

Assignment 3 – Triggers

Submission

Your submission will consist of two files:

- A single text-based SQL file
 - and –
- An **output file** demonstrating that your triggers work – see **additional details below**

Reminders

- 1 – Make sure you use proper indentations
- 2 – Make sure you fully comment your stored procedure
- 3 – Make sure you include error handling and test your error handling code

Tasks

1 – (0%) This is preparation – It is very important to ensure you have successfully ingested the data into both tables and have the exact number of rows specified below. Double check this.

- Create the EMPLOYEE table and STAFF table based on DDL in the dbs501-assignment-DDL file
- Take file dbs501-assignment-employee and load this data into an employee table
- Take file dbs501-assignment-staff and load this data into a staff table
- Make sure all records have been successfully loaded or your result sets may be incorrect

- Perform a SELECT COUNT(*) from both tables to ensure there is an exact match with rows
- You should have 35 records in STAFF and 42 records in EMPLOYEE

You can use INSERT, IMPORT, LOAD – whatever you prefer – to ingest the data

2 – (30%) Write a trigger – *varpaychk* – which checks for the following compensation rules when a record is INSERTed or UPDATEed into the EMPLOYEE table

- BONUS should be < 20% of SALARY
- COMMISSION should be < 25% of SALARY
- Sum of BONUS & COMMISSION should be < 40% of SALARY

Create an EMPAUDIT table which records any failure to adhere to the above rules.

The INSERT or UPDATE should still be successful into the EMPLOYEE table, but, an error record should be recorded in the EMPAUDIT table.

The trigger should handle multiple records being INSERTed or UPDATED into the EMPLOYEE table. Make sure you test multi-record changes.

3 – (30%) Write a trigger – *nomgr* – which checks for the following when an INSERT, UPDATE or DELETE takes place that ensures every employee has a manager.

Start by INSERTing a HR Manager into the EMPLOYEE table which works for WORKDEPT = “000”. This will be a default HR Manager for employees being INSERTed to a department which does not have a manager.

The trigger should be executed when any I/U/D takes place against the EMPLOYEE table which changes the WORKDEPT.

For an INSERT or UPDATE - if there is a manager for the WORKDEPT – there is nothing to do. If there is not a manager update the record so that the WORKDEPT is “000”.

A record should be recorded in the EMPAUDIT table to reflect that the the WORKDEPT had to change. The audit record should record the original desired department and an error code which makes the error type clear (see details below).

When a DELETE takes place and deletes a manager (JOB=“MANAGER”) all the employees currently in that department need to shift to WORKDEPT “000”. Note that this could impact multiple employees and you’ll need a loop to deal with that.

The trigger should handle multiple records being INSERTed or UPDATEd or DELETEd into the EMPLOYEE table. Make sure you test multi-record changes.

4 – (40%) Write a trigger – *empvac* – which adds a record into a VACATION table for each EMPLOYEE who is INSERTed or UPDATEd into the EMPLOYEE table to ensure the difference between the HIREDATE and CURRENT DATE (SYSDATE) follows these rules:

- If employee was hired < 10 years ago – they get 3 weeks (15 days) vacation
- If employee was hired 10-19 years ago – they get 4 weeks (20 days) vacation
- If employee was hired 20-29 years ago – they get 5 weeks (25 days) vacation
- If employee was hired 30+ years ago – they get 6 weeks (30 days) vacation

If a record from the EMPLOYEE table is deleted – the associated record from the VACATION table should also be deleted.

The trigger should handle multiple records being INSERTed or UPDATED into the EMPLOYEE table. Make sure you test multi-record changes.

5 - Additional Notes:

VACATION Table Schema:

- EMPID
- HIREDATE
- VACATION DAYS

EMPAUDIT Table Schema:

- EMPID
- ERRORCODE ("S", "B", "C", "M")
 - "S" = Sum rule broken
 - "B" = Bonus rule broken
 - "C" = Commission rule broken
 - "M" = Department had no manager
- OPERATION ("I", "U" or "D")
 - "I" = INSERT Operation
 - "U" = UPDATE Operation
 - "D" = DELETE Operation
- WORKDEPT
 - Rejected department number, if error is "M"
 - "N/A", if error is "S", "B" or "C"
- SALARY
- COMM
- BONUS

WHAT TO HAND IN & TESTING:

- A copy of your trigger code for each of the three triggers.
- Make sure you test all the permutations and combinations of I/U/D for each trigger
- Make sure you test both single row and multi row processing where appropriate
- Make sure to show a copy of your EMPAUDIT table and your VACATION table when triggers fire that make changes to those tables
- Make sure to show copies of the EMPLOYEE table to show the operations which completed.
- Make sure to handle and test error situations for each trigger