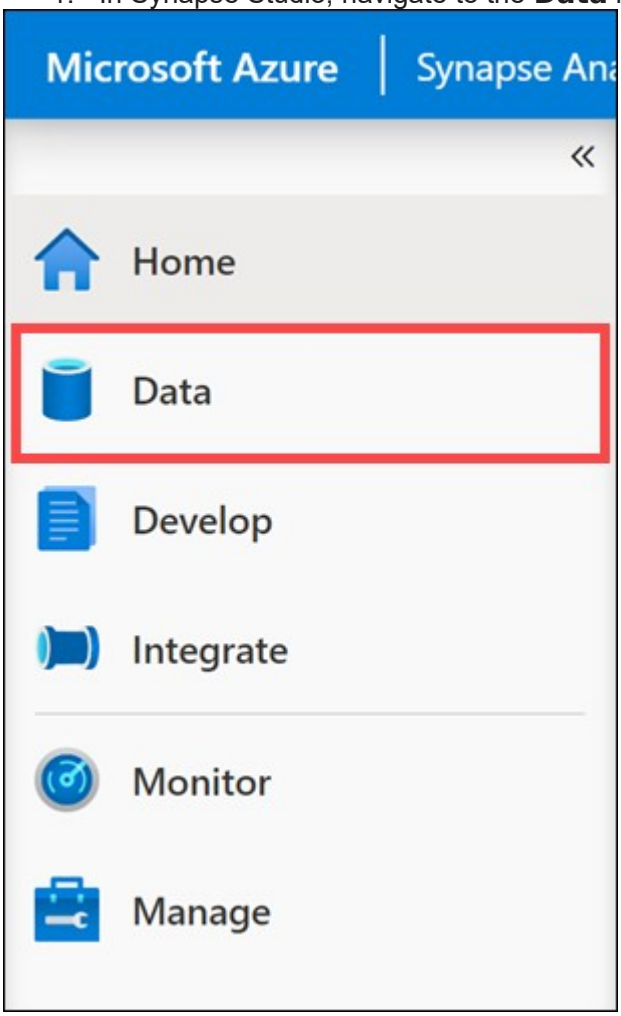
Create a snowflake schema

Note:

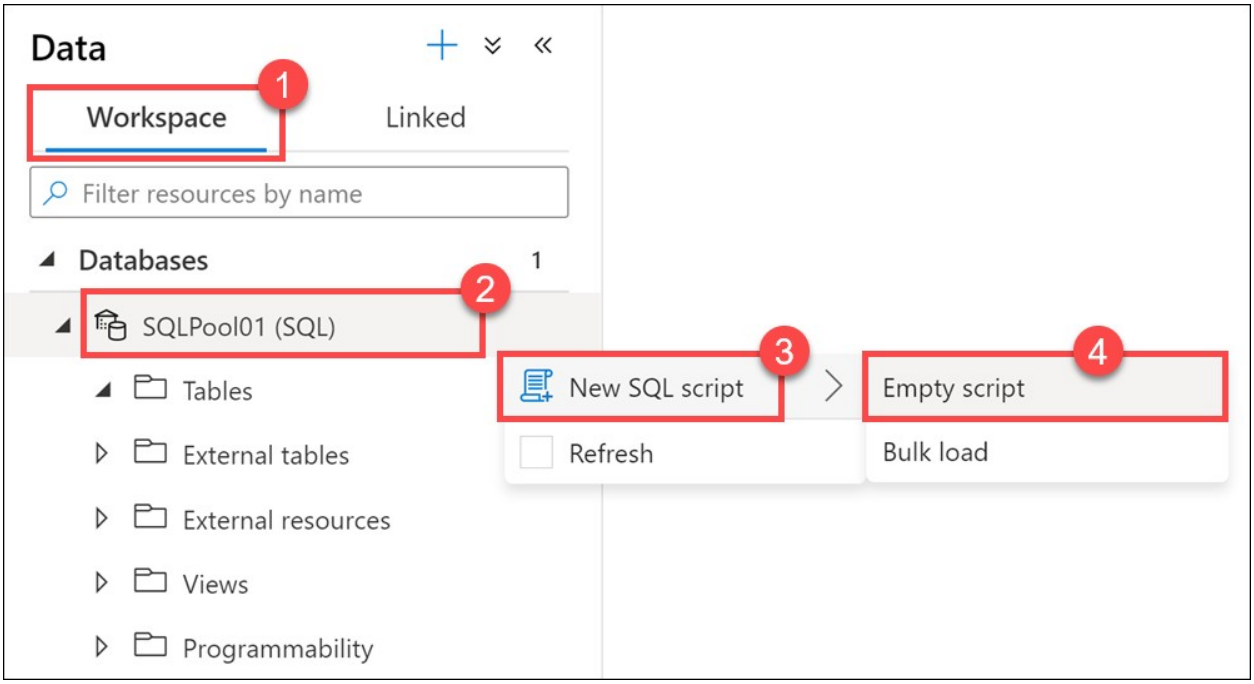
You are not required to complete the processes, tasks, activities, or steps presented in this example. The various samples provided are for illustrative purposes only and it's likely that if you try this out you will encounter issues in your system.

In this task, you add two new dimension tables: `DimProductCategory` and `DimProductSubcategory`. There is an implicit relationship between these two tables and the `DimProduct` table which creates a normalized product dimension, known as a snowflake dimension. Doing so updates the star schema to include the normalized product dimension, transforming it into a snowflake schema.

1. In Synapse Studio, navigate to the **Data** hub.



2. Select the **Workspace** tab **(1)**, expand Databases, then right-click on **SQLPool01 (2)**. Select **New SQL script (3)**, then select **Empty script (4)**.



3. Paste **and execute** the following into the query window to create the new dimension tables:

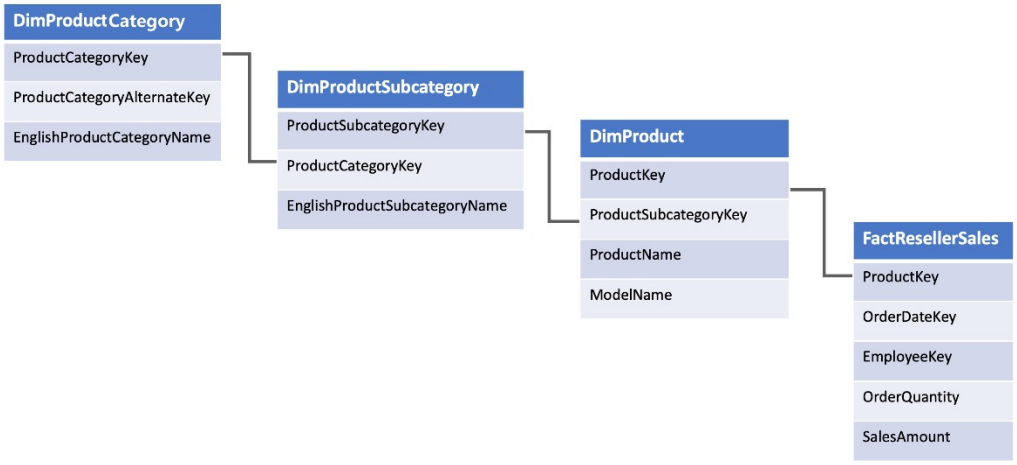
```
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
```

```
26
27
28
```

```
CREATE TABLE [dbo].[DimProductCategory](
    [ProductCategoryKey] [int] NOT NULL,
    [ProductCategoryAlternateKey] [int] NULL,
    [EnglishProductCategoryName] [nvarchar](50) NOT NULL,
    [SpanishProductCategoryName] [nvarchar](50) NOT NULL,
    [FrenchProductCategoryName] [nvarchar](50) NOT NULL
)
WITH
(
    DISTRIBUTION = REPLICATE,
    CLUSTERED COLUMNSTORE INDEX
);
GO

CREATE TABLE [dbo].[DimProductSubcategory](
    [ProductSubcategoryKey] [int] NOT NULL,
    [ProductSubcategoryAlternateKey] [int] NULL,
    [EnglishProductSubcategoryName] [nvarchar](50) NOT NULL,
    [SpanishProductSubcategoryName] [nvarchar](50) NOT NULL,
    [FrenchProductSubcategoryName] [nvarchar](50) NOT NULL,
    [ProductCategoryKey] [int] NULL
)
WITH
(
    DISTRIBUTION = REPLICATE,
    CLUSTERED COLUMNSTORE INDEX
);
GO
```

You have created a snowflake dimension by normalizing the three product tables into a single business entity, or product dimension:



4. Replace **and execute** the following query to insert data into the snowflake dimension tables:

```
COPY INTO [dbo].[DimProductCategory]
FROM 'https://solliancepublicdata.blob.core.windows.net/dataengineering/dp-203/awdata/DimProductCategory.csv'
WITH (
    FILE_TYPE='CSV',
    FIELDTERMINATOR='|',
```

```
    FIELDQUOTE='',
    ROWTERMINATOR='\n',
    ENCODING = 'UTF16'
);
GO

COPY INTO [dbo].[DimProductSubcategory]
FROM 'https://solliancepublicdata.blob.core.windows.net/dataengineering/dp-203/awdata/DimProductSubcategory.csv'
WITH (
    FILE_TYPE='CSV',
    FIELDTERMINATOR='|',
    FIELDQUOTE='',
    ROWTERMINATOR='\n',
    ENCODING = 'UTF16'
);
GO
```

5. Replace **and execute** the following query to retrieve reseller sales data from the star schema at the product category, product subcategory, and month granularity:

```
SELECT
    pc.EnglishProductCategoryName AS ProductCategory
    ,psc.EnglishProductSubcategoryName AS ProductSubcategory
    ,Year(f.OrderDate) AS CalendarYear
    ,CASE
        WHEN Month(f.OrderDate) < 7 THEN Year(f.OrderDate)
        ELSE Year(f.OrderDate) + 1
    END AS FiscalYear -- Fiscal year runs from Jul to June)
    ,Month(f.OrderDate) AS [Month]
    ,Sum(f.OrderQuantity) AS Quantity
    ,Sum(f.ExtendedAmount) AS Amount
    ,Approx_count_distinct(f.SalesOrderNumber) AS UniqueOrders
FROM
    [dbo].[FactResellerSales] f
INNER JOIN [dbo].[DimProduct] p
    ON f.[ProductKey] = p.[ProductKey]
INNER JOIN [dbo].[DimProductSubcategory] psc
    ON p.[ProductSubcategoryKey] = psc.[ProductSubcategoryKey]
INNER JOIN [dbo].[DimProductCategory] pc
    ON psc.[ProductCategoryKey] = pc.[ProductCategoryKey]
GROUP BY
    pc.EnglishProductCategoryName
    ,psc.EnglishProductSubcategoryName
    ,Year(f.OrderDate)
    ,CASE
        WHEN Month(f.OrderDate) < 7 THEN Year(f.OrderDate)
        ELSE Year(f.OrderDate) + 1
    END
    ,Month(f.OrderDate)
ORDER BY Amount DESC
```

Remember to **pause your SQL Pool** to avoid extra cost if you are not continuing to another exercise.