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Bhujbal Knowledge City

Program No:	**1 2 3**
Roll No :	**1534**
Title of Program :	**Partitioning**
Objective :	**Implementation of Range, Hash and List Partitioning**

A. Range Partitioning:

This will be applied to columns.
Partition name-of-partition (criteria)

1. Create table

```
CREATE TABLE sales_range
   (salesman_id NUMBER(5),
   salesman_name VARCHAR2(30),
   sales_amount NUMBER(10),
   sales_date DATE)
   PARTITION BY RANGE (sales_date)
   (
        PARTITION p1_sales_jan2000 VALUES LESS
THAN(TO_DATE('01/02/2024','DD/MM/YYYY')),
        PARTITION p2_sales_feb2000 VALUES LESS
THAN(TO_DATE('01/03/2024','DD/MM/YYYY')),
        PARTITION p3_sales_mar2000 VALUES LESS
THAN(TO_DATE('01/04/2024','DD/MM/YYYY')),
        PARTITION p1_sales_apr2000 VALUES LESS
THAN(TO_DATE('01/05/2024','DD/MM/YYYY'))
   );
```

```
SQL> CREATE TABLE sales_range
  2      (salesman_id NUMBER(5),
  3      salesman_name VARCHAR2(30),
  4      sales_amount NUMBER(10),
  5      sales_date DATE)
  6      PARTITION BY RANGE (sales_date)
  7      (
  8   PARTITION p1_sales_jan2000 VALUES LESS THAN(TO_DATE('01/02/2024','DD/MM/YYYY')),
  9   PARTITION p2_sales_feb2000 VALUES LESS THAN(TO_DATE('01/03/2024','DD/MM/YYYY')),
 10   PARTITION p3_sales_mar2000 VALUES LESS THAN(TO_DATE('01/04/2024','DD/MM/YYYY')),
 11   PARTITION p1_sales_apr2000 VALUES LESS THAN(TO_DATE('01/05/2024','DD/MM/YYYY'))
 12      );

Table created.
```

2. Insert values into the table

INSERT INTO sales_range VALUES(1,'james bond',5000,TO_DATE('23/02/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(2,'Mary kom',6000,TO_DATE('02/03/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(3,'richard hendricks',7000,TO_DATE('22/03/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(4,'kashmira',8000,TO_DATE('31/01/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(5,'ted mosby',9000,TO_DATE('12/02/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(6,'walter white',5500,TO_DATE('15/04/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(7,'bonsoir elliot',10000,TO_DATE('10/04/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(8,'adam',6520,TO_DATE('20/03/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(9,'barney stinson',4875,TO_DATE('29/04/2024','DD/MM/YYYY'));
INSERT INTO sales_range VALUES(10,'Robin
scherbatsky',1000,TO_DATE('16/02/2024','DD/MM/YYYY'));

```
SQL> INSERT INTO sales_range VALUES(5,'omprakash',9000,TO_DATE('12/02/2024','DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_range VALUES(6,'Rahul',5500,TO_DATE('15/04/2024','DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_range VALUES(7,'tom cruize',10000,TO_DATE('10/04/2024','DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_range VALUES(8,'Crystal',6520,TO_DATE('20/03/2024','DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_range VALUES(9,'Judy',4875,TO_DATE('29/04/2024','DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_range VALUES(10,'Robin scherbatsky',1000,TO_DATE('16/02/2024','DD/MM/YYYY'));

1 row created.

SQL> SELECT * FROM sales_range PARTITION(p1_sales_apr2000);

SALESMAN_ID SALESMAN_NAME                 SALES_AMOUNT SALES_DAT
----------- ------------------------------ ------------ ---------
          6 Rahul                              5500 15-APR-24
          7 tom cruize                        10000 10-APR-24
          9 Judy                               4875 29-APR-24

SQL>
```

3. Create partitions using the range keyword

SELECT * FROM sales_range PARTITION(p1_sales_jan2000);
SELECT * FROM sales_range PARTITION(p2_sales_feb2000);
SELECT * FROM sales_range PARTITION(p3_sales_mar2000);
SELECT * FROM sales_range PARTITION(p4_sales_apr2000);

```
SQL> SELECT * FROM sales_range PARTITION(p1_sales_jan2000);

SALESMAN_ID SALESMAN_NAME                  SALES_AMOUNT SALES_DAT
----------- ------------------------------ ------------ ---------
          4 kashmira                               8000 31-JAN-24

SQL> SELECT * FROM sales_range PARTITION(p2_sales_feb2000);

SALESMAN_ID SALESMAN_NAME                  SALES_AMOUNT SALES_DAT
----------- ------------------------------ ------------ ---------
          1 james bond                             5000 23-FEB-24
          5 ted mosby                              9000 12-FEB-24
         10 Robin scherbatsky                      1000 16-FEB-24

SQL> SELECT * FROM sales_range PARTITION(p3_sales_mar2000);

SALESMAN_ID SALESMAN_NAME                  SALES_AMOUNT SALES_DAT
----------- ------------------------------ ------------ ---------
          2 Mary kom                               6000 02-MAR-24
          3 richard hendricks                      7000 22-MAR-24
          8 adam                                   6520 20-MAR-24

SQL> SELECT * FROM sales_range PARTITION(p4_sales_apr2000);

SALESMAN_ID SALESMAN_NAME                  SALES_AMOUNT SALES_DAT
----------- ------------------------------ ------------ ---------
          6 walter white                           5500 15-APR-24
          7 bonsoir elliot                        10000 10-APR-24
          9 barney stinson                         4875 29-APR-24
```

B. Hash Partitioning:

CREATE TABLE

```
CREATE TABLE sales
(
        dept_no number,
        part_no varchar2(20),
        country varchar2(20),
        date1 date,
        amount number
)
PARTITION BY HASH(part_no)
(
        PARTITION p1,
        PARTITION p2,
        PARTITION p3
);
```

```
SQL> CREATE TABLE sales
  2  (
  3  dept_no number,
  4  part_no varchar2(20),
  5  country varchar2(20),
  6  date1 date,
  7  amount number
  8  )
  9  PARTITION BY HASH(part_no)
 10  (
 11  PARTITION p1,
 12  PARTITION p2,
 13  PARTITION p3
 14  );

Table created.
```

INSERT DATA

INSERT INTO sales VALUES (1,'101','India',TO_DATE('23/02/2024','DD/MM/YYYY'),25000);
INSERT INTO sales VALUES (2,'201','India',TO_DATE('10/03/2024','DD/MM/YYYY'),35000);
INSERT INTO sales VALUES (3,'301','US',TO_DATE('05/05/2024','DD/MM/YYYY'),45000);
INSERT INTO sales VALUES (4,'410','UK',TO_DATE('27/04/2024','DD/MM/YYYY'),55000);
INSERT INTO sales VALUES
(5,'551','CANADA',TO_DATE('11/02/2024','DD/MM/YYYY'),65000);

```
SQL> select * from sales
  2  ;

   DEPT_NO PART_NO              COUNTRY              DATE1         AMOUNT
---------- -------------------- -------------------- --------- ----------
         2 201                  India                10-MAR-24      35000
         3 301                  US                   05-MAY-24      45000
         1 101                  India                23-FEB-24      25000
         4 410                  UK                   27-APR-24      55000
         5 551                  CANADA               11-FEB-24      65000

SQL>
```

SELECT * FROM sales PARTITION(p1);
SELECT * FROM sales PARTITION(p2);
SELECT * FROM sales PARTITION(p3);

```
SQL> SELECT * FROM sales PARTITION(p2);

   DEPT_NO PART_NO              COUNTRY              DATE1         AMOUNT
---------- -------------------- -------------------- --------- ----------
         2 201                  India                10-MAR-24      35000
         3 301                  US                   05-MAY-24      45000

SQL> SELECT * FROM sales PARTITION(p3);

   DEPT_NO PART_NO              COUNTRY              DATE1         AMOUNT
---------- -------------------- -------------------- --------- ----------
         1 101                  India                23-FEB-24      25000
         4 410                  UK                   27-APR-24      55000
         5 551                  CANADA               11-FEB-24      65000
```

C. List Partitioning:

Enable row movement;

- to move record in case of modification
  CREATE TABLE sales_list (
- salesman_id NUMBER(5),
- salesman_name VARCHAR2(30),
- sales_state VARCHAR2(20),
- sales_amount NUMBER(10),
- sales_date DATE
-)
- PARTITION BY LIST (sales_state) (
- PARTITION sales_west VALUES ('California', 'Hawaii'),
- PARTITION sales_east VALUES ('New York', 'Virginia', 'Florida'),
- PARTITION sales_central VALUES ('Texas', 'Illinois'),
- PARTITION sales_other VALUES (DEFAULT)
-);

```
SQL> CREATE TABLE sales_list (
  2      salesman_id NUMBER(5),
  3      salesman_name VARCHAR2(30),
  4      sales_state VARCHAR2(20),
  5      sales_amount NUMBER(10),
  6      sales_date DATE
  7  )
  8  PARTITION BY LIST (sales_state) (
  9      PARTITION sales_west VALUES ('California', 'Hawaii'),
 10      PARTITION sales_east VALUES ('New York', 'Virginia', 'Florida'),
 11      PARTITION sales_central VALUES ('Texas', 'Illinois'),
 12      PARTITION sales_other VALUES (DEFAULT)
 13  );

Table created.
```

enable row movement;

insert into columns:

```
-- Insert data, with each record fitting into its respective partition:
INSERT INTO sales_list VALUES(1, 'John Smith', 'New York', 6000, TO_DATE('02/03/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(2, 'Mary Jane', 'New York', 6000, TO_DATE('02/03/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(3, 'Neha', 'Virginia', 7000, TO_DATE('22/03/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(4, 'Kush', 'Texas', 8000, TO_DATE('31/01/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(5, 'Luv', 'Florida', 9000, TO_DATE('12/02/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(6, 'Rahul', 'Hawaii', 5500, TO_DATE('15/04/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(7, 'Gwen', 'Illinois', 10000, TO_DATE('10/04/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(8, 'Crystal', 'Virginia', 6520, TO_DATE('20/03/2024',
'DD/MM/YYYY'));
-- Insert default case (which will go into 'sales_other'):
INSERT INTO sales_list VALUES(9, 'Judy', 'Unknown', 4875, TO_DATE('29/04/2024',
'DD/MM/YYYY'));
INSERT INTO sales_list VALUES(10, 'Robin', 'Texas', 1000, TO_DATE('16/02/2024',
'DD/MM/YYYY'));
```

```
SQL> -- Insert data, with each record fitting into its respective partition:
SQL> INSERT INTO sales_list VALUES(1, 'John Smith', 'New York', 6000, TO_DATE('02/03/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(2, 'Mary Jane', 'New York', 6000, TO_DATE('02/03/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(3, 'Neha', 'Virginia', 7000, TO_DATE('22/03/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(4, 'Kush', 'Texas', 8000, TO_DATE('31/01/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(5, 'Luv', 'Florida', 9000, TO_DATE('12/02/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(6, 'Rahul', 'Hawaii', 5500, TO_DATE('15/04/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(7, 'Gwen', 'Illinois', 10000, TO_DATE('10/04/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(8, 'Crystal', 'Virginia', 6520, TO_DATE('20/03/2024', 'DD/MM/YYYY'));

1 row created.

SQL> -- Insert default case (which will go into 'sales_other'):
SQL> INSERT INTO sales_list VALUES(9, 'Judy', 'Unknown', 4875, TO_DATE('29/04/2024', 'DD/MM/YYYY'));

1 row created.

SQL> INSERT INTO sales_list VALUES(10, 'Robin', 'Texas', 1000, TO_DATE('16/02/2024', 'DD/MM/YYYY'));
```

Ensure **row movement** is enabled with:

ALTER TABLE sales_list ENABLE ROW MOVEMENT;

```
SQL> ALTER TABLE sales_list ENABLE ROW MOVEMENT;

Table altered.

SQL>
```

UPDATE sales_list SET sales_state='Hawaii' WHERE salesman_id=9;

```
SQL> UPDATE sales_list SET sales_state='Hawaii' WHERE salesman_id=9;

1 row updated.
```

SELECT * FROM sales_list PARTITION (sales_west);

```
SQL> SELECT * FROM sales_list PARTITION (sales_west);

SALESMAN_ID SALESMAN_NAME                  SALES_STATE          SALES_AMOUNT
----------- ------------------------------ -------------------- ------------
SALES_DAT
---------
          6 Rahul                          Hawaii                       5500
15-APR-24

          9 Judy                           Hawaii                       4875
29-APR-24
```

SELECT * FROM sales_list PARTITION (sales_east);

```
SQL> SELECT * FROM sales_list PARTITION (sales_east);

SALESMAN_ID SALESMAN_NAME                  SALES_STATE          SALES_AMOUNT
----------- ------------------------------ -------------------- ------------
SALES_DAT
---------
          1 John Smith                     New York                     6000
02-MAR-24

          2 Mary Jane                      New York                     6000
02-MAR-24

          3 Neha                           Virginia                     7000
22-MAR-24


SALESMAN_ID SALESMAN_NAME                  SALES_STATE          SALES_AMOUNT
----------- ------------------------------ -------------------- ------------
SALES_DAT
---------
          5 Luv                            Florida                      9000
12-FEB-24

          8 Crystal                        Virginia                     6520
20-MAR-24
```

SELECT * FROM sales_list PARTITION (sales_central);

```
SQL> SELECT * FROM sales_list PARTITION (sales_central);

SALESMAN_ID SALESMAN_NAME                  SALES_STATE          SALES_AMOUNT
----------- ------------------------------ -------------------- ------------
SALES_DAT
---------
          4 Kush                           Texas                        8000
31-JAN-24

          7 Gwen                           Illinois                    10000
10-APR-24

         10 Robin                          Texas                        1000
16-FEB-24
```