DAT247x

Managing Database Operations

Lab 03 | Maintaining SQL Server

Estimated time to complete this lab is 30 minutes

Overview

As a database administrator for Adventure Works Cycles, you are responsible for the **AdventureWorks** regional, national, and data archive databases. You must run maintenance tasks to verify the integrity of the databases and their backups and, where necessary, update statistics and defragment indexes.

The labs in this course are accumulative. You cannot complete the following labs if this lab has not been successfully completed.

What You'll Need

To complete this lab, you will need the following:

- High-speed and reliable internet connectivity (for remote connections to the VM)
- A second monitor is recommended (for the Remote Desktop connection)
- A Microsoft account (such as one used for outlook.com, Hotmail, or other Microsoft services)
- A Microsoft Azure subscription
- To have completed the previous labs in this course.

Exercise 1: Verify SQL Server Backups

As a database administrator for Adventure Works Cycles, you are responsible for the **AdventureWorks** regional, national, and data archive databases. You must validate the database backups to ensure that the disaster recovery process is functioning correctly.

The main tasks for this exercise are as follows:

1. Verify the AdventureWorks Backup

Verify the AdventureWorks Backup

1. Open SQL Operations Studio, connect to your server, and execute the following Transact-SQL to verify the AdventureWorks.bak backup file.

```
RESTORE VERIFYONLY FROM DISK=
N'/var/opt/mssql/backup/AdventureWorks.bak'
```

Lab Check – *You will need these answers for the module quiz – write them down!*

Lab 03 ► Maintaining SQL Server

What are the results of the query?

_____

Exercise 2: Maintaining Indexes and Statistics

To ensure that your queries execute as quickly as possible, you need to update statistics and defragment an index. Note that, in a genuine production system, you would query the system function `sys.dm_db_index_physical_stats` to detect fragmentation.

The main tasks for this exercise are as follows:

1. Update statistics
2. Defragment an index

Update Statistics

1. Open SQL Operations Studio and execute the following Transact-SQL to update the statistics on the SalesOrderDetail table.

```
USE AdventureWorks2016;
GO
UPDATE STATISTICS Sales.SalesOrderDetail
WITH FULLSCAN;
```

```
GO
```

Defragment an Index

1. Open SQL Server Management Studio and execute the following Transact-SQL to defragment an index.

```
USE [AdventureWorks2016]
GO

ALTER INDEX [IX_Employee_OrganizationLevel_OrganizationNode] ON
    [HumanResources].[Employee] REORGANIZE  WITH ( LOB_COMPACTION = ON )
GO;
```

Exercise 3: Checking SQL Server Database Integrity

To ensure the integrity of your database, you have decided to run periodic database integrity checks.

The main tasks for this exercise are as follows:

1. Check database integrity

Check Database Integrity

1. Open SQL Server Management Studio and execute the following Transact-SQL to check the integrity of the **AdventureWorks2016** database.

```
USE AdventureWorks2016;
GO
DBCC CHECKDB;
```

GO

<div style="background-color:#4CD137; padding:20px;">

Lab Check – *You will need these answers for the module quiz – write them down!*

Lab 03 ► Maintaining SQL Server

Near the end of the results how many allocation errors were found?

_____

Near the end of the results how many consistency errors were found?

_____

</div>

You have now completed the lab.

If you are not immediately continuing with the next lab, you should complete the ***Finishing Up*** *exercise to shut down and stop the VM.*

Finishing Up

In this exercise, you will shut down and stop the VMs.

1. Deallocate the Linux VM by clicking **Stop**.

   Deallocation will take some minutes to complete, and also extends the time required to restart the VM. Consider deallocating the VM if you want to reduce costs, or if you choose to complete the next lab after an extended period.
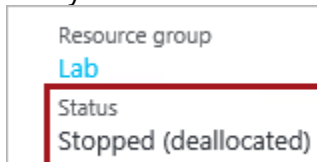

2. When prompted to stop the VM, click **Yes**.
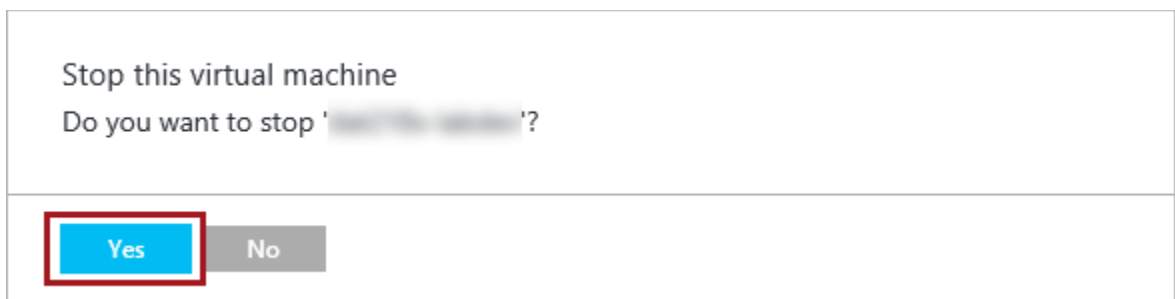
   The deallocation can take several minutes to complete.

3. Verify that the VM status updates to **Stopped (Deallocated)**.

   In this state, the VM is now not billable—except for a relatively smaller storage cost.
   Note that a deallocated VM will likely acquire a different IP address the next time it is started.