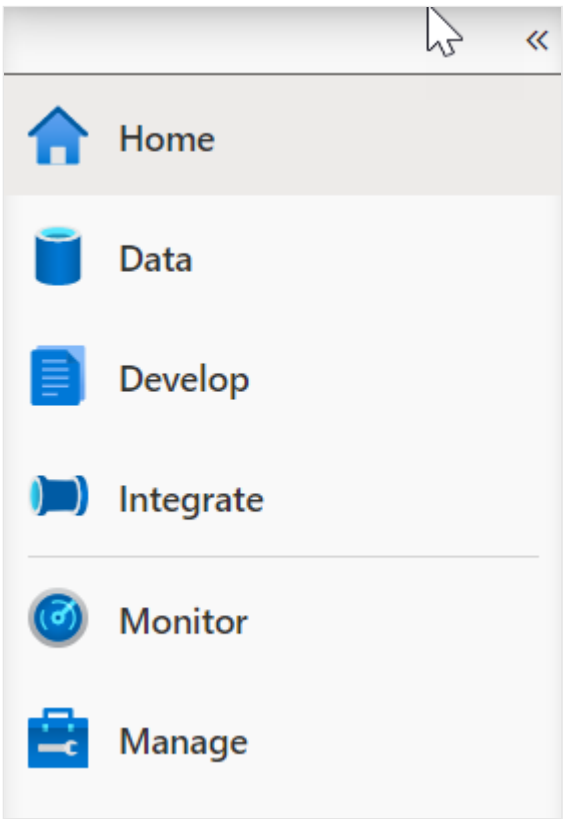
Exercise - Use table distribution and indexes to improve performance

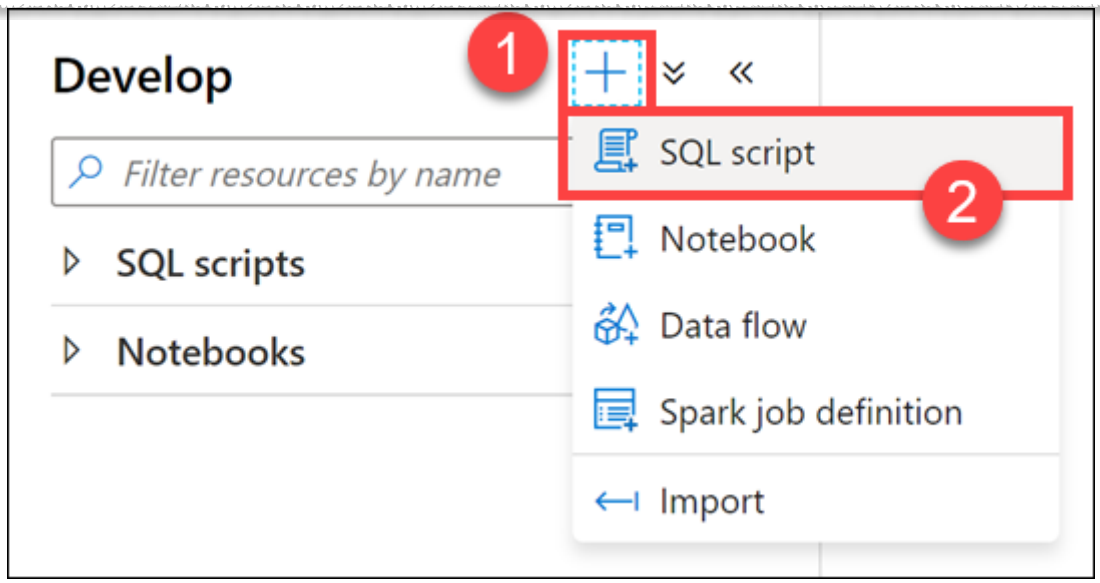
7 minutes

Create hash distribution table with a clustered columnstore index

1. Select the **Develop** hub.



2. From the **Develop** menu, select the + button **(1)** and choose **SQL Script (2)** from the context menu.



3. In the toolbar menu, connect to the **SQL Pool** database to execute the query.

4. In the query window, replace the script with the following:

```SQL
CREATE TABLE [wwi_perf].[Sale_Hash]
WITH
(
   DISTRIBUTION = HASH ( [CustomerId] ),
   CLUSTERED COLUMNSTORE INDEX
)
AS
SELECT
   *
FROM
   [wwi_perf].[Sale_Heap]
```

5. Select **Run** from the toolbar menu to execute the SQL command.

The query will take up to **4.5 minutes** to complete.

> **Note**
>
> CTAS is a more customizable version of the SELECT...INTO statement. SELECT...INTO doesn't allow you to change either the distribution method or the index type as part

ROUND_ROBIN, and the default table structure of CLUSTERED COLUMNSTORE INDEX.

With CTAS, on the other hand, you can specify both the distribution of the table data as well as the table structure type.

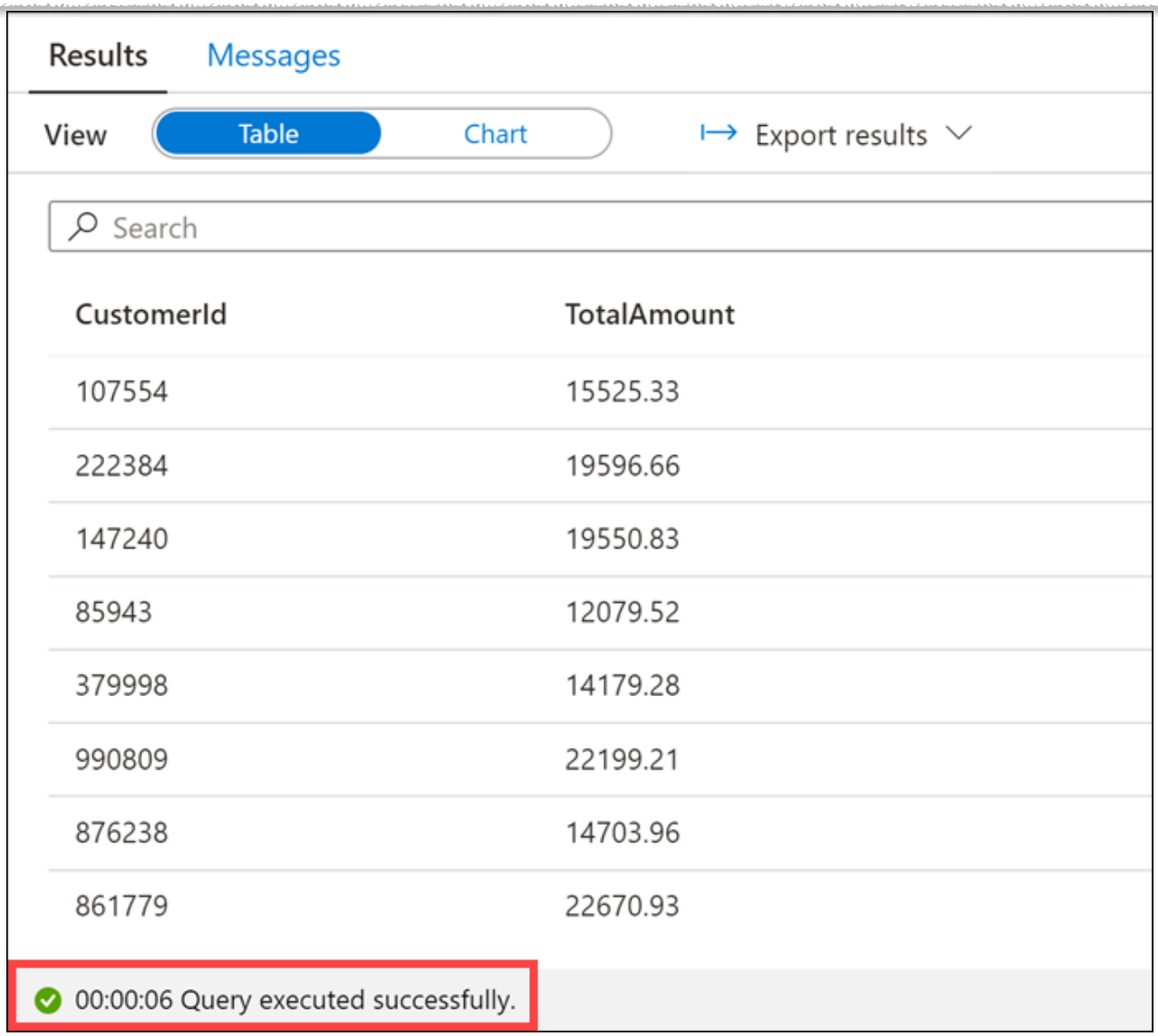
6. In the query window, replace the script with the following to see performance improvements:

```
SQL

SELECT TOP 1000 * FROM
(
    SELECT
        S.CustomerId
        ,SUM(S.TotalAmount) as TotalAmount
    FROM
        [wwi_perf].[Sale_Hash] S
    GROUP BY
        S.CustomerId
) T
```

7. Select **Run** from the toolbar menu to execute the SQL command.

You should see a performance improvement executing against the new Hash table compared to the first time we ran the script against the Heap table. In our case, the query executed in about half the time.


Results
Messages
View
Table
Chart
Export results
Search
CustomerId
TotalAmount
107554
15525.33
222384
19596.66
147240
19550.83
85943
12079.52
379998
14179.28
990809
22199.21
876238
14703.96
861779
22670.93
00:00:06 Query executed successfully.