



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

Experiment 2.2

Student Name: Yateen Kumar

UID:23BCS13730

Branch: CSE

Section/Group: KRG – 1B

Semester: 5th

Date of Performance: 24/09/25

Subject Name: ADBMS

Subject Code: 23CSP-333

1. Aim: Stored Procedures in Database

2. Requirements(Hardware/Software): MySQL, PostgreSQL, Oracle, or SQL Server

3. DBMS script and output:

Medium-Level Problem

Problem Title: Employee count based on dynamic gender passing

Procedure (Step-by-Step):

TechSphere Solutions, a growing IT services company with offices across India, wants to **track and monitor gender diversity** within its workforce. The HR department frequently needs to know the **total number of employees by gender** (Male or Female) .

To solve this problem, the company needs an **automated database-driven solution** that can instantly return the count of employees by gender through a stored procedure that:

1. Create a PostgreSQL stored procedure that:
2. Takes a **gender** (e.g., 'Male' or 'Female') as input.
3. Calculates the **total count of employees** for that gender.
4. Returns the result as an **output parameter**.
5. Displays the result clearly for HR reporting purposes.

```
CREATE TABLE EMPLOYEES (
    EMP_ID SERIAL PRIMARY KEY,
    EMP_NAME TEXT,
    GENDER TEXT
);
```

```
INSERT INTO EMPLOYEES (EMP_NAME, GENDER) VALUES
('RAHUL', 'MALE'),
('PRIYA', 'FEMALE'),
('AMIT', 'MALE'),
('NEHA', 'FEMALE'),
('ARJUN', 'MALE'),
('SNEHA', 'FEMALE');
```

```
CREATE OR REPLACE PROCEDURE GET_EMPLOYEE_COUNT_BY_GENDER(
```

```
    IN IN_GENDER TEXT,
    OUT OUT_COUNT INT
)
```

```
LANGUAGE plpgsql
```

```
AS $$
```

```
BEGIN
```

```
    SELECT COUNT(*)
        INTO OUT_COUNT
        FROM EMPLOYEES
        WHERE GENDER = IN_GENDER;
```

```
RAISE NOTICE 'TOTAL EMPLOYEES WITH GENDER % = %', IN_GENDER, OUT_COUNT;  
END;  
$$;
```

```
CALL GET_EMPLOYEE_COUNT_BY_GENDER('FEMALE', NULL);
```

```
CALL GET_EMPLOYEE_COUNT_BY_GENDER('MALE', NULL);
```

```
psql:commands.sql:31: NOTICE: TOTAL EMPLOYEES WITH GENDER FEMALE = 3  
psql:commands.sql:32: NOTICE: TOTAL EMPLOYEES WITH GENDER MALE = 3
```

Hard-Level Problem

Problem Title: SmartStore Automated Purchase System

Procedure (Step-by-Step):

SmartShop is a modern retail company that sells electronic gadgets like smartphones, tablets, and laptops. The company wants to **automate its ordering and inventory management process**.

Whenever a customer places an order, the system must:

1. **Verify stock availability** for the requested product and quantity.
2. If sufficient stock is available:
 - **Log the order** in the sales table with the ordered quantity and total price.
 - **Update the inventory** in the products table by reducing quantity_remaining and increasing quantity_sold.
 - Display a **real-time confirmation message**: "Product sold successfully!"
3. If there is **insufficient stock**, the system must:
 - **Reject the transaction** and display: Insufficient Quantity Available!"

```
CREATE TABLE PRODUCTS (
    PRODUCT_ID SERIAL PRIMARY KEY,
    PRODUCT_NAME TEXT,
    PRICE NUMERIC(10,2),
    QUANTITY_REMAINING INT,
    QUANTITY SOLD INT DEFAULT 0
);
```

```
CREATE TABLE SALES (
    SALE_ID SERIAL PRIMARY KEY,
    PRODUCT_ID INT REFERENCES PRODUCTS(PRODUCT_ID),
    QUANTITY_ORDERED INT,
    TOTAL_PRICE NUMERIC(10,2),
    SALE_DATE TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);
```

```
INSERT INTO PRODUCTS (PRODUCT_NAME, PRICE, QUANTITY_REMAINING) VALUES
('SAMSUNG GALAXY', 20000, 50),
('APPLE IPHONE', 60000, 30),
('LENOVO LAPTOP', 45000, 20),
('DELL LAPTOP', 55000, 25),
('MI TABLET', 15000, 40);
```

```
CREATE OR REPLACE PROCEDURE PLACE_ORDER(
    IN IN_PRODUCT_ID INT,
    IN IN_QUANTITY INT
```

)

LANGUAGE plpgsql

AS \$\$

DECLARE

AVAILABLE_QTY INT;

PRODUCT_PRICE NUMERIC(10,2);

TOTAL_COST NUMERIC(10,2);

BEGIN

```
SELECT QUANTITY_REMAINING, PRICE  
INTO AVAILABLE_QTY, PRODUCT_PRICE  
FROM PRODUCTS  
WHERE PRODUCT_ID = IN_PRODUCT_ID;
```

IF AVAILABLE_QTY IS NULL THEN

RAISE NOTICE 'INVALID PRODUCT ID!';

RETURN;

END IF;

IF AVAILABLE_QTY >= IN_QUANTITY THEN

TOTAL_COST := PRODUCT_PRICE * IN_QUANTITY;

INSERT INTO SALES (PRODUCT_ID, QUANTITY_ORDERED, TOTAL_PRICE)

VALUES (IN_PRODUCT_ID, IN_QUANTITY, TOTAL_COST);

UPDATE PRODUCTS

SET QUANTITY_REMAINING = QUANTITY_REMAINING - IN_QUANTITY,

```

        QUANTITY_SOLD = QUANTITY_SOLD + IN_QUANTITY

        WHERE PRODUCT_ID = IN_PRODUCT_ID;

        RAISE NOTICE 'PRODUCT SOLD SUCCESSFULLY!';

    ELSE

        RAISE NOTICE 'INSUFFICIENT QUANTITY AVAILABLE!';

    END IF;

END;

$$;

```

Output:

```

CREATE TABLE
CREATE TABLE
INSERT 0 5
CREATE PROCEDURE
CALL
CALL

psql:commands.sql:63: NOTICE:  PRODUCT SOLD SUCCESSFULLY!
psql:commands.sql:64: NOTICE:  INSUFFICIENT QUANTITY AVAILABLE!

```

4. Learning Outcomes :

1. Understand how to **create and call a stored procedure** in PostgreSQL using CALL.
2. Learn the difference between **IN and OUT parameters** and how to pass values between SQL and a procedure.
3. Gain experience using **aggregate functions (COUNT)** inside procedures.
4. Learn to display messages using **RAISE NOTICE** for reporting and feedback.
5. Apply stored procedures to **real-world HR use cases** like diversity reporting.