# DBAS 4002 - Assignment 4

# Triggers – Employee Commissions & Customer Bonuses

Assignment Value: *12*% of overall course mark.

Due Date: **See due date designated on the Assignment 4 dropbox on Brightspace.**

Late submissions will receive the standard late submission penalty as stated in the course outline.

#### Required Databases:

* Chinook

#### Assignment Instructions:

**Restore a new copy of the Chinook database, with a Database Name of Chinook\_A4.**

Create a single .sql script file containing all SQL statements required to meet all requirements listed below.

#### Submissions:

When you are finished, upload your script to Brightspace as your submission for Assignment 3, using a file name similar to: **[YourName]\_DBAS\_Assignment4.sql**.

#### Evaluation:

To insure the greatest chance of success on this assignment, be sure to check the marking rubric contained at the end of this document or in Brightspace. The rubric contains the criteria your instructor will be assessing when marking your assignment.

## Assignment Scenario

You’re on a roll with Chinook. They’re very happy with all the enhancements you’ve made to their database so far and are looking for more. This time around, they want to introduce two new enhancements: **Employee sales commissions** and **Customer bonus track vouchers**.

#### Employee Commissions

Chinook is introducing a commission-based pay system for employees. Whenever a new invoice is created, it should automatically calculate and assign a 10% per sale commission to the employee who processed that invoice. This will take the form of a new EmployeeCommission record, as well as a running total of all commissions to date for each employee. If an invoice is ever deleted, the associated sales commission record should also be removed, and the running total updated.

#### Customer Bonus Tracks

Chinook also wants to reward their loyal customers. Whenever an invoice is created with a total purchase amount of $20 or more, they will automatically have a “bonus track voucher” line item added to their order. This voucher is good for $2.99 toward future purchases. In addition, Chinook wants to track how many bonus tracks each customer accumulates over time.

## Requirements

Your solution should add the following to the new **Chinook\_A4** database:

1. A new table called **EmployeeCommission** will be added. **See ERD below**.
2. A new field in the Employee table, called **CommissionAmountToDate**, which will track the total dollar amount in commissions received by each employee to date. Your script should set this field to zero for all existing Employees, to prepare existing records for the new commission scheme.
3. A new field in the Customer table, called **NumBonusesToDate**, which will track the total number of bonus vouchers earned by each customer to date. Your script should set this field to zero for all existing Customers, to prepare for the new bonuses scheme.
4. Create a new track record, which will be assigned as lineitem on qualifying invoices. This “track” should have a name of “Chinook Bonus Track Voucher” and have a price of $2.99. Other track field values are unimportant, set to any reasonable, acceptable values. **Note**: After creating this Voucher track, it’s ok to use its hard-coded TrackID when required for other tasks in these enhancements.
5. A new trigger called **trgInvoice\_AddEmployeeCommission** will be created. It will be used every time a new invoice is created, and will:
   1. Determine which employee processed the incoming invoice.
   2. Calculate the sales commission for this sale, which is set at 10% of the order total.
   3. Create a new Employee Commission record containing all required data – which invoice, which employee, the month and year the commission was applied (derived from the invoice date) and the commission amount.
6. A new trigger called **trgInvoice\_DeleteEmployeeCommission**, which will be used whenever an invoice record is deleted. It will remove any Employee Commission records associated with that invoice.
7. A new trigger called **trgEmpComm\_CreditEmployeeCommToDate**, which will activate whenever a new Employee Commission record is created. This trigger will add to the specified employee’s CommissionAmountToDate value.
8. A new trigger called **trgEmpComm\_DebitEmployeeCommToDate**, which will activate whenever an Employee Commission record is deleted. This trigger will decrement the specified employee’s CommissionAmountToDate value.
9. A new trigger called **trgInvoice\_AddBonusTrackVoucher**, which will execute whenever a new invoice is created. This trigger will determine whether the incoming invoice qualifies to receive a track bonus voucher, which is offered on all invoice purchases greater than $20. If the invoice qualifies, it should add a new lineitem to the current invoice. This new lineitem will be the “Chinook Bonus Track Voucher” track. This trigger will also increment the NumBonusesToDate field for the invoice’s purchasing customer.

**Note:** Since this trigger executes multiple DML statements, proper tranasactions and error handling techniques should be applied.

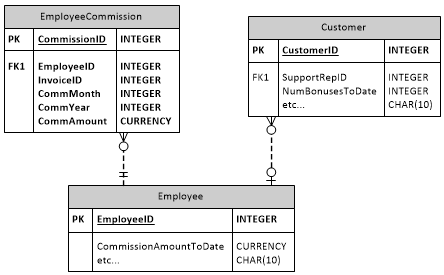
## Executing Procs & Testing Statements

To ensure the accuracy of your work, your script should include testing statements that demonstrate that all your enhancements are functioning as expected and all work is completed to the requirements. Note that during tests that add new test records, hard-coded values are acceptable.

Your testing script should include:

* Statements to test all record inserts or deletes that are involved in these enhancements.
* Query statements to display that each of your tests achieved the desired results.

## ERD for Proposed Modifications



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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Chinook –Commissions & Customer Bonuses** | | | | | Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |
| **Criteria** | | **Insufficient (0 pts)** | **Needs Development**  **(1-2 pts)** | **Sufficient (3-4 pts)** | **Excellent (5 pts)** |  | **X** |
| **DDL** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | New EmployeeCommission table successfully created and matches all requirements for fields, constraints and auto-numbering. New fields correctly added to Customer and Employee and meet all specs. |  |  |
| **DML** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | Statements to prepare all existing Customer and Employee records to use the new enhancements are included and work as expected. “Voucher” track added and meets all requirements. |  |  |
| **Add Commission Trigger** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | **trgInvoice\_AddEmployeeCommission** trigger works as expected, with no errors/omissions, to add employee commission records for new invoices. New commissions records contain all required fields and have all expected values calculated/derived as expected. |  |  |
| **Delete Commission Trigger** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | **trgInvoice\_DeleteEmployeeCommission** trigger works as expected, with no errors/omissions, to remove correct employee commission records when invoices are deleted. |  |  |
| **Credit Commission To Date Trigger** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | **trgEmpComm\_CreditEmployeeCommToDate** trigger works as expected, with no errors/omissions, to add to the correct employee’s commissions to date total. Calculated correctly and as expected. |  |  |
| **Debit Commission To Date Trigger** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | **trgEmpComm\_debitEmployeeCommToDate** trigger works as expected, with no errors/omissions, to debit the correct employee’s commissions to date total. Calculated correctly and as expected. |  |  |
| **Bonus Track Voucher Trigger** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | **trgInvoice\_AddBonusTrackVoucher** trigger works as expected, with no errors/omissions, to add the proper “bonus voucher” track to the correct invoices. Voucher is only added to qualifying invoices. Customer’s number of bonuses value is correctly updated as expected. |  | 2 |
| **Transactions & Error Handling** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | Transactions and error handling applied where required and applicable and demonstrates a strong understanding of the concepts. |  |  |
| **Testing Script** | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | Statements are included to demonstrate all aspects of the required enhancements were successfully implemented. Testing coverage is comprehensive and clearly shows all enhancements work as expected. |  | 2 |
| **Comments &**  **Best Practices**  (Must complete at least 60% of functional reqs) | | Little to no effort was made or contains too many errors / omissions. | A reasonable effort was made, but there are multiple areas for improvement. | A good effort was made, but at least one error or omission exists. | Organizational or explanatory comments are used extensively, most are meaningful and easily understood. A consistent naming convention was used for most of the program and deviated very little. Source code was clean, consistently well-formatted and easy to read. |  |  |
|  |  | |  |  | **Total:** |  | **/60** |