PL/SQL Hands-On Task: Library Book Lending System

# Scenario:

You're designing a simple system for a library to:  
- Track available books  
- Register members  
- Allow book checkouts and returns  
- Prevent borrowing if no copies are available  
- Log all lending activities

# Task 1: Create Tables

Create the following tables with sample data:

* Table: library\_books

book\_id VARCHAR2(10) PRIMARY KEY  
title VARCHAR2(100)  
author VARCHAR2(100)  
total\_copies NUMBER(3)  
available\_copies NUMBER(3)

Add 3 books as sample data.

* Table: library\_members

member\_id VARCHAR2(10) PRIMARY KEY  
member\_name VARCHAR2(100)

Add 2 sample members.

# Task 2: Create Table borrow\_log

Track all checkouts and returns:

log\_id NUMBER PRIMARY KEY  
member\_id VARCHAR2(10)  
book\_id VARCHAR2(10)  
action\_type VARCHAR2(10), -- 'BORROW' or 'RETURN'  
action\_time DATE

Create a sequence log\_seq for generating log IDs.

# Task 3: Procedure borrow\_book

Inputs:

* - p\_member\_id IN VARCHAR2
* - p\_book\_id IN VARCHAR2
* - p\_msg OUT VARCHAR2

Action:

- Check if book is available  
- Reduce available copies  
- Log the borrow  
- Return success or error message

# Task 4: Procedure return\_book

Inputs:

* - p\_member\_id IN VARCHAR2
* - p\_book\_id IN VARCHAR2
* - p\_msg OUT VARCHAR2

Action:

- Increase available copies  
- Log the return  
- Return confirmation message

# Task 5: Write Anonymous Block

Simulate the following:

* - Member 'M001' borrows book 'B001'
* - Member 'M001' returns book 'B001'
* - Member 'M002' tries to borrow a book with 0 available copies