Experiment No: 6

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Subject Name: ADBMS
Subject Code: 23CSP-333

Medium Level Problem

Question: HR-Analytics: Employee count based on dynamic gender passing

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.

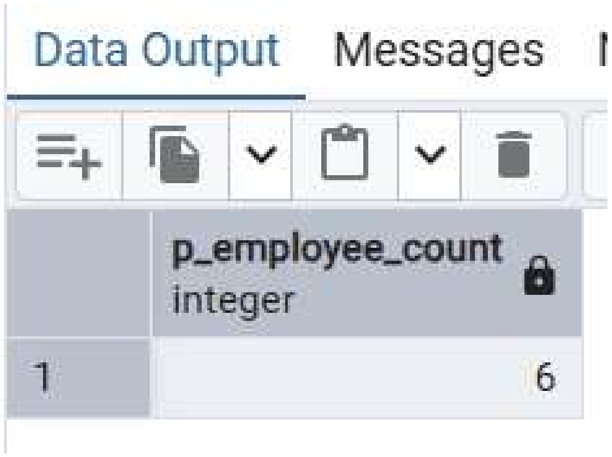
4. Returns the result as an output parameter.

5. Displays the result clearly for HR reporting purposes.

Solution:

```
--INPUT TABLES:
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
);
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');


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;
$$;


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

Output:



```
p_employee_count
integer
1    6
```

Hard Level Problem

Question : Smart Store Automated Purchase System

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!"

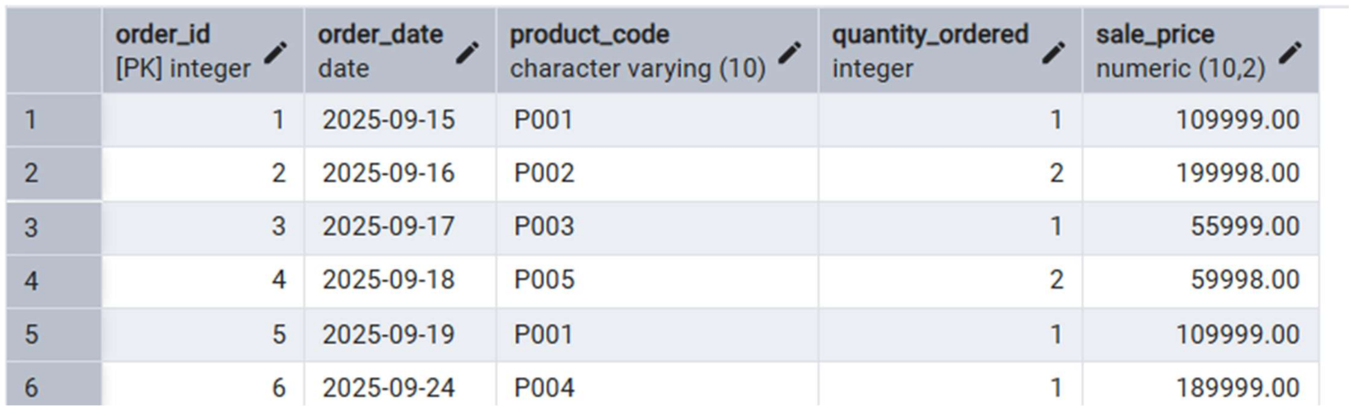
Solution:

```
--INPUT TABLES:

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)
);

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)
```

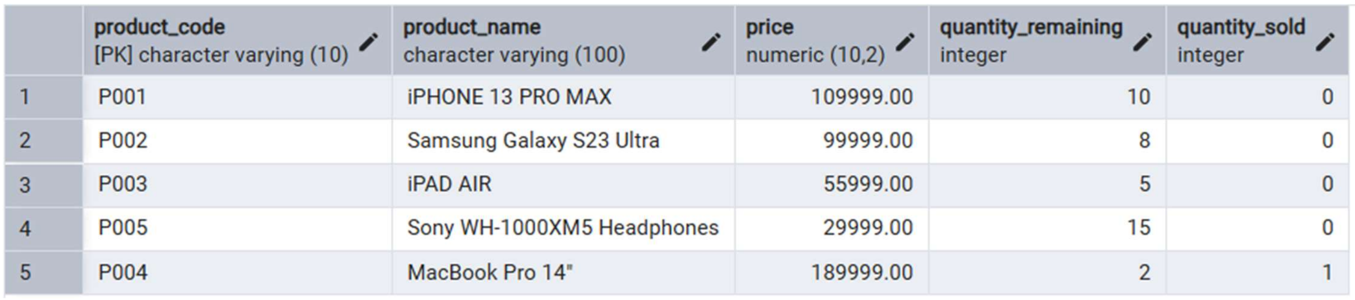
```
        VALUES
        ('2025-09-15', 'P001', 1, 109999.00),
        ('2025-09-16', 'P002', 2, 199998.00),
        ('2025-09-17', 'P003', 1, 55999.00),
        ('2025-09-18', 'P005', 2, 59998.00),
        ('2025-09-19', 'P001', 1, 109999.00);

        SELECT * FROM PRODUCTS;
        SELECT * FROM SALES;

        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_name;

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

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

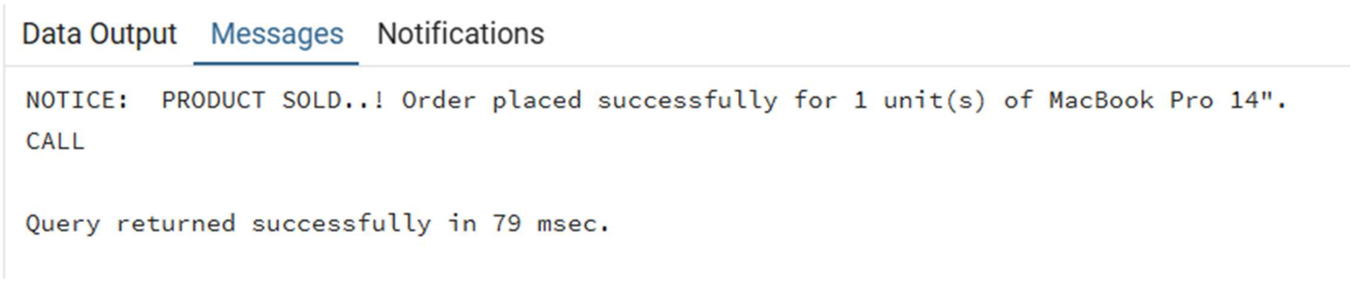
Output :



	order_id [PK] integer	order_date date	product_code character varying (10)	quantity_ordered integer	sale_price numeric (10,2)
1	1	2025-09-15	P001	1	109999.00
2	2	2025-09-16	P002	2	199998.00
3	3	2025-09-17	P003	1	55999.00
4	4	2025-09-18	P005	2	59998.00
5	5	2025-09-19	P001	1	109999.00
6	6	2025-09-24	P004	1	189999.00



	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



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

Query returned successfully in 79 msec.
```