



ADVENTIST UNIVERSITY OF CENTRAL AFRICA

Exercises: Store Procedure 2024

Course: Database Development with PL/SQL INSY 8311

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I. Exercise: Create a Procedure to Insert a New Employee

Objective: Write a procedure that inserts a new employee into the Employees table.

Problem Statement: Create a procedure Add_Employee that accepts values for FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER, ADDRESS, HIRE_DATE, SALARY, BONUS, DEPARTMENT_ID, and ROLE_ID, and inserts a new employee into the Employees table.

The procedure should also check:

- If the EMAIL already exists in the system, it should raise an error -20003, 'Email already exists.'
- If the DEPARTMENT_ID provided does not exist, it should raise an error -20004, 'Department not found.'

Questions for Students:

- How can you handle potential errors using EXCEPTION blocks in PL/SQL?
 - What is the importance of validating input values before performing the insert?
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II. Exercise: Update Employee's Role and Department

Objective: Write a procedure that updates an employee's ROLE_ID and DEPARTMENT_ID.

Problem Statement: Create a procedure Update_Employee_Role_Department that accepts EMPLOYEE_ID, ROLE_ID, and DEPARTMENT_ID as parameters and updates the employee's role and department.

Questions for Students:

- What happens if the EMPLOYEE_ID does not exist?
- How would you implement error handling to ensure that both ROLE_ID and DEPARTMENT_ID are valid?

III. Exercise: Attendance Tracking System

Objective: Write a procedure that records attendance for employees.

Problem Statement: Create a procedure Record_Attendance that records whether an employee is present or absent for a particular date.

Questions for Students:

- How would you handle a situation where the employee's attendance for that date already exists?
- How can you use EXCEPTION blocks to manage attendance updates effectively?

IV. Exercise: List of Employees by Country

Objective: Write a procedure that returns the employees who belong to a specific country.

Problem Statement: Create a procedure List_Employees_By_Country that accepts COUNTRY_ID as input and returns all employees located in that country.

Questions for Students:

- How would you use joins to connect Employees and Country tables?
- How can you ensure that employees with no country information are handled correctly?

V. Complex Procedure: Manage Employee Bonuses

Objective

Create a procedure that calculates and updates bonuses for employees based on their performance ratings and attendance. The bonus will be calculated as a percentage of the employee's salary, determined by their performance rating and attendance.

Problem Statement

1. Create a procedure Update_Employee_Bonuses that performs the following:
2. Accepts a performance rating threshold and an attendance percentage threshold as parameters.
 - Updates the BONUS column for each employee who meets the criteria:
 - If the performance rating is greater than or equal to the threshold and attendance is above the specified percentage, the bonus is set to 10% of their salary.
 - If the performance rating is below the threshold but attendance is above the percentage, the bonus is set to 5% of their salary.
 - If the employee does not meet both criteria, their bonus is set to 0.
3. Handle potential exceptions for invalid employee IDs and other database-related errors.

Questions for Students

- How would you design the procedure to handle multiple updates in a single call?
- What are the implications of using transactions when updating multiple records?
- How would you implement logging for the operations performed within the procedure?

Good luck with your Exercises! If you need any more help, feel free to reach out.