Lab 11 – Error Handling and Transactions

OVERVIEW

In this lab, you will use Transact-SQL to implement error handling and transactions in the **AdventureWorksLT** database.

Before starting this lab, you should view **Module 11 – Error Handling and Transactions** in the Course *Querying with Transact-SQL*. Then, if you have not already done so, follow the instructions in the **Getting Started** document for this course to set up the lab environment.

If you find some of the challenges difficult, don't worry – you can find suggested solutions for all of the challenges in the **Lab Solution** folder for this module.

WHAT YOU'LL NEED

☐ An Azure SQL Database instance with the **AdventureWorksLT** sample database. Review the **Getting Started** document for information about how to provision this.

CHALLENGE 1: LOGGING ERRORS

You are implementing a Transact-SQL script to delete orders, and you want to handle any errors that occur during the deletion process.

Tip: Review the documentation for THROW and TRY…CATCH in the Transact-SQL Language Reference.

1. Throw an error for non-existent orders

You are currently using the following code to delete order data:

```
DECLARE @SalesOrderID int = <the_order_ID_to_delete>

DELETE FROM SalesLT.SalesOrderDetail WHERE SalesOrderID = @SalesOrderID;

DELETE FROM SalesLT.SalesOrderHeader WHERE SalesOrderID = @SalesOrderID;
```

This code always succeeds, even when the specified order does not exist. Modify the code to check for the existence of the specified order ID before attempting to delete it. If the order does not exist, your code should throw an error. Otherwise, it should go ahead and delete the order data.

2. Handle errors

Your code now throws an error if the specified order does not exist. You must now refine your code to catch this (or any other) error and print the error message to the user interface using the PRINT command.

CHALLENGE 2: ENSURING DATA CONSISTENCY

You have implemented error handling logic in some Transact-SQL code that deletes order details and order headers. However, you are concerned that a failure partway through the process will result in data inconsistency in the form of undeleted order headers for which the order details have been deleted.

Tip: Review the documentation for Transaction Statements in the Transact-SQL Language Reference.

1. Implement a transaction

Enhance the code you created in the previous challenge so that the two DELETE statements are treated as a single transactional unit of work. In the error handler, modify the code so that if a transaction is in process, it is rolled back and the error is re-thrown to the client application. If not transaction is in process the error handler should continue to simply print the error message.

To test your transaction, add a THROW statement between the two DELETE statements to simulate an unexpected error. When testing with a valid, existing order ID, the error should be re-thrown by the error handler and no rows should be deleted from either table.

NEXT STEPS

Well done! You've completed the *Querying with Transact-SQL* course, and you should now have a basic knowledge of the core Transact-SQL statements and syntax. To deepen your knowledge of Transact-SQL, check out the following resources:

- **Transact-SQL Reference**. This online documentation includes a detailed reference to TransactSQL keywords and syntax.

- **T-SQL Querying** (Microsoft Press, 2015), by Itzik Ben-Gan, Adam Machanic, Dejan Sarka, and Kevin Farlee. This book gives database developers and administrators a detailed look at the internal architecture of T-SQL and is the comprehensive programming reference for T-SQL querying.

You can prove your expertise with Transact-SQL by taking Microsoft Certified Professional exam 70-461: Querying Microsoft SQL Server. Note that this exam may test some additional objectives beyond those covered in this course, so before taking it, you should review the skills measured and ensure that you have supplemented your learning on this course with additional information from SQL Server Books Online or from the following resources:

- **Microsoft Virtual Academy**. Online courses at Microsoft Virtual Academy (MVA) bring you training direct from experts.

- **Microsoft Official Curriculum**. Instructor-led Microsoft Official Curriculum (MOC) courses are delivered in classrooms and online by Microsoft Certified Trainers (MCTs) all over the world.

- **Microsoft Press**. Microsoft Press offers multiple series of books for IT professionals and developers.