Lab Answer Key: Module 11: Performing Ongoing Database Maintenance

Lab: Performing Ongoing Database Maintenance

Exercise 1: Managing Database Integrity

Task 1: Prepare the Lab Environment

1. Ensure that the 20462C-MIA-DC and 20462C-MIA-SQL virtual machines are both running, and then log on to 20462C-MIA-SQL as **ADVENTUREWORKS\Student** with the password **Pa$$w0rd**.
2. In the D:\Labfiles\Lab11\Starter folder, right-click the **Setup.cmd** file and then click **Run as administrator**.
3. Click **Yes** when prompted to confirm that you want to run the command file, and wait for the script to finish.

Task 2: Check Database Consistency

1. Start SQL Server Management Studio and connect to the **MIA-SQL** database engine instance using Windows authentication.
2. Open the **DBCCCheckDB.sql** script file in the D:\Labfiles\Lab11\Solution folder.
3. Select the code under the comment **Check AWDataWarehouse** and click **Execute**. This checks the integrity of the **AWDataWarehouse** database.
4. Select the code under the comment **Check HumanResources** and click **Execute**. This checks the integrity of the **HumanResources** database.
5. Select the code under the comment **Check InternetSales** and click **Execute**. This checks the integrity of the **InternetSales** database and identifies some consistency errors in the **dbo.Orders** table in this database. The last line of output tells you the minimum

repair level required.

Task 3: Repair a Corrupt Database

1. In SQL Server Management Studio, in the **DBCCCheckDB.sql** script, select the code under the comment **Repair the database** and click **Execute**. This repairs the **InternetSales** database.
2. Select the code under the comment **Check the internal database structure** and click **Execute**. No error message are displayed, indicating that the database structure is now consistent.

Result: After this exercise, you should have used the DBCC CHECKDB command to check database consistency, and corrected any issues that were found.

Exercise 2: Managing Index Fragmentation

Task 1: View Index Fragmentation

1. In SQL Server Management Studio, open the **MaintainingIndexes.sql** script file in the D:\Labfiles\Lab11\Solution folder.
2. Select the code under the comment **Check fragmentation** and click **Execute**.
3. In the results, note the **avg_page_space_used_in_percent** and **avg_fragmentation_in_percent** values for each index level.

Task 2: Defragment Indexes

1. In SQL Server Management Studio, in the **MaintainingIndexes.sql** script, select the code under the comment **Rebuild the indexes** and click **Execute**. This rebuilds the indexes on the table.

2. Select the code under the comment **Check fragmentation again** and click **Execute**.

3. In the results, note the **avg_page_space_used_in_percent** and **avg_fragmentation_in_percent** values for each index level.

Result: After this exercise, you should have rebuilt fragmented indexes.

Exercise 3: Implementing a Maintenance Plan

Task 1: Create a Maintenance Plan

1. In Object Explorer, under **MIA-SQL**, expand **Management**, right-click **Maintenance Plans**, and click **Maintenance Plan Wizard**.

2. In the Maintenance Plan Wizard window, click **Next**.

3. In the **Select Plan Properties** window, in the **Name** textbox type **HumanResources Maintenance**. Note the available scheduling options and click **Change**.

4. In the **New Job Schedule** window, in the **Name** textbox type "**Daily**". In the **Occurs** drop down list, click **Daily**. In the **Occurs once at** textbox, change the time to 6:00 PM, and click **OK**.

5. In the **SelectPlan Properties** window, click **Next**. Then in the **Select Maintenance Tasks** page, select the following tasks and click **Next**.

   - Check Database Integrity
   - Reorganize Index
   - Update Statistics
   - Back up Database (Full)

6. On the **Select Maintenance Task Order** page, click **Next**.

7. On the define **Database Check Integrity Task** page, select the **HumanResources** database and click **OK**. Then click **Next**.

8. On the **Define Reorganize Index Task** page, select the **HumanResources** database and click **OK**, ensure that **Tables and Views** is selected, and click **Next**.

9. On the **Define Update Statistics Task** page, select the **HumanResources** database and click **OK**, ensure that **Tables and Views** is selected, and click **Next**.

10. On the **Define Backup database (Full) Task** page, select the **HumanResources** database and click **OK**. Then on the **Destination** tab, ensure that **Create a backup file for every database** is selected, change the **Folder** value to R:\Backups\ and click **Next**.

11. On the **Select Report Options** page, ensure that **Write a report to a text file** is selected, change the **Folder location** to D:\Labfiles\Lab11\Starter and click **Next**.

12. On the **Complete the Wizard** page, click **Finish**. Then when the operation has completed, click **Close**.

Task 2: Run a Maintenance Plan

1. In Object Explorer, under **Maintenance Plans**, right-click **HumanResources Maintenance** and click **Execute**.
2. Wait a minute or so until the maintenance plan succeeds, and in the **Execute Maintenance Plan** dialog box, click **Close**. Then right-click **HumanResources Maintenance** and click **View History**.
3. In the **Log File Viewer - MIA-SQL** dialog box, expand the **Date** value for the **Daily Maintenance** plan to see the individual tasks.
4. Keep clicking **Refresh** and expanding the tasks until four tasks have been completed. Then click **Close**.
5. In the D:\Labfiles\Lab11\Starter folder, view the **HumanResources Maintenance_Subplan_1_*xxxxx*.txt** file that has been created.
6. In the R:\Backups\ folder, verify that a backup of the **HumanResources** database has been created.

Result: After this exercise, you should have created the required database maintenance plan.