Experiment 6

Student Name: Tanisha Kumari
UID: 23BCS12542
Branch: CSE
Section/Group: KRG_2B
Semester: 5th
Date of Performance: 22/09/25
Subject Name: ADBMS
Subject Code: 23CSP-333

1. Aim:

Part A – Medium Level:
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

Part B – Hard Level:
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.

2. Objective:

Medium-Level Problem: Gender Diversity Tracking

1. **Procedure Creation:** Develop a **PostgreSQL stored procedure** to track gender diversity in the workforce.
2. **Parameterized Input:** Accept **gender** as an input parameter (e.g., ‘Male’, ‘Female’, ‘Other’).
3. **Data Retrieval:** Count the total number of employees corresponding to the input gender.
4. **Instant Reporting:** Provide HR with **real-time, secure reporting** without exposing unnecessary data.
5. **Efficiency & Security:** Ensure the procedure runs efficiently on large datasets while protecting sensitive employee information.

Hard-Level Problem: Order Placement and Inventory Management

1. **Automated Order Processing:** Create a **stored procedure** to automate retail orders.
2. **Stock Validation:** Check **inventory availability** before confirming an order.
3. **Sales Logging:** Record each order in a **sales table** for tracking and analytics.
4. **Inventory Update:** Update stock levels immediately after order confirmation to

prevent overselling.
5. **Real-Time Feedback:** Provide **instant confirmation or rejection messages** to the user.

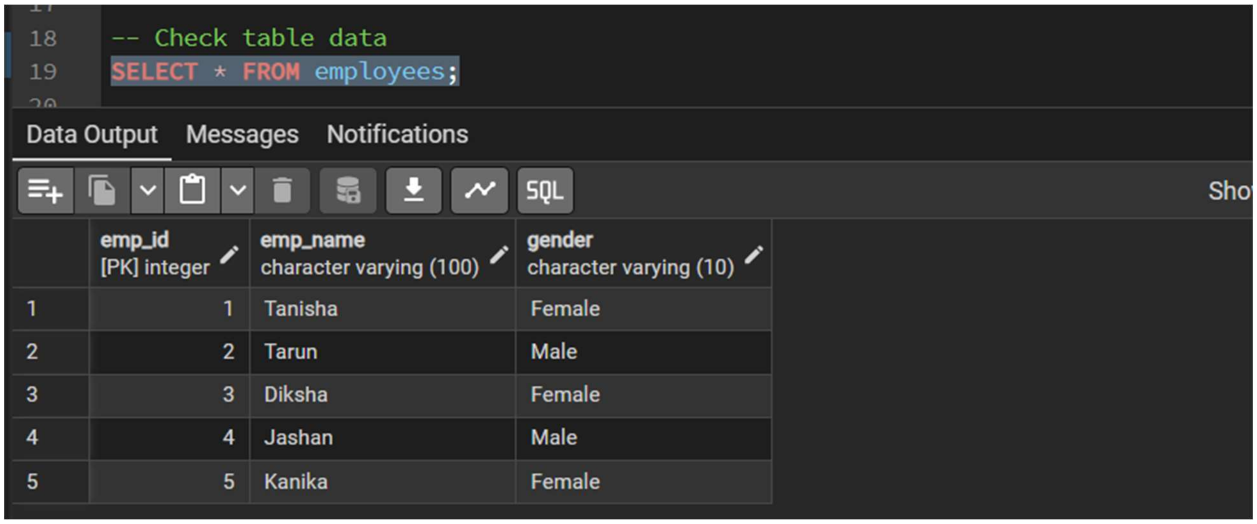
3. ADBMS script and output:

MEDIUM-LEVEL PROBLEM

```
CREATE TABLE employees (

   emp_id SERIAL PRIMARY KEY,

   emp_name VARCHAR(100),

   gender VARCHAR(10)

);

INSERT INTO employees (emp_name, gender) VALUES

('Tanisha', 'Female'),

('Tarun', 'Male'),

('Diksha', 'Female'),

('Jashan', 'Male'),

('Kanika', 'Female');

SELECT * FROM employees;

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;
$$;
```

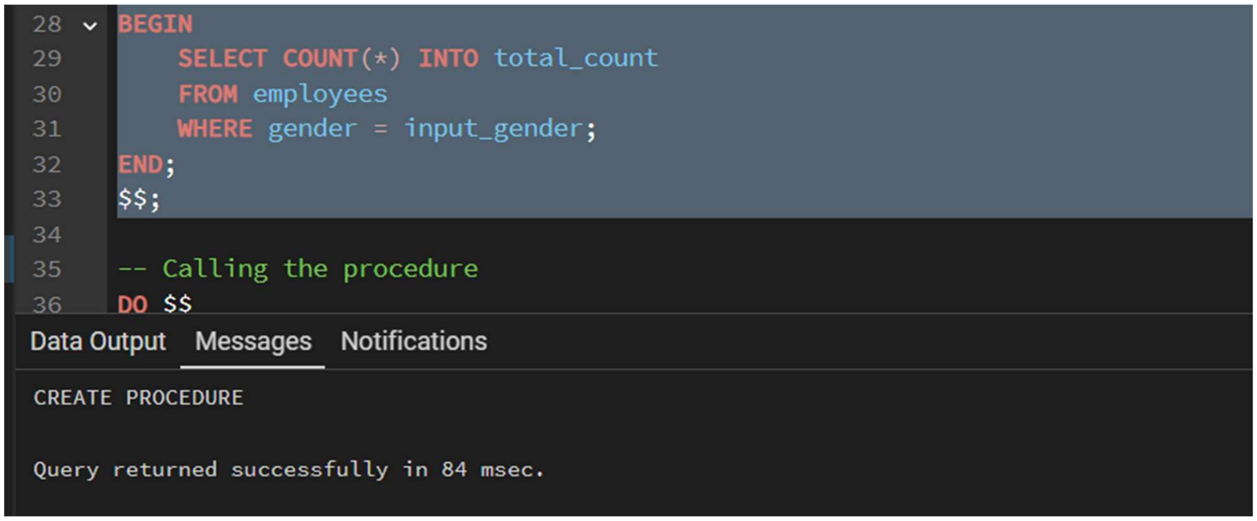
OUTPUT:-



```
-- Check table data
SELECT * FROM employees;
```

Data Output | Messages | Notifications

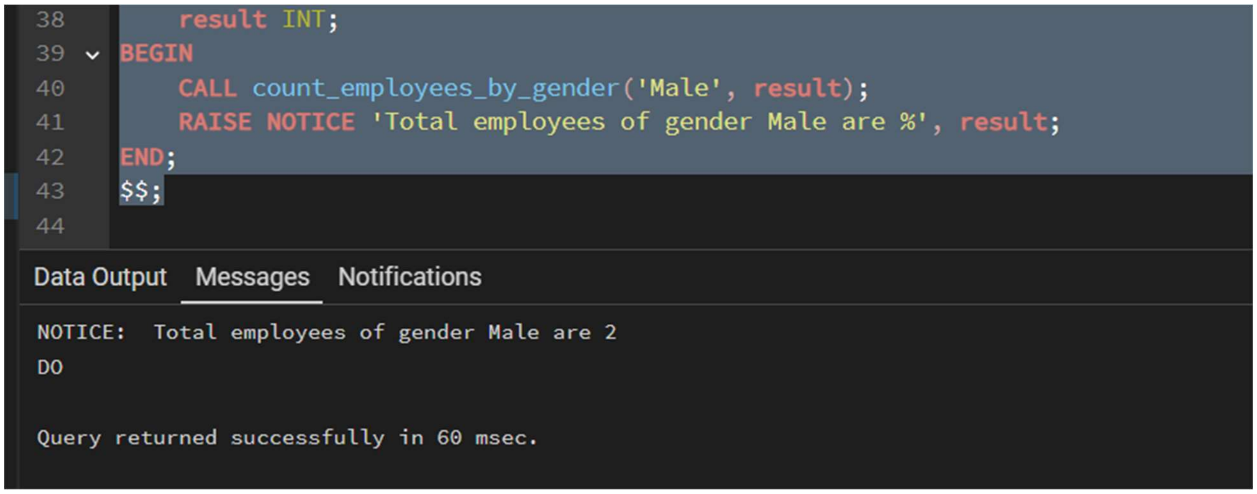
	emp_id [PK] integer	emp_name character varying (100)	gender character varying (10)
1	1	Tanisha	Female
2	2	Tarun	Male
3	3	Diksha	Female
4	4	Jashan	Male
5	5	Kanika	Female



```
BEGIN
    SELECT COUNT(*) INTO total_count
    FROM employees
    WHERE gender = input_gender;
END;
$$;

-- Calling the procedure
DO $$
```

Data Output Messages Notifications

```
CREATE PROCEDURE

Query returned successfully in 84 msec.
```



```
    result INT;
BEGIN
    CALL count_employees_by_gender('Male', result);
    RAISE NOTICE 'Total employees of gender Male are %', result;
END;
$$;
```

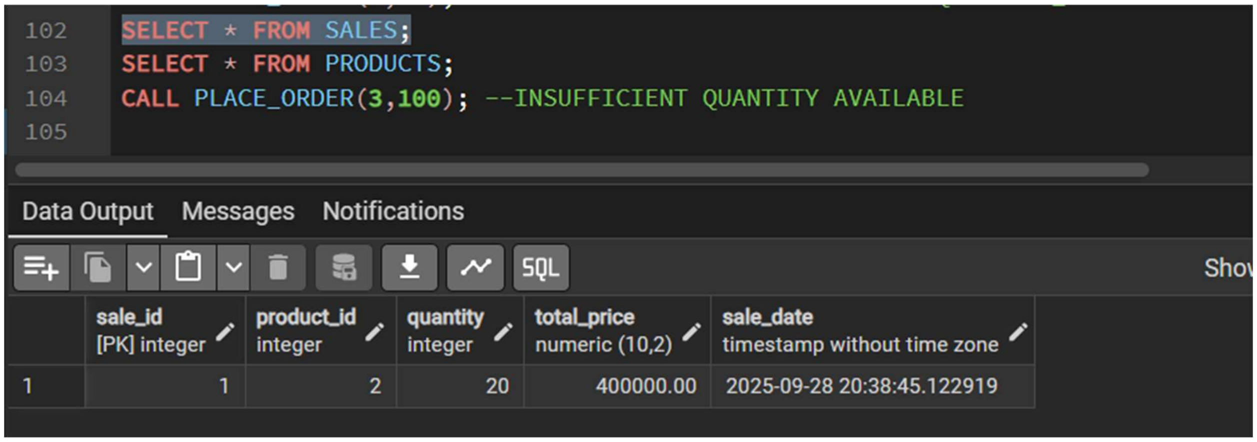
Data Output Messages Notifications

```
NOTICE:  Total employees of gender Male are 2
DO

Query returned successfully in 60 msec.
```

HARD LEVEL PROBLEM:

```
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); --PRODUCT SOLD SUCCESSFULLY AND QUANTITY_REMAINING COLUMN SET TO -20 AND DATA LOGGED TO SALES TABLE
SELECT * FROM SALES;
SELECT * FROM PRODUCTS;
CALL PLACE_ORDER(3,100); --INSUFFICIENT QUANTITY AVAILABLE
```

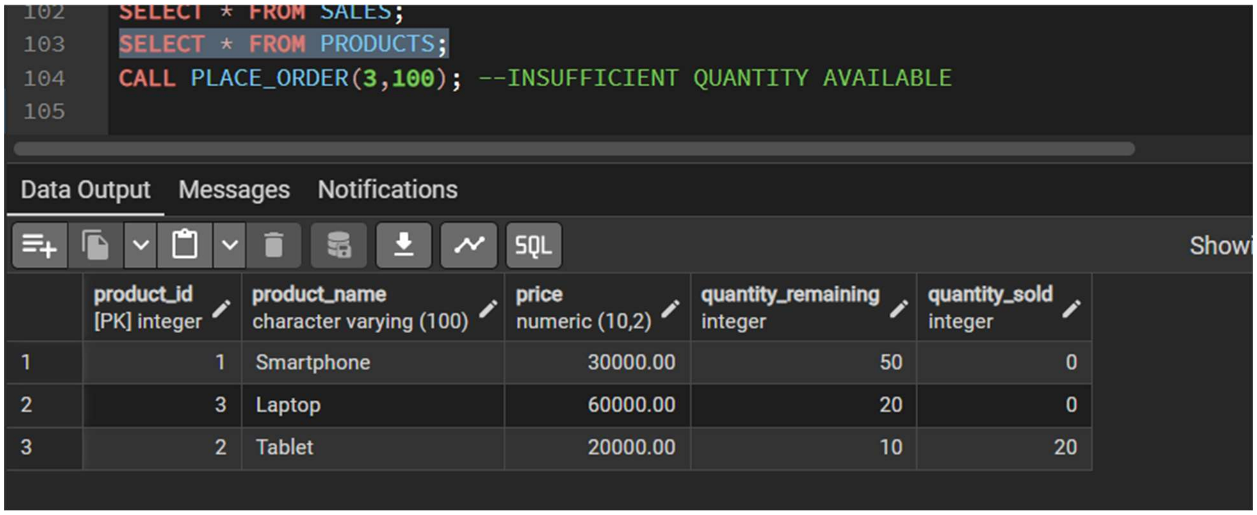
OUTPUTS:



```
SELECT * FROM SALES;
SELECT * FROM PRODUCTS;
CALL PLACE_ORDER(3,100); --INSUFFICIENT QUANTITY AVAILABLE
```

Data Output Messages Notifications

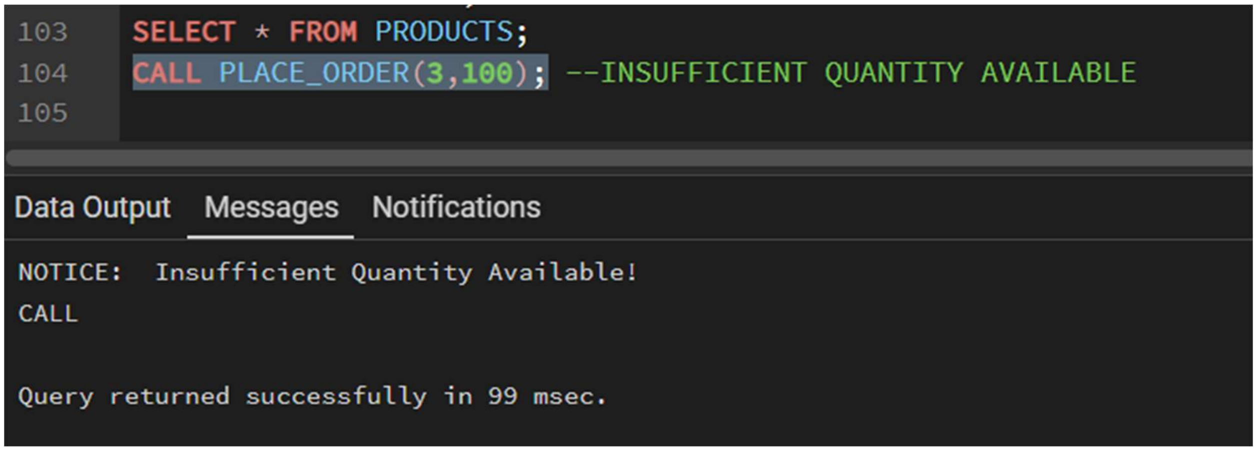
	sale_id [PK] integer	product_id integer	quantity integer	total_price numeric (10,2)	sale_date timestamp without time zone
1	1	2	20	400000.00	2025-09-28 20:38:45.122919



```
SELECT * FROM SALES;
SELECT * FROM PRODUCTS;
CALL PLACE_ORDER(3,100); --INSUFFICIENT QUANTITY AVAILABLE
```

Data Output Messages Notifications

	product_id [PK] integer	product_name character varying (100)	price numeric (10,2)	quantity_remaining integer	quantity_sold integer
1	1	Smartphone	30000.00	50	0
2	3	Laptop	60000.00	20	0
3	2	Tablet	20000.00	10	20



```
SELECT * FROM PRODUCTS;
CALL PLACE_ORDER(3,100); --INSUFFICIENT QUANTITY AVAILABLE
```

Data Output Messages Notifications

```
NOTICE:  Insufficient Quantity Available!
CALL

Query returned successfully in 99 msec.
```