Experiment - 6

Student Name: Pulkit UID: 23BCS11733

Branch: BE-CSE Section/Group: KRG_3B

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Subject Name: Advanced Database and Management System Subject Code:

23CSP-333

1. Aim:

Medium-Problem Title: Gender Diversity Tracking-Create a PostgreSQL stored

procedure to track gender diversity in the workforce. The procedure takes a gender as input and returns the total number of employees of that gender, providing HR with instant and secure

reporting.

Procedure (Step-by-Step):

- 1. Create a table employees with columns like emp id,emp name and gender.
- 2. Insert sample data with varying genders.
- 3. Create a stored procedure 'count_employees_by_gender' that:
 - Takes a gender as input.
 - Counts the number of employees with that gender.
 - Returns the result as an OUT parameter.
- 4. Call the procedure in a DO block to capture and display the result.

Sample Output Description:

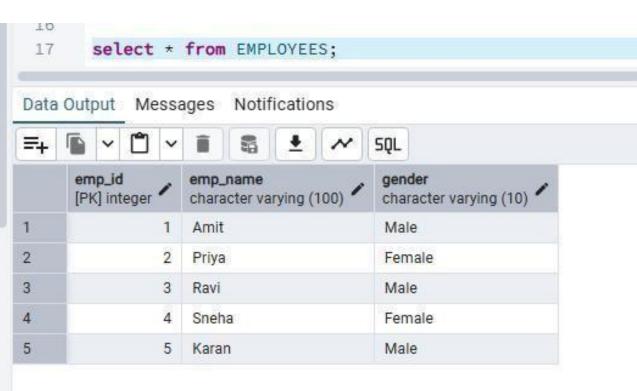
```
- Input: 'Male' --- Output: 3
```

- Input: 'Female' --- Output: 2
- -HR sees results instantly without accessing full employee data.

Source Code

```
CREATE TABLE employees (emp_id SERIAL PRIMARY KEY, emp_name VARCHAR(100), gender VARCHAR(10)
```

```
-- Sample data
  INSERT INTO employees (emp name, gender) VALUES
  ('Amit', 'Male'),
  ('Priya', 'Female'),
  ('Ravi', 'Male'),
  ('Sneha', 'Female'),
  ('Karan', 'Male');
  select * from EMPLOYEES; ---- CREATING
  A PROCEDURE----
  CREATE OR REPLACE PROCEDURE
     count employees by gender (IN input gender VARCHAR,
         OUT total count int
  LANGUAGE plpgsql
  AS $$
  BEGIN
     SELECT COUNT(*) INTO total count
    FROM employees
    WHERE gender = input gender;
  END;
  $$;
  ---CALLING THE PROCEDURE-----
  DO
  $$
DECLARE
    result INT;
  BEGIN
    CALL count employees by gender('Male', result);
    RAISE NOTICE 'TOTAL EMPLOYEES OF GENDER Male ARE %', result;
  END;
  $$;
```



```
DO $$
 33
       DECLARE
 34
 35
           result INT;
 36 V BEGIN
 37
           CALL count_employees_by_gender('Male', result);
           RAISE NOTICE 'TOTAL EMPLOYEES OF GENDER Male ARE %', result;
 38
       END;
 39
Data Output Messages Notifications
NOTICE: TOTAL EMPLOYEES OF GENDER Male ARE 3
DO.
Query returned successfully in 104 msec.
```

Hard-Problem Title:

Order Placement and Inventory Management-Automate the ordering process in a retail company. The procedure validates stock availability, logs sales, updates inventory, and provides real-time confirmation or rejection messages.

Procedure (Step-by-Step):

- Create products table with columns: product_id, product_name, price, quantity_remaining, quantity_sold.
- Create sales table with columns: sale_id, product_id,quantity, total_price, sale_date.
- Create a stored procedure place_order that:
 - ☐ Takes product_id and quantity as input.
 - ☐ Checks if quantity_remaining is sufficient.
 - o If yes:
 - Logs the sale in sales table.
 - Updates products(decrease quantity_remaining, increase quantity_sold).
 □ Display "Product sold successfully!!".
 If no:
 - ☐ Display "Insufficient quantity available!!"
- Call the procedure for different orders to validate functionality.

Sample Output Description:

- Order 5 units of Smartphone (stock available): "Product sold successfully!".
- Order 100 units of Tablet (insufficient stock): "Insufficient Quantity Available!".
- Inventory updates automatically for successful orders.

Objective: The objective is to automate critical business operations using PostgreSQL stored procedures. For HR, it tracks gender diversity by returning the total count of employees by gender. For retail, it manages orders by validating stock, logging sales, updating inventory, and providing real-time confirmation or rejection messages. This ensures efficiency, accuracy, and real-time insights in both workforce and inventory management.

Source Code

```
CREATE TABLE products ( product id
  SERIAL
               PRIMARY
                              KEY.
  product name VARCHAR(100), price
  NUMERIC(10,2), quantity_remaining
  INT,
  quantity sold INT DEFAULT 0
);
INSERT INTO products (product name, price, quantity remaining) VALUES
('Smartphone', 30000, 50),
('Tablet', 20000, 30),
('Laptop', 60000, 20);
CREATE TABLE sales ( sale id
  SERIAL PRIMARY KEY,
  product id INT REFERENCES products(product id),
  quantity INT, total price NUMERIC(10,2), sale date
  TIMESTAMP DEFAULT NOW()
);
CREATE OR REPLACE PROCEDURE place order(
  IN p product id INT,
  IN p quantity INT
LANGUAGE plpgsql
AS $$
DECLARE
  available stock INT; product price
  NUMERIC(10,2);
BEGIN
  SELECT quantity remaining, price
```

```
INTO available stock, product price
  FROM products
  WHERE product id = p product id;
  IF available stock IS NULL THEN
    RAISE NOTICE 'Product ID % does not exist!', p product id;
  ELSIF available stock >= p quantity THEN
    -- LOGGING THE ORDER
    INSERT INTO sales (product id, quantity, total price)
    VALUES (p product id, p quantity, p quantity * product price);
    UPDATE products
    SET quantity remaining = quantity remaining - p quantity,
    quantity sold = quantity sold + p_quantity WHERE
    product id = p product id;
    RAISE NOTICE 'Product sold successfully!';
  ELSE
    RAISE NOTICE 'Insufficient Quantity Available!';
  END IF;
END;
$$;
CALL PLACE ORDER(2,20);
SELECT * FROM SALES; SELECT * FROM
PRODUCTS:
CALL PLACE_ORDER(3,100);
```



