Problem Statement 3:

Stored Procedures for Report Generation Scenario:

You've joined a reporting team, and your task is to create stored procedures that generate specific reports from the company's sales database. Implement procedures that accept parameters for customizable reporting.

WHAT IS A STORED PROCEDURE IN SQL?

A stored procedure is a precompiled SQL code block that can be executed multiple times. It allows for modular programming, improves performance, and enhances security.

KEY FEATURES:

 Reusable Code – Reduces redundancy by storing SQL logic in one place.
 Performance Boost – Executes faster as it is precompiled.
 Security – Prevents SQL injection by separating SQL logic from user inputs.

TYPES OF STORED PROCEDURES:

- User-Defined Procedures – Created by users to perform specific tasks.
- System Procedures – Provided by the database system for administration.
- Parameterized Procedures – Accept input parameters to generate dynamic reports.

A **parameterized stored procedure** allows users to pass values at runtime to generate customized reports.

DELIMITER //

-- Sales report by date range

CREATE PROCEDURE GetSalesReportByDate(IN start_date DATE, IN end_date DATE)

BEGIN

    SELECT order_id, customer_id, total_amount, order_date

    FROM sales

    WHERE order_date BETWEEN start_date AND end_date;

END;

//

```sql
-- Top-selling products report
CREATE PROCEDURE GetTopSellingProducts(IN limit_count INT)
BEGIN
    SELECT product_id, product_name, SUM(quantity) AS total_sold
    FROM sales_details
    GROUP BY product_id, product_name
    ORDER BY total_sold DESC
    LIMIT limit_count;
END;
//


-- Customer purchase history
CREATE PROCEDURE GetCustomerPurchaseHistory(IN customer_id_param INT)
BEGIN
    SELECT order_id, total_amount, order_date
    FROM sales
    WHERE customer_id = customer_id_param
    ORDER BY order_date DESC;
END;
//


DELIMITER ;
```