by_region
MOVE PARTITION region_central TABLESPACE lab9_02;
```

Task completed in 0,046 seconds

```
Table ORDERS_BY_REGION altered.
```

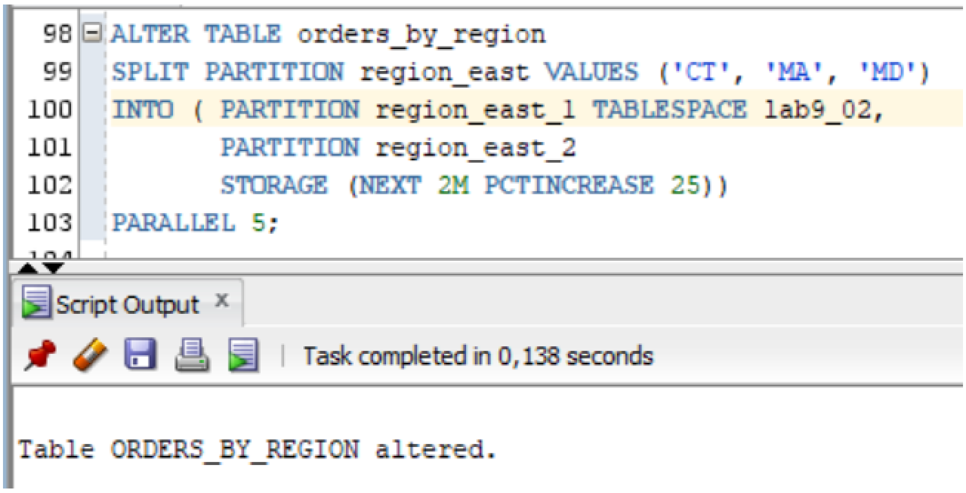


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

All Rows Fetched: 5 in 0,047 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL	LAB9_02
2	REGION_EAST	LAB9_02
3	REGION_NULL	LAB9_01
4	REGION_SOUTH	LAB9_01
5	REGION_WEST	LAB9_01

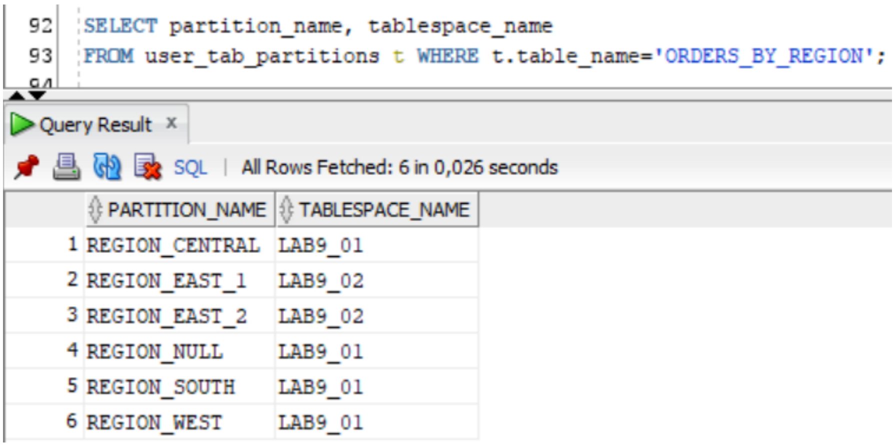
e) Split partition



```sql
ALTER TABLE orders_by_region
SPLIT PARTITION region_east VALUES ('CT', 'MA', 'MD')
INTO ( PARTITION region_east_1 TABLESPACE lab9_02,
       PARTITION region_east_2
       STORAGE (NEXT 2M PCTINCREASE 25))
PARALLEL 5;
```

Task completed in 0,138 seconds

```
Table ORDERS_BY_REGION altered.
```

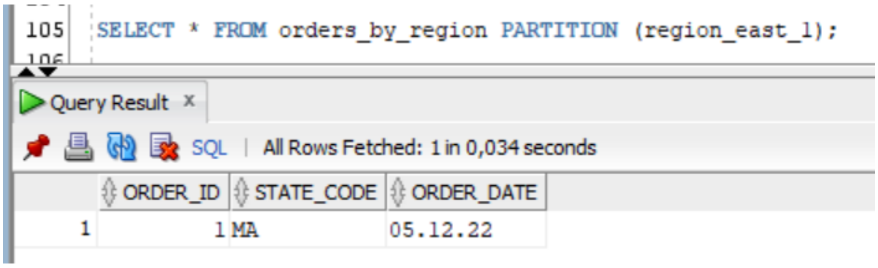


```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

Query Result

All Rows Fetched: 6 in 0,026 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL	LAB9_01
2	REGION_EAST_1	LAB9_02
3	REGION_EAST_2	LAB9_02
4	REGION_NULL	LAB9_01
5	REGION_SOUTH	LAB9_01
6	REGION_WEST	LAB9_01

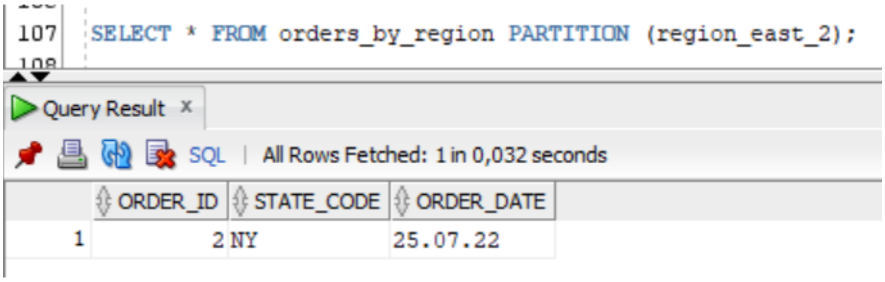


```sql
SELECT * FROM orders_by_region PARTITION (region_east_1);
```

Query Result

All Rows Fetched: 1 in 0,034 seconds

	ORDER_ID	STATE_CODE	ORDER_DATE
1	1	MA	05.12.22



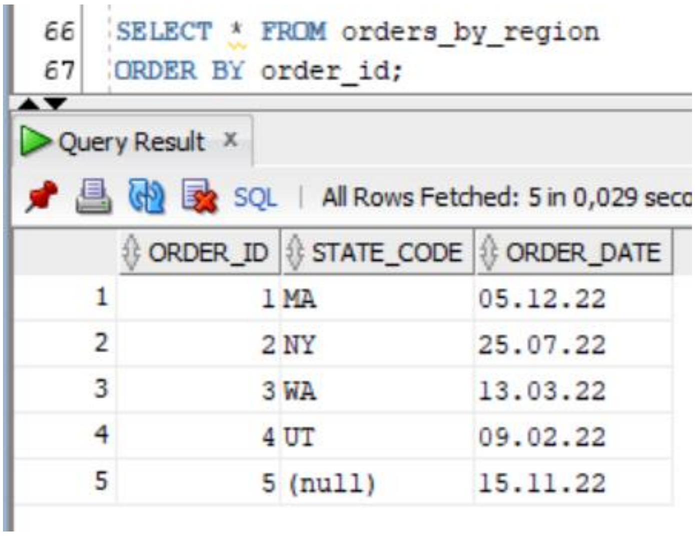
```sql
SELECT * FROM orders_by_region PARTITION (region_east_2);
```

Query Result

All Rows Fetched: 1 in 0,032 seconds

	ORDER_ID	STATE_CODE	ORDER_DATE
1	2	NY	25.07.22

f) Truncate partition

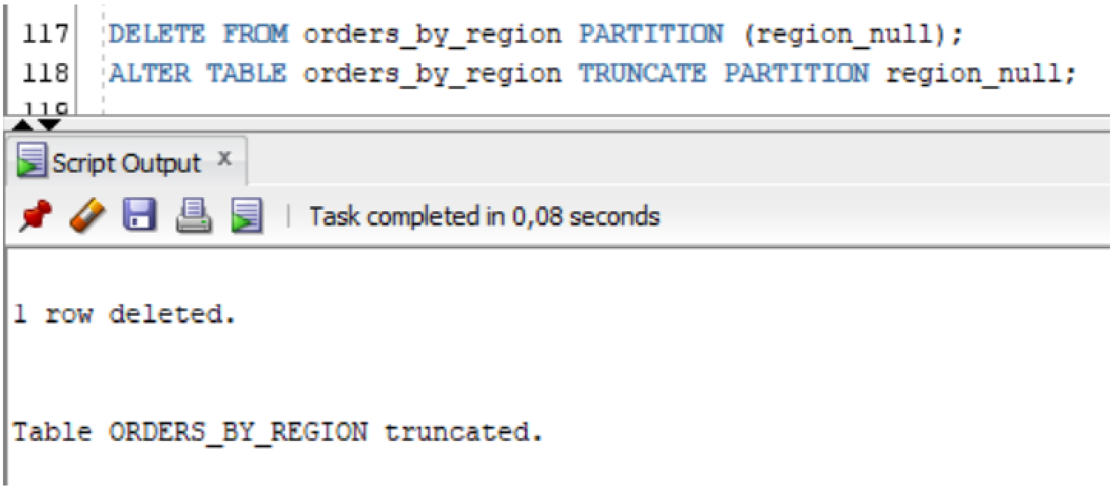


```sql
SELECT * FROM orders_by_region
ORDER BY order_id;
```

Query Result

All Rows Fetched: 5 in 0,029 seco

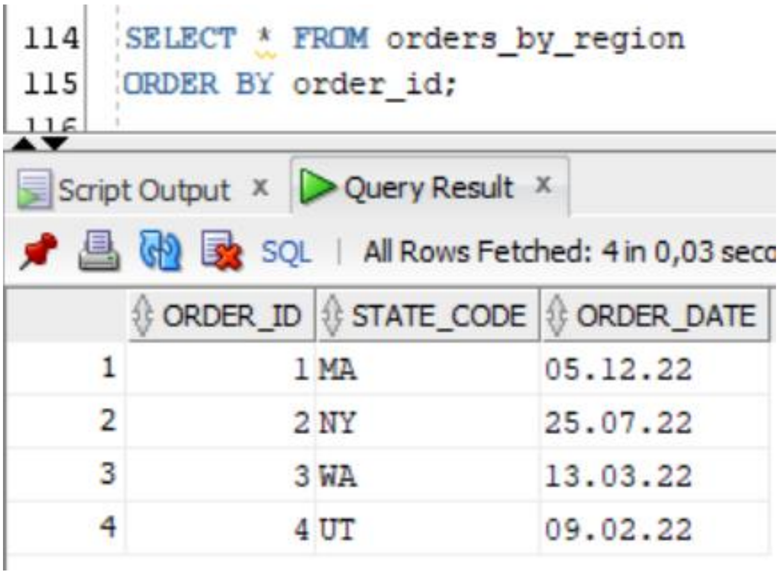
	ORDER_ID	STATE_CODE	ORDER_DATE
1	1	MA	05.12.22
2	2	NY	25.07.22
3	3	WA	13.03.22
4	4	UT	09.02.22
5	5	(null)	15.11.22



```sql
DELETE FROM orders_by_region PARTITION (region_null);
ALTER TABLE orders_by_region TRUNCATE PARTITION region_null;
```

Task completed in 0,08 seconds

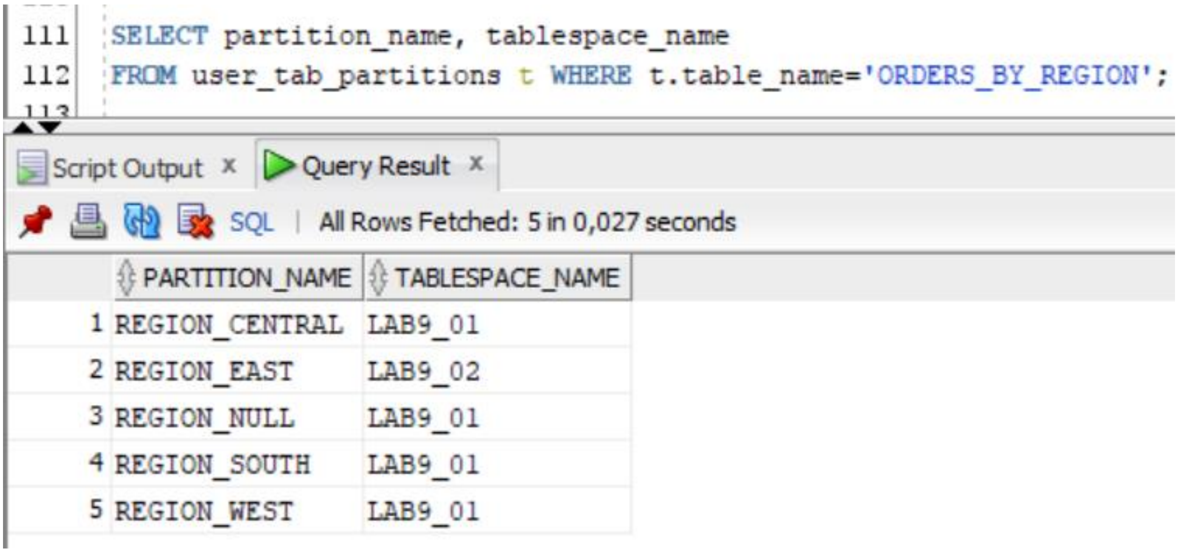
```
1 row deleted.


Table ORDERS_BY_REGION truncated.
```



```sql
SELECT * FROM orders_by_region
ORDER BY order_id;
```

All Rows Fetched: 4 in 0,03 seco

	ORDER_ID	STATE_CODE	ORDER_DATE
1	1	MA	05.12.22
2	2	NY	25.07.22
3	3	WA	13.03.22
4	4	UT	09.02.22



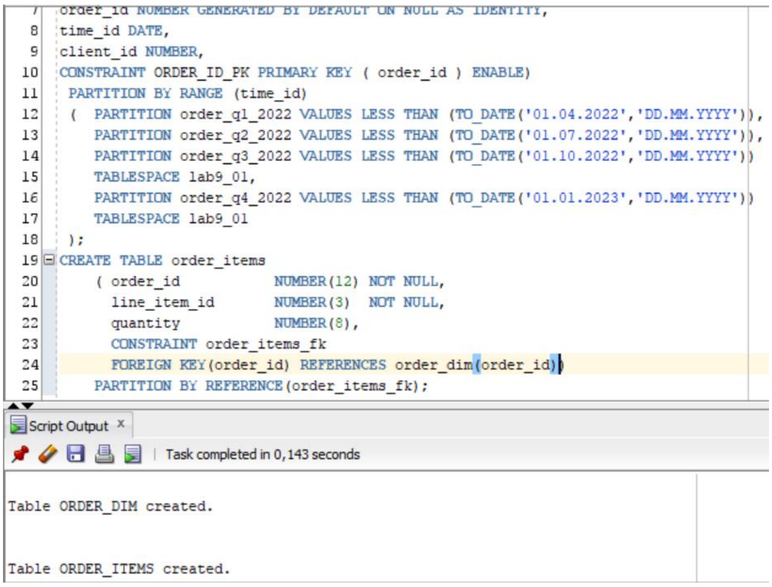
```sql
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDERS_BY_REGION';
```

All Rows Fetched: 5 in 0,027 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	REGION_CENTRAL	LAB9_01
2	REGION_EAST	LAB9_02
3	REGION_NULL	LAB9_01
4	REGION_SOUTH	LAB9_01
5	REGION_WEST	LAB9_01

5) Reference

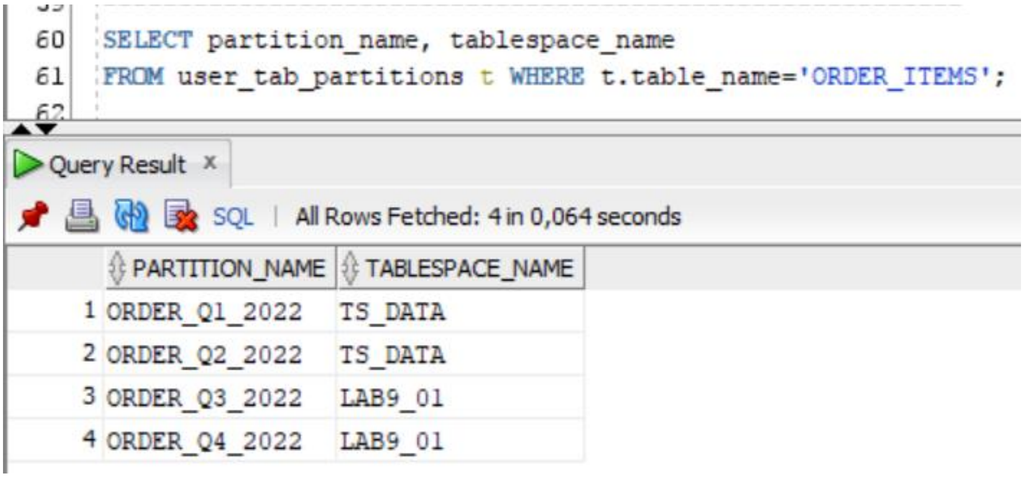
Create table using Reference partitioning



```
order_id NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
time_id DATE,
client_id NUMBER,
CONSTRAINT ORDER_ID_PK PRIMARY KEY ( order_id ) ENABLE)
 PARTITION BY RANGE (time_id)
 (  PARTITION order_q1_2022 VALUES LESS THAN (TO_DATE('01.04.2022','DD.MM.YYYY')),
    PARTITION order_q2_2022 VALUES LESS THAN (TO_DATE('01.07.2022','DD.MM.YYYY')),
    PARTITION order_q3_2022 VALUES LESS THAN (TO_DATE('01.10.2022','DD.MM.YYYY'))
    TABLESPACE lab9_01,
    PARTITION order_q4_2022 VALUES LESS THAN (TO_DATE('01.01.2023','DD.MM.YYYY'))
    TABLESPACE lab9_01
 );
CREATE TABLE order_items
    ( order_id           NUMBER(12) NOT NULL,
      line_item_id       NUMBER(3)  NOT NULL,
      quantity           NUMBER(8),
      CONSTRAINT order_items_fk
      FOREIGN KEY(order_id) REFERENCES order_dim(order_id))
    PARTITION BY REFERENCE(order_items_fk);
```

Task completed in 0,143 seconds

```
Table ORDER_DIM created.


Table ORDER_ITEMS created.
```

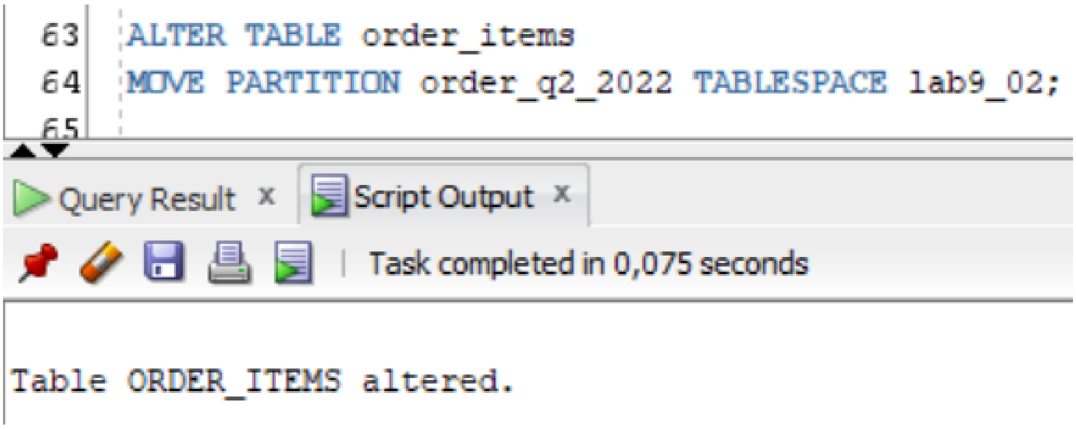


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_ITEMS';
```

All Rows Fetched: 4 in 0,064 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_2022	LAB9_01

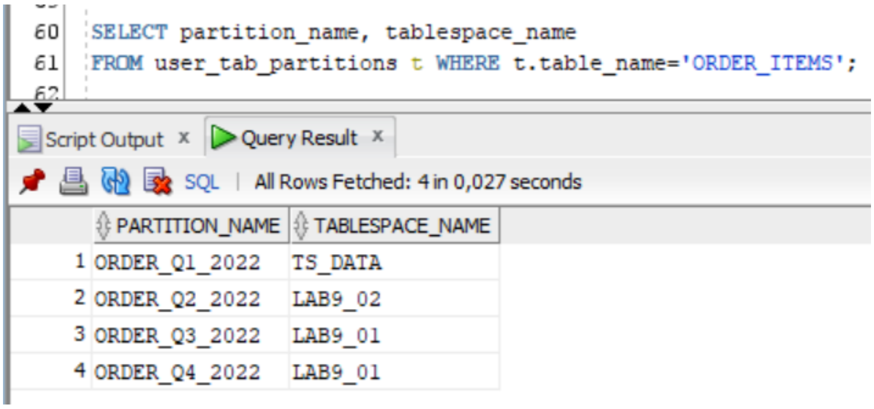
a) Move partition



```
ALTER TABLE order_items
MOVE PARTITION order_q2_2022 TABLESPACE lab9_02;
```

Task completed in 0,075 seconds

```
Table ORDER_ITEMS altered.
```

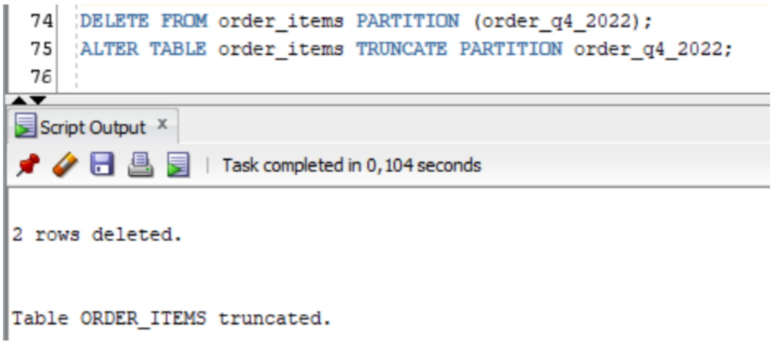


```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_ITEMS';
```

All Rows Fetched: 4 in 0,027 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	LAB9_02
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_2022	LAB9_01

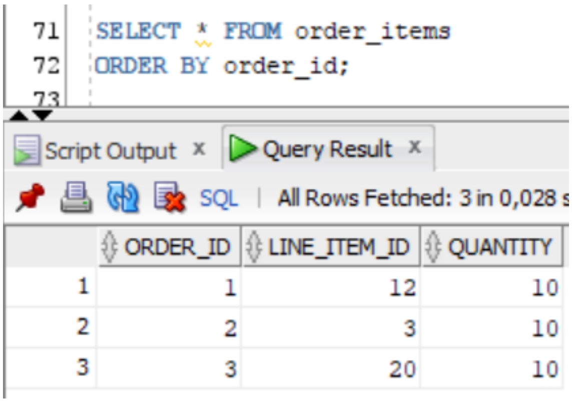
b) Truncate partition



```
DELETE FROM order_items PARTITION (order_q4_2022);
ALTER TABLE order_items TRUNCATE PARTITION order_q4_2022;
```

Task completed in 0,104 seconds

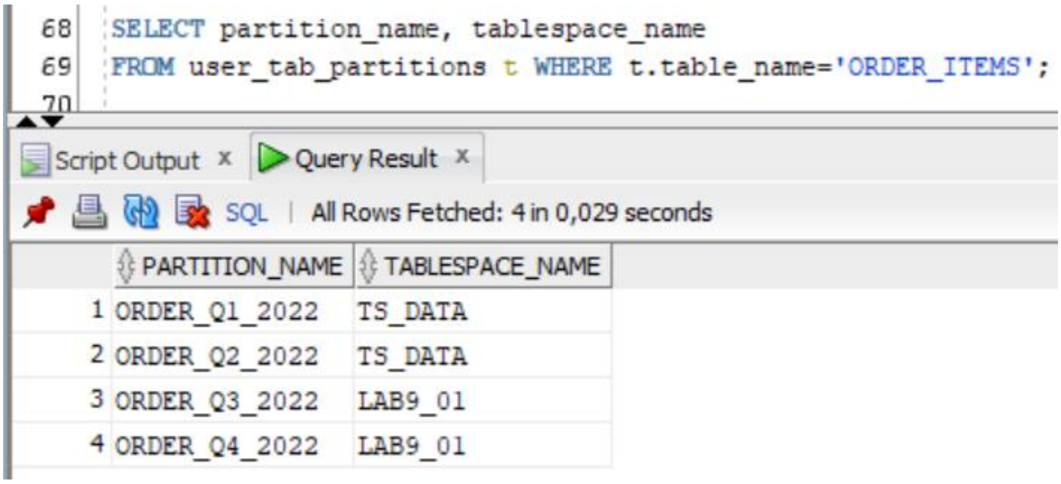
```
2 rows deleted.


Table ORDER_ITEMS truncated.
```



```
SELECT * FROM order_items
ORDER BY order_id;
```

All Rows Fetched: 3 in 0,028 s

	ORDER_ID	LINE_ITEM_ID	QUANTITY
1	1	12	10
2	2	3	10
3	3	20	10



```
SELECT partition_name, tablespace_name
FROM user_tab_partitions t WHERE t.table_name='ORDER_ITEMS';
```

All Rows Fetched: 4 in 0,029 seconds

	PARTITION_NAME	TABLESPACE_NAME
1	ORDER_Q1_2022	TS_DATA
2	ORDER_Q2_2022	TS_DATA
3	ORDER_Q3_2022	LAB9_01
4	ORDER_Q4_2022	LAB9_01

Task 2 - Partitioning Facts

The orders are divided by quarters using range partitioning by DATE_ID. The quarters are divided using hash partitioning by CLIENT_ID.

Example of a result table of facts with partition taken into account:

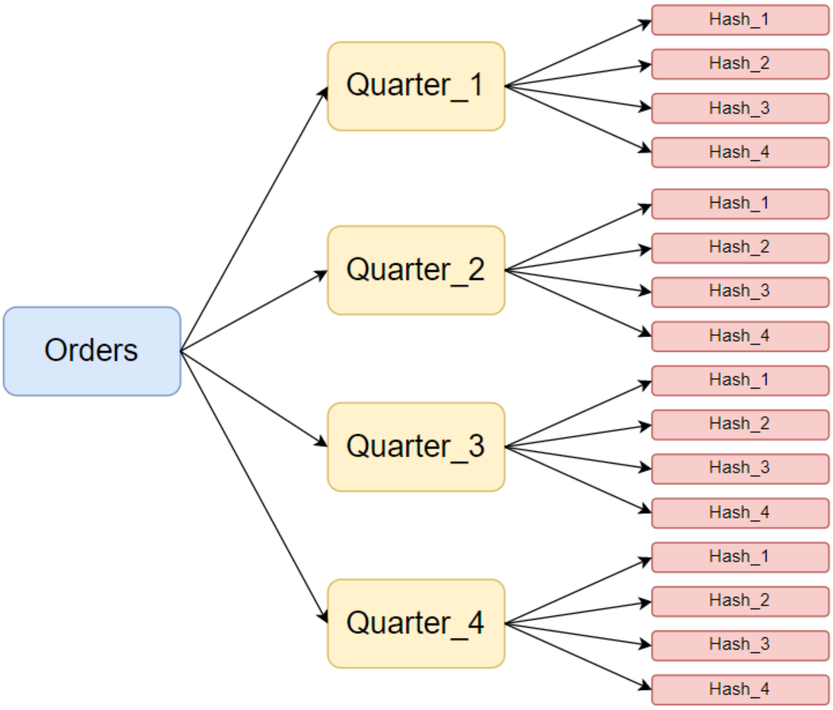
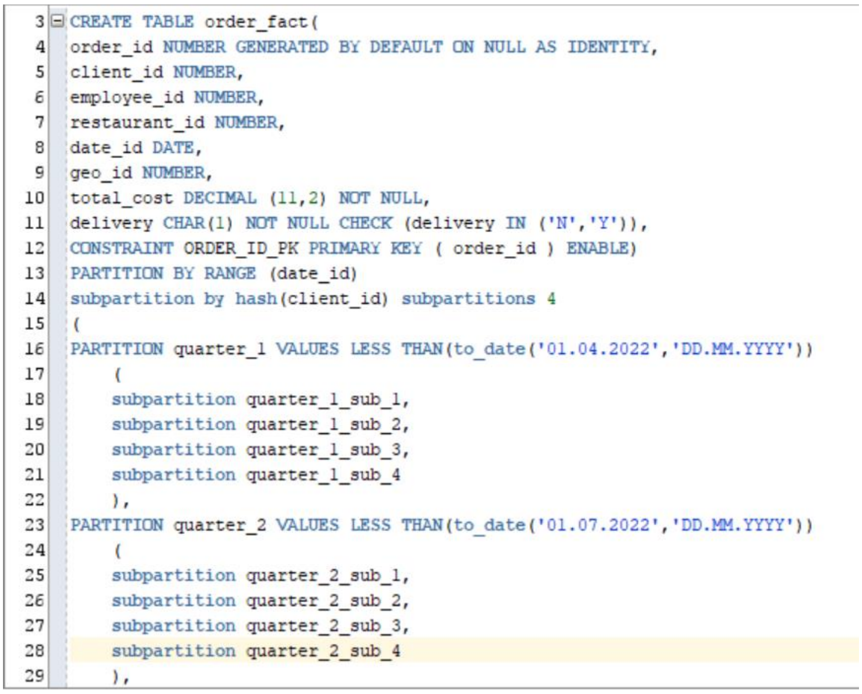


Table with the suggested partition option:



```
CREATE TABLE order_fact(
order_id NUMBER GENERATED BY DEFAULT ON NULL AS IDENTITY,
client_id NUMBER,
employee_id NUMBER,
restaurant_id NUMBER,
date_id DATE,
geo_id NUMBER,
total_cost DECIMAL (11,2) NOT NULL,
delivery CHAR(1) NOT NULL CHECK (delivery IN ('N','Y')),
CONSTRAINT ORDER_ID_PK PRIMARY KEY ( order_id ) ENABLE)
PARTITION BY RANGE (date_id)
subpartition by hash(client_id) subpartitions 4
(
PARTITION quarter_1 VALUES LESS THAN(to_date('01.04.2022','DD.MM.YYYY'))
    (
    subpartition quarter_1_sub_1,
    subpartition quarter_1_sub_2,
    subpartition quarter_1_sub_3,
    subpartition quarter_1_sub_4
    ),
PARTITION quarter_2 VALUES LESS THAN(to_date('01.07.2022','DD.MM.YYYY'))
    (
    subpartition quarter_2_sub_1,
    subpartition quarter_2_sub_2,
    subpartition quarter_2_sub_3,
    subpartition quarter_2_sub_4
    ),
```