Task 8: Stored Procedures and Functions in SQL

# Objective:

Learn reusable SQL blocks.

# Tools:

DB Browser for SQLite / MySQL Workbench

# Outcome:

Ability to modularize SQL logic.

# Library Database Schema (Assumed):

-- Book Table  
CREATE TABLE Book (  
 BookID INT PRIMARY KEY,  
 Title VARCHAR(100),  
 Author VARCHAR(100),  
 CategoryID INT,  
 PublisherID INT  
);  
  
-- Borrower Table  
CREATE TABLE Borrower (  
 BorrowerID INT PRIMARY KEY,  
 Name VARCHAR(100),  
 Email VARCHAR(100)  
);  
  
-- Issue Table  
CREATE TABLE Issue (  
 IssueID INT PRIMARY KEY,  
 BookID INT,  
 BorrowerID INT,  
 IssueDate DATE,  
 ReturnDate DATE  
);

# 1. Stored Procedure

This procedure issues a book to a borrower and inserts the transaction into the Issue table.

DELIMITER //  
CREATE PROCEDURE IssueBook (  
 IN p\_BookID INT,  
 IN p\_BorrowerID INT,  
 IN p\_IssueDate DATE  
)  
BEGIN  
 INSERT INTO Issue (BookID, BorrowerID, IssueDate, ReturnDate)  
 VALUES (p\_BookID, p\_BorrowerID, p\_IssueDate, NULL);  
END //  
DELIMITER ;

# 2. Stored Function

This function returns the number of books currently issued to a specific borrower.

DELIMITER //  
CREATE FUNCTION CountIssuedBooks (p\_BorrowerID INT)  
RETURNS INT  
DETERMINISTIC  
BEGIN  
 DECLARE book\_count INT;  
 SELECT COUNT(\*) INTO book\_count  
 FROM Issue  
 WHERE BorrowerID = p\_BorrowerID AND ReturnDate IS NULL;  
 RETURN book\_count;  
END //  
DELIMITER ;

# 3. Using Stored Procedure and Function

-- Calling the stored procedure  
CALL IssueBook(101, 1001, '2025-07-04');  
  
-- Calling the stored function  
SELECT CountIssuedBooks(1001) AS CurrentlyIssuedBooks;

# Deliverables (Summary):

* One stored procedure: IssueBook
* One stored function: CountIssuedBooks
* Examples of how to call them