Partitioning Techniques

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Range Partition:

Consider a table named employees with schema emp (id int, fname varchar(25) not null,

lname varchar(25) not null, store_id int not null, department_id int not null) with id as a

primary key and insert 20 records with id ranges from 1 to20.

Make 4 partitions by range:

P0: id < 5

P1: id < 10

P2: id < 15

P3: id < 20 or Maxvalue.

```
create table employees(
id int primary key,
fname varchar(25) not null,
lname varchar(25)not null,
store_id int not null,
department_id int not null
```

```
)
PARTITION BY RANGE (id) (
PARTITION p0 VALUES LESS THAN (5),
PARTITION p1 VALUES LESS THAN (10),
PARTITION p2 VALUES LESS THAN (15),
PARTITION p3 VALUES LESS THAN (20),
PARTITION p4 VALUES LESS THAN (MAXVALUE)
);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (2,
'Jane',
'Smith', 1, 101);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (3,
'Sam',
'Brown', 2, 102);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (4,
'Sue',
'Davis', 2, 102);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (5,
'Tom',
'White', 1, 103);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (6,
'Sara',
'Miller', 1, 103);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (7,
'Tim',
'Wilson', 2, 104);
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (8,
'Sophie',
'Taylor', 2, 104);
```

```
INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (9,
'Steve',

'Moore', 3, 105);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (10,
'Jake',

'Thomas', 3, 105);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (11,
'Jess',

'Johnson', 3, 106);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (12,
'Jill',

'Clark', 3, 106);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (13,
'Jim',

'Martinez', 1, 107);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (14,
'Joan',

'Hernandez', 1, 107);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (15,
'Jack',

'Lopez', 2, 108);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (16,
'Jason',

'Gonzalez', 2, 108);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (17,
'Julia',

'Perez', 3, 109);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (18,
'Javier',

'Martinez', 3, 109);

INSERT INTO employees (id, fname, lname, store_id, department_id) VALUES (19,
```

'Joseph', 'Ramirez', 1, 110);

1. Retrieve employee details from partition P1 and P2.

SELECT * FROM employees WHERE id >= 5 AND id < 15;

Script Output | Query Result

SQL | All Rows Fetched: 10 in 0.001 seconds

	ID	FNAME	LNAME	STORE_ID	DEPARTMENT_ID
1	5	Tom	White	1	103
2	6	Sara	Miller	1	103
3	7	Tim	Wilson	2	104
4	8	Sophie	Taylor	2	104
5	9	Steve	Moore	3	105
6	10	Jake	Thomas	3	105
7	11	Jess	Johnson	3	106
8	12	Jill	Clark	3	106
9	13	Jim	Martinez	1	107
10	14	Joan	Hernandez	1	107

2.Retrieve employee details from partition P0 and P1 where fname begin with 'S'.

Ans:

SELECT * FROM employees

WHERE id < 10

AND fname LIKE 'S%';

Script Output | Query Result

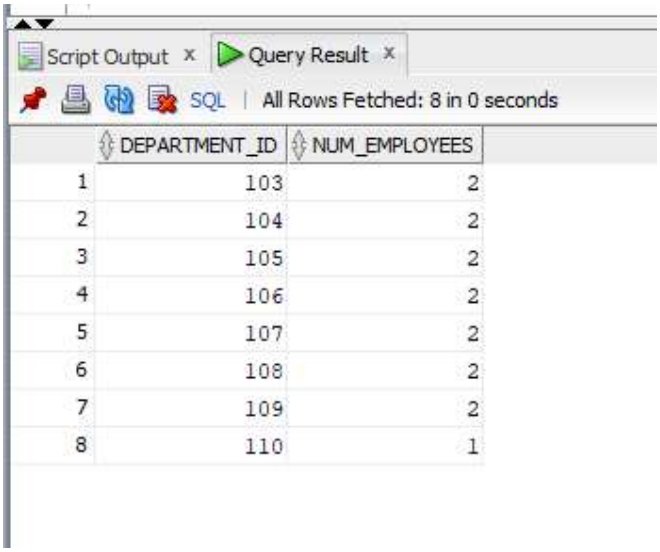
SQL | All Rows Fetched: 5 in 0 seconds

	ID	FNAME	LNAME	STORE_ID	DEPARTMENT_ID
1	3	Sam	Brown	2	102
2	4	Sue	Davis	2	102
3	6	Sara	Miller	1	103
4	8	Sophie	Taylor	2	104
5	9	Steve	Moore	3	105

3. Count number of employees from each department from p1, p2 and p3.)

Ans:

```
SELECT department_id, COUNT(*) AS num_employees
FROM employees
WHERE id >= 5 AND id < 20
GROUP BY department_id;
```



	DEPARTMENT_ID	NUM_EMPLOYEES
1	103	2
2	104	2
3	105	2
4	106	2
5	107	2
6	108	2
7	109	2
8	110	1

Hash Partition:

Consider a table named sales_hash with schema (salesman_id number(5), salesman_name varchar2(30), sales_amount number(10), week_no number(2)) with salesman_id as primary key and insert at least 10 records.

Create 4 partitions using hash partitioning.

```
create table sales_hash(
salesman_id number(5) primary key,
```

```
salesman_name varchar2(30),

sales_amount number (10),

week_no number(2)

)

partition by hash(salesman_id)

PARTITIONS 4;

drop table sales_hash;

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(1, 'Arjun Rao', 1500, 1);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(2, 'Priya Sharma', 2000, 2);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(3, 'Ravi Kumar', 3000, 3);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(4, 'Anita Verma', 4000, 4);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(5, 'Sandeep Patel', 2500, 5);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(6, 'Neha Yadav', 3500, 6);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES

(7, 'Rajesh Gupta', 2200, 7);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no)
VALUES
```

(8, 'Priyanka Mehta', 2700, 8);

INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no) VALUES

(9, 'Amit Singh', 5000, 9);

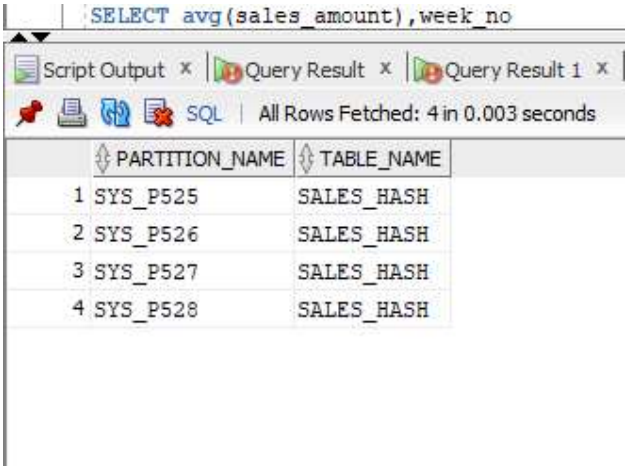
INSERT INTO sales_hash (salesman_id, salesman_name, sales_amount, week_no) VALUES

(10, 'Rohit Kapoor', 1800, 10);

SELECT partition_name, table_name

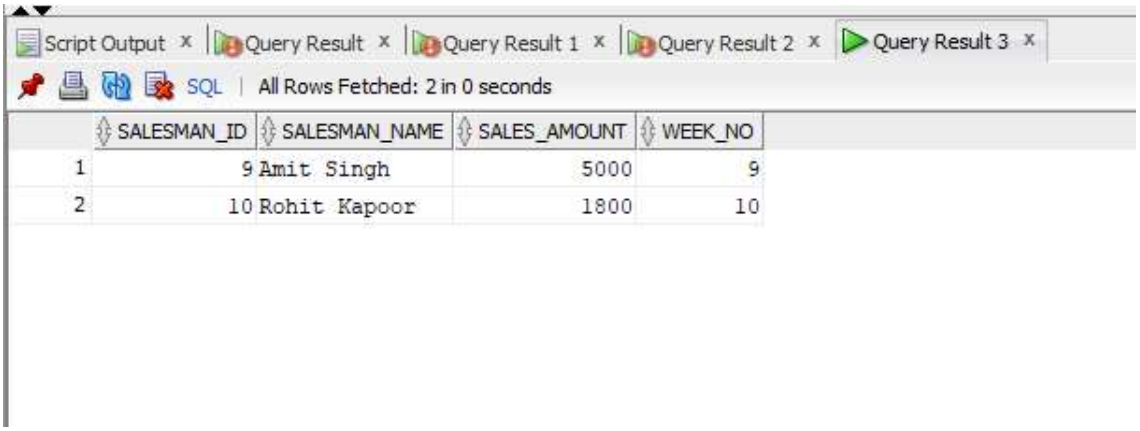
FROM all_tab_partitions

WHERE table_name = 'SALES_HASH';



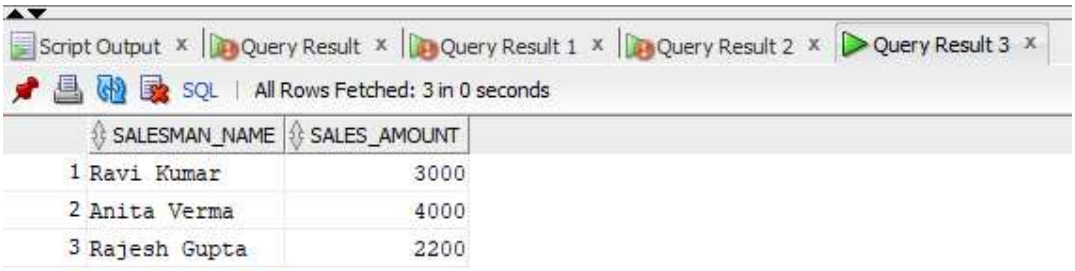
1.Retrieve sales details from 2nd partition.

SELECT * FROM sales_hash PARTITION (SYS_P526);



2.Retrieve name of sales mans and amount from 4th partition where sale amount between 2000 and 5000.

```
SELECT salesman_name, sales_amount
FROM sales_hash PARTITION (sys_p528)
WHERE sales_amount BETWEEN 2000 AND 5000;
```



	SALESMAN_NAME	SALES_AMOUNT
1	Ravi Kumar	3000
2	Anita Verma	4000
3	Rajesh Gupta	2200

3.Find average sale amount per week from 3rd partition.

```
SELECT avg(sales_amount),week_no
from sales_hash PARTITION (sys_p527)
group by week_no order by week_no;
```

	AVG(SALES_AMOUNT)	WEEK_NO
1	2000	2
2	2500	5
3	2700	8