Experiment 6

Student Name: Arpeet

UID: 23BAI70396

Branch: BE-AIT-CSE

Section/Group: 23AIT_KRG-1

Semester: 5th

Date of Performance: 24 Sept 2025

Subject Name: ADBMS

Subject Code: 23CSP-333

MEDIUM - LEVEL

1. **Problem Title:** HR Analytics: Employee count based on Gender
2. **Problem Tasks and Description:**
   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:
   - Takes a **gender** (e.g., 'Male' or 'Female') as input.
   - Calculates the **total count of employees** for that gender.
   - Returns the result as an **output parameter**.
   - Displays the result clearly for HR reporting purposes.

3. **SQL Commands:**

   a. Create the table Employee_info and insert values into it:

```
CREATE TABLE employee_info (
    id SERIAL PRIMARY KEY,
    name VARCHAR(50) NOT NULL,
    gender VARCHAR(10) NOT NULL,
    salary NUMERIC(10,2) NOT NULL,
    city VARCHAR(50) NOT NULL
);
```

```sql
INSERT INTO employee_info (name, gender, salary, city)
VALUES
('Alok', 'Male', 50000.00, 'Delhi'),
('Priya', 'Male', 60000.00, 'Mumbai'),
('Rajesh', 'Female', 45000.00, 'Bangalore'),
('Sneha', 'Male', 55000.00, 'Chennai'),
('Anil', 'Male', 52000.00, 'Hyderabad'),
('Sunita', 'Female', 48000.00, 'Kolkata'),
('Vijay', 'Male', 47000.00, 'Pune'),
('Ritu', 'Male', 62000.00, 'Ahmedabad'),
('Amit', 'Female', 51000.00, 'Jaipur');
```

b. Create a Procedure hat counts the ids of the employees having the gender specified int the query:

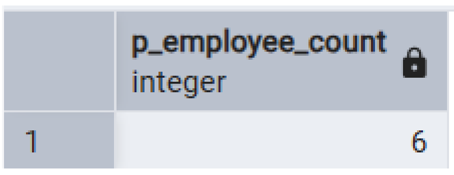
```sql
CREATE OR REPLACE PROCEDURE sp_get_employees_by_gender(
    IN p_gender VARCHAR(50),
    OUT p_employee_count INT
)
LANGUAGE plpgsql
AS $$
BEGIN
    -- Count total employees by gender
    SELECT COUNT(id)
    INTO p_employee_count
    FROM employee_info
    WHERE gender = p_gender;

    -- Display the result
    RAISE NOTICE 'Total employees with gender %: %', p_gender, p_employee_count;
END;
$$
```

c. Call the procedure to show whether it is working:

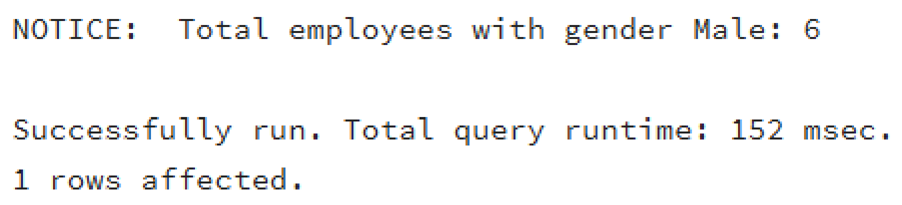
```sql
CALL sp_get_employees_by_gender('Male', NULL);
```

4. **Output:**



	p_employee_count integer
1	6

Output of the Data



```
NOTICE:  Total employees with gender Male: 6

Successfully run. Total query runtime: 152 msec.
1 rows affected.
```

Output in Messages

5. **Learning Outcome:**
    a. I learnt about procedures in SQL and how to use them
    b. I learnt how to use procedures to get dynamic output
    c. I learnt about strored procedures.
    d. I learnt how to use Raise Notice command.

HARD - LEVEL

1. **Problem Title:** SamrtStore Automated Purchase system
2. **Problem Task and Description:**
   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:
   a) Verify stock availability for the requested product and quantity.
   b) 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!

   c) If there is insufficient stock, the system must:
      - Reject the transaction and display: Insufficient Quantity Available!"

3. **SQL Commands:**
   a. Create the tables Product and Sales and insert the values into them.

```sql
CREATE TABLE products (
    product_code VARCHAR(10) PRIMARY KEY,
    product_name VARCHAR(100) NOT NULL,
    price NUMERIC(10,2) NOT NULL,
    quantity_remaining INT NOT NULL,
    quantity_sold INT DEFAULT 0
);

CREATE TABLE sales (
    order_id SERIAL PRIMARY KEY,
    order_date DATE NOT NULL,
    product_code VARCHAR(10) NOT NULL,
    quantity_ordered INT NOT NULL,
    sale_price NUMERIC(10,2) NOT NULL,
    FOREIGN KEY (product_code) REFERENCES products(product_code)
);
```

```sql
INSERT INTO products (product_code, product_name, price, quantity_remaining, quantity_sold)
VALUES
('P001', 'iPHONE 13 PRO MAX', 109999.00, 10, 0),
('P002', 'Samsung Galaxy S23 Ultra', 99999.00, 8, 0),
('P003', 'iPAD AIR', 55999.00, 5, 0),
('P004', 'MacBook Pro 14"', 189999.00, 3, 0),
('P005', 'Sony WH-1000XM5 Headphones', 29999.00, 15, 0);

INSERT INTO sales (order_date, product_code, quantity_ordered, sale_price)
VALUES
('2025-09-15', 'P001', 1, 109999.00),
('2025-09-16', 'P002', 2, 199998.00),
('2025-09-17', 'P003', 1, 55999.00),
('2025-09-18', 'P005', 2, 59998.00),
('2025-09-19', 'P001', 1, 109999.00);
```

b. Create a procedure that checks the stock for the specified product and then gives the required output as well as performing each task specified in the problem statement.

```sql
CREATE OR REPLACE PROCEDURE pr_buy_products(
    IN p_product_name VARCHAR,
    IN p_quantity INT
)
LANGUAGE plpgsql
AS $$
DECLARE
    v_product_code VARCHAR(20);
    v_price FLOAT;
    v_count INT;
BEGIN

    -- Step 1: Check if product exists and has enough quantity
    SELECT COUNT(*)
    INTO v_count
    FROM products
    WHERE product_name = p_product_name
    AND quantity_remaining >= p_quantity;

    -- Step 2: If sufficient stock
    IF v_count > 0 THEN

        -- Fetch product code and price
        SELECT product_code, price
        INTO v_product_code, v_price
        FROM products
        WHERE product_name = p_product_name;

        -- Insert a new record into the sales table
        INSERT INTO sales (order_date, product_code, quantity_ordered, sale_price)
        VALUES (CURRENT_DATE, v_product_code, p_quantity, (v_price * p_quantity));
        -- Update stock details
        UPDATE products
        SET quantity_remaining = quantity_remaining - p_quantity,
            quantity_sold = quantity_sold + p_quantity
        WHERE product_code = v_product_code;

        -- Confirmation message
        RAISE NOTICE 'PRODUCT SOLD..! Order placed successfully for % unit(s) of %.', p_quantity, p_product_n

    ELSE
        -- Step 3: If stock is insufficient
        RAISE NOTICE 'INSUFFICIENT QUANTITY..! Order cannot be processed for % unit(s) of %.', p_quantity, p_
    END IF;
END;
$$;
```

c. Call the procedure and pass the required parameters:

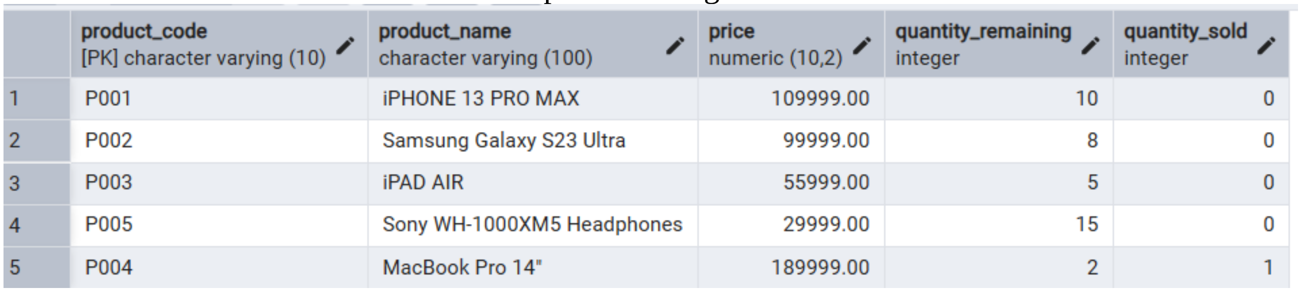
```
CALL pr_buy_products ('MacBook Pro 14"', 1);
```

4. **Output:**

```
NOTICE:  PRODUCT SOLD..! Order placed successfully for 1 unit(s) of MacBook Pro 14".
CALL

Query returned successfully in 160 msec.
```

Output in messages



	product_code [PK] character varying (10)	product_name character varying (100)	price numeric (10,2)	quantity_remaining integer	quantity_sold integer
1	P001	iPHONE 13 PRO MAX	109999.00	10	0
2	P002	Samsung Galaxy S23 Ultra	99999.00	8	0
3	P003	iPAD AIR	55999.00	5	0
4	P005	Sony WH-1000XM5 Headphones	29999.00	15	0
5	P004	MacBook Pro 14"	189999.00	2	1

Quantity of MacBook being sold increased by 1.

5. **Learning Outcomes:**

a. Learned about the use of Procedures for complex computations

b. Learned about the use of CURRENT_DATE

c. Learned about the use of Delimiters