**Lab Exercise- Creating and Using Views in AWS Redshift**

**Objective:**

* To learn how to create and utilize views in AWS Redshift.
* To understand how views can simplify complex queries and provide a structured way to access data.

**Task 1: Create a Simple View**

**Step 1.1: Create a View to Show All Employees**

* Create the employees Table
* Before creating views, ensure you have an employees table. Use the following SQL to create and populate the table:

CREATE TABLE employees (

employee\_id INTEGER NOT NULL,

name VARCHAR(100) NOT NULL,

position VARCHAR(50),

salary NUMERIC(10, 2),

hire\_date DATE DEFAULT CURRENT\_DATE,

department VARCHAR(50),

PRIMARY KEY (employee\_id)

);

Insert Records:

INSERT INTO employees (employee\_id, name, position, salary, hire\_date, department)

VALUES

(1, 'John Doe', 'Developer', 75000.00, '2023-01-15', 'Engineering'),

(2, 'Jane Smith', 'Sales Manager', 85000.00, '2022-11-03', 'Sales'),

(3, 'Alice Johnson', 'HR Specialist', 60000.00, '2024-06-12', 'Human Resources'),

(4, 'Bob Brown', 'Marketing Coordinator', 52000.00, '2024-02-25', 'Marketing'),

(5, 'Charlie Davis', 'Data Analyst', 68000.00, '2023-09-20', 'Data Science');

**Create the View**

Create a view that selects all columns from the employees table:

CREATE OR REPLACE VIEW all\_employees AS

SELECT \*

FROM employees;

**Explanation:**

* CREATE OR REPLACE VIEW all\_employees AS: Defines the view name and specifies that if the view already exists, it will be replaced.
* SELECT \* FROM employees: Specifies that the view will contain all columns from the employees table.

**Query the View**

To retrieve data from the view:

SELECT \* FROM all\_employees;

**Task 2: Create a View with Aggregated Data**

**Step 2.1: Create a View to Show Average Salary by Department**

**Create the View**

Create a view that shows the average salary for each department:

CREATE OR REPLACE VIEW avg\_salary\_by\_department AS

SELECT department, AVG(salary) AS avg\_salary

FROM employees

GROUP BY department;

**Explanation:**

* AVG(salary): Computes the average salary.
* GROUP BY department: Groups the results by department.

**Query the View**

To retrieve average salaries by department:

SELECT \* FROM avg\_salary\_by\_department;

**Task 3: Create a View with Filtered Data**

**Step 3.1: Create a View to Show Employees with High Salaries**

**Create the View**

Create a view to show employees with a salary greater than $60,000:

CREATE OR REPLACE VIEW high\_salary\_employees AS

SELECT \*

FROM employees

WHERE salary > 60000;

**Explanation:**

* WHERE salary > 60000: Filters employees to include only those with a salary above $60,000.

**Query the View**

To retrieve employees with high salaries:

SELECT \* FROM high\_salary\_employees;

**Task 4: Modify and Drop Views**

**Step 4.1: Modify a View**

To modify the view high\_salary\_employees to include only employees with salaries greater than $70,000:

**Create the Modified View**

CREATE OR REPLACE VIEW high\_salary\_employees AS

SELECT \*

FROM employees

WHERE salary > 70000;

**Query the Modified View**

SELECT \* FROM high\_salary\_employees;

**Step 4.2: Drop a View**

To drop the view high\_salary\_employees:

DROP VIEW IF EXISTS high\_salary\_employees;

**Explanation:**

* DROP VIEW IF EXISTS: Deletes the view if it exists, avoiding an error if it doesn't.