**IM101 – Advanced Database Systems**

**FT Lab Activity 2-3**



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**YEAR/SECTION:** SBIT-2C

**DATE: 4/21/2025**

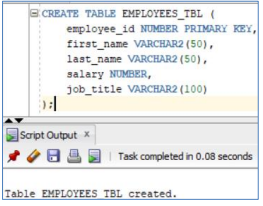


**Scenario:**

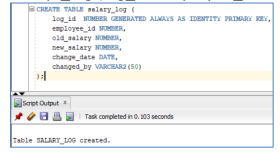
A company wants to manage employee salary increases and track those changes in a log table. They need to ensure that only authorized personnel can perform salary increases and that all changes are recorded for auditing purposes.

**Tables:**

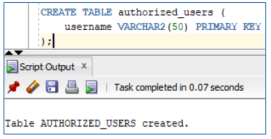
* employees (employee\_id, first\_name, last\_name, salary, job\_title)



* salary\\_log (log\_id, employee\_id, old\_salary, new\_salary, change\_date, changed\_by)

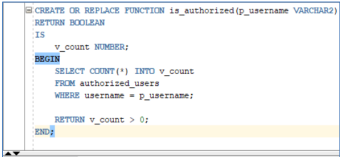


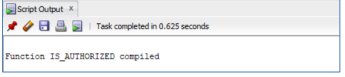
* authorized\\_users (username)



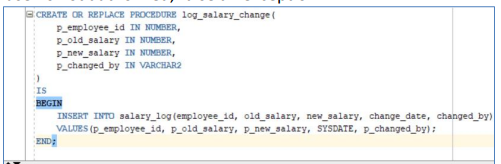
**Requirements:**

1. **Function:** Create a function is\_authorized that checks if a given username is authorized to change salaries. The function should return TRUE if the user is authorized and FALSE otherwise.



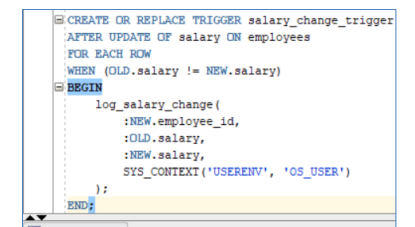


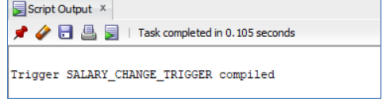
1. **Procedure:** Create a procedure update\_salary that takes an employee ID, the new salary, and the username of the person making the change. The procedure should:
   * Use the is\_authorized function to check if the user is authorized.
   * If the user is authorized, update the employee's salary and call a procedure to log the salary change.
   * If the user is not authorized, raise an exception.





1. **Trigger:** Create a trigger salary\_change\_trigger that fires AFTER an update to the employees table's salary column. This trigger should:
   * Call a logging procedure to record the old salary, new salary, employee ID, change date, and the user who made the change. (You can assume the username is stored in a session variable, e.g., SYS\_CONTEXT('USERENV', 'OS\_USER')).

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**Solution:**

Function to Check Authorization

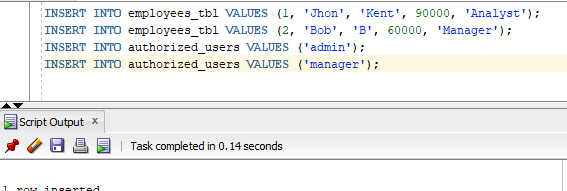
Procedure to Update Salary

Procedure to Log Salary Change

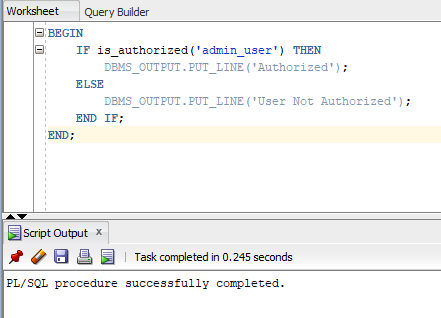
Trigger to Automatically Log Salary Changes

**Testing the Components:**

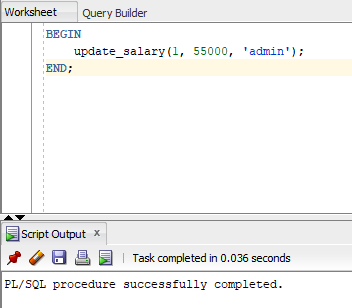
Create the tables:



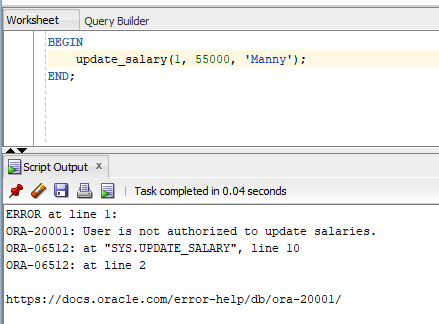
Test the function:



Test the procedure (as an authorized user):



Test the procedure (as an unauthorized user):



Test the trigger (by updating salary directly):  
