



Data warehousing

Data Warehouse Term Project

Phase_2

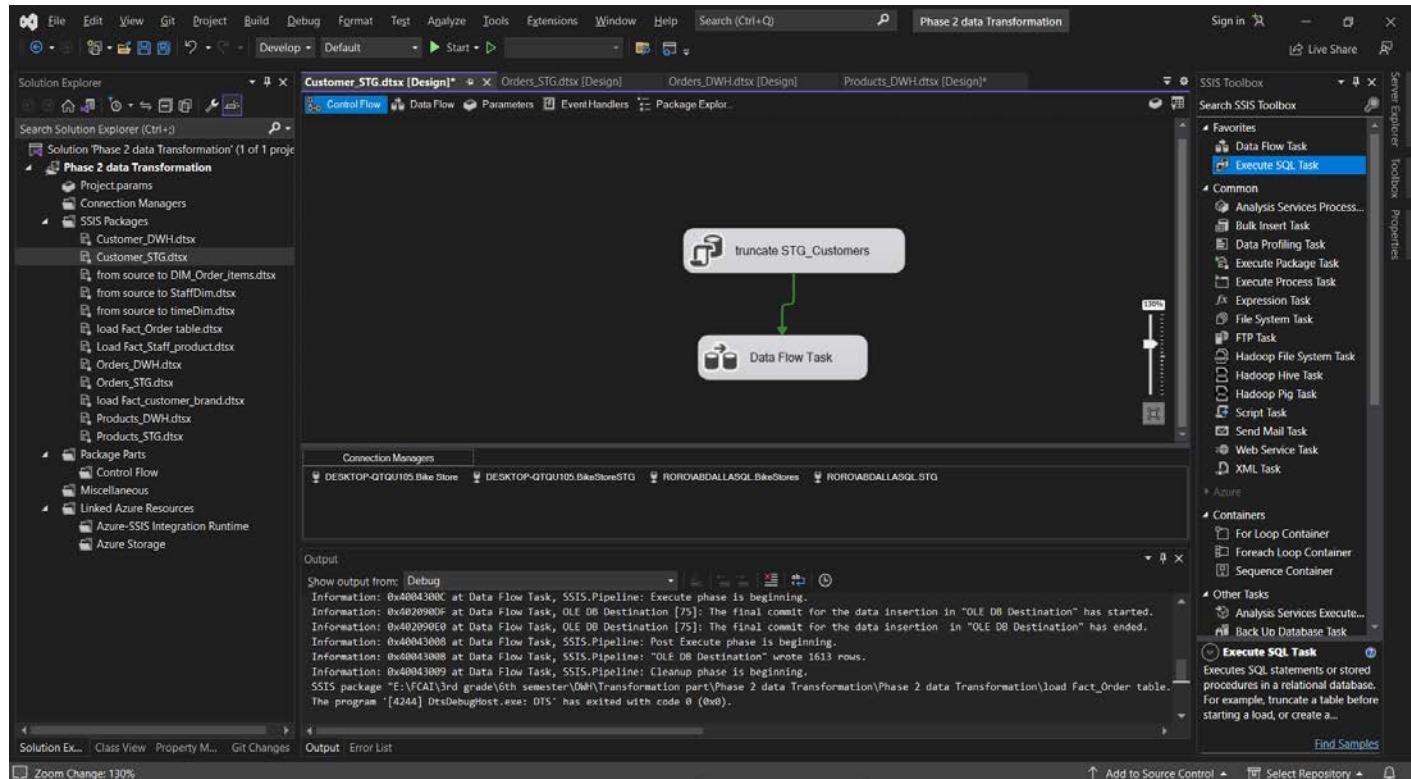
Submitted to TA\ Alaa Adel

Name	ID
Abdallah Saleh	20200302
Abdallah Mahmoud	20200307
Abdeltwab Mohamed	20200274
Nagi mohamed	20200580
Nour eldeen mahmoud okbi	20200608

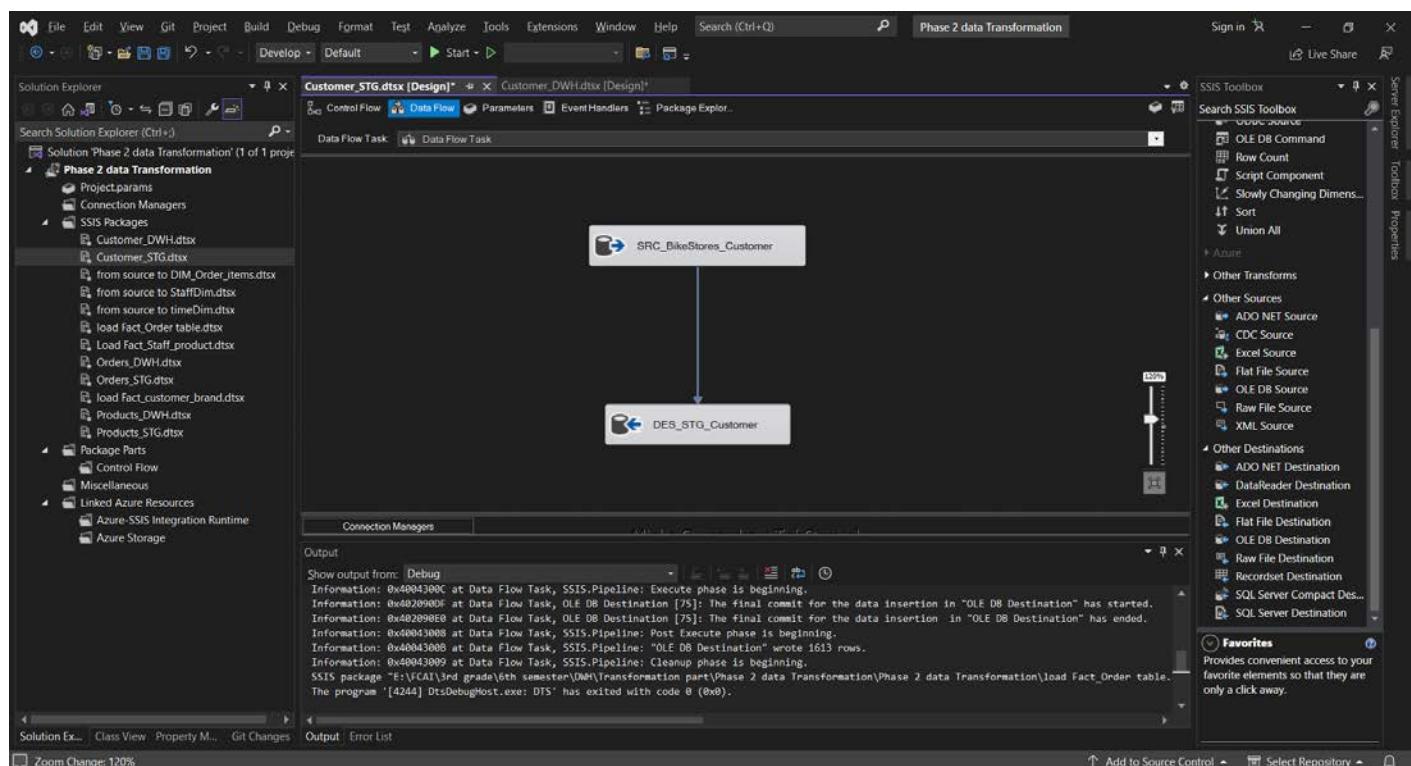
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Control Flow Customer STG



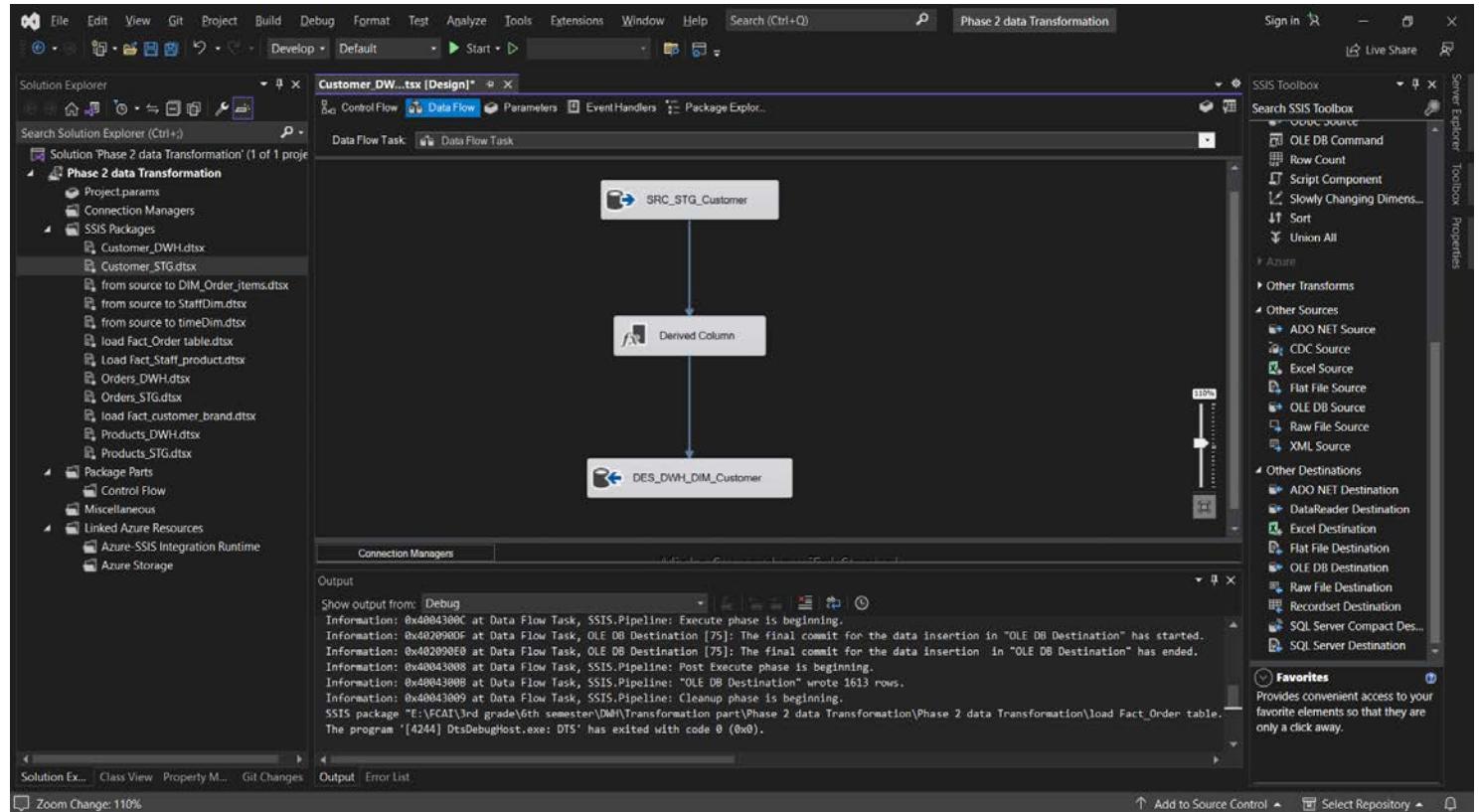
Customers_STG_from_source

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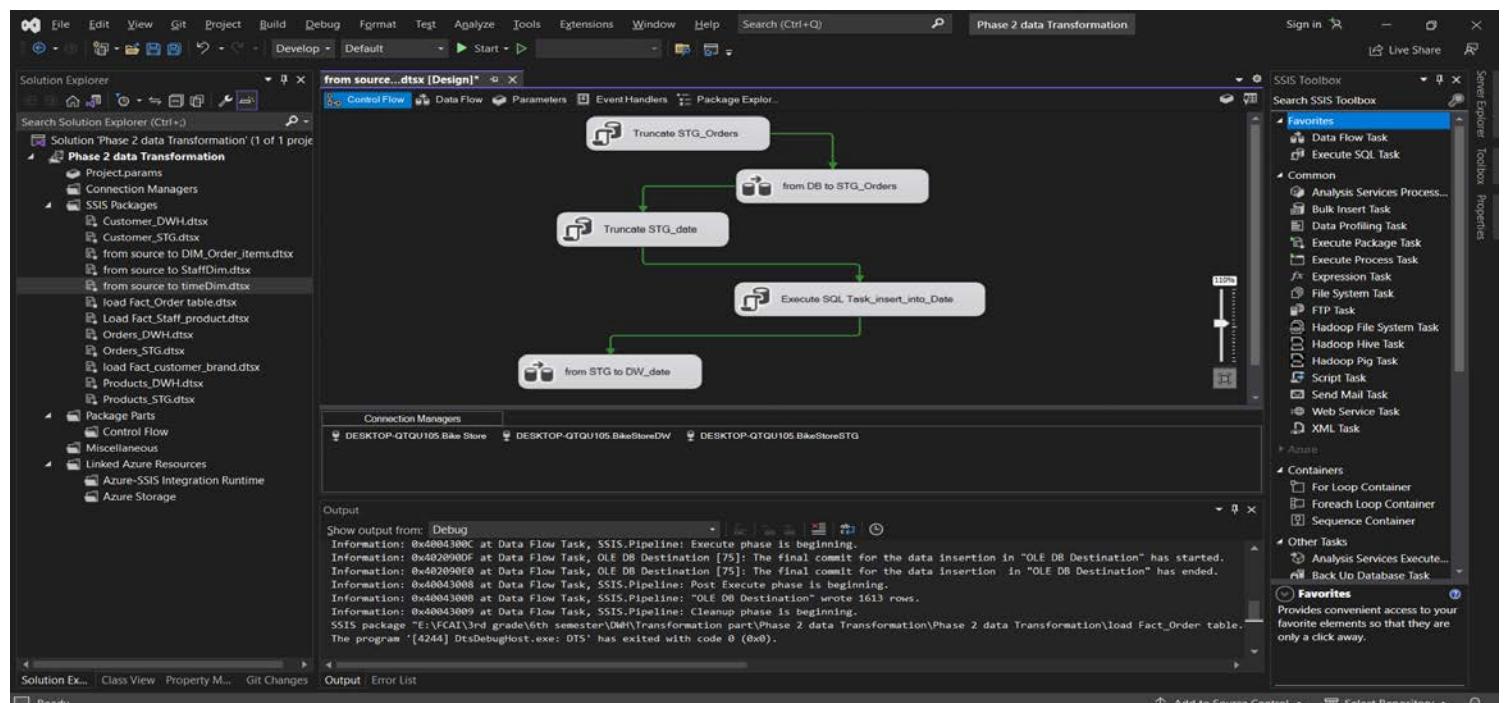


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Customer_DW_from_STG

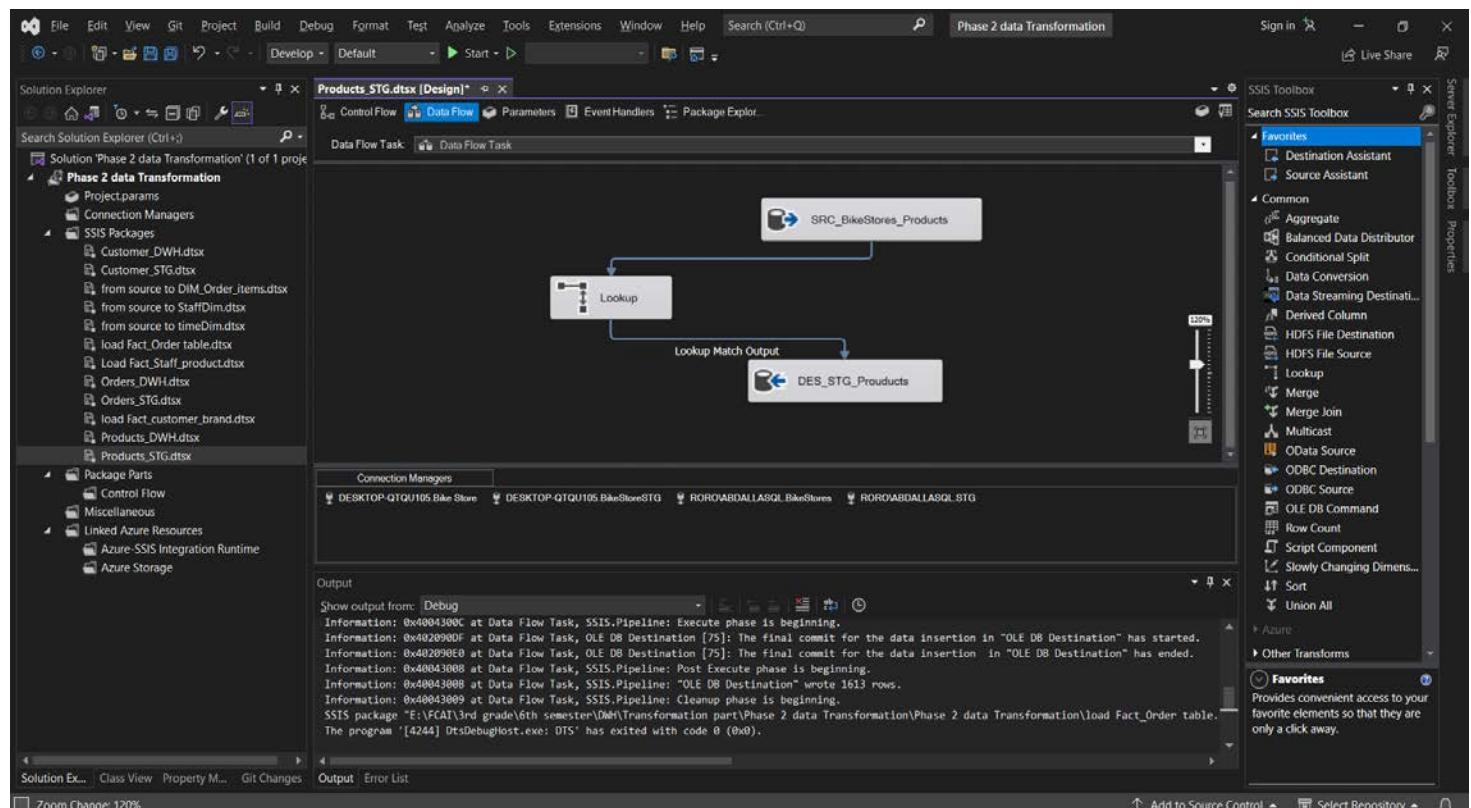
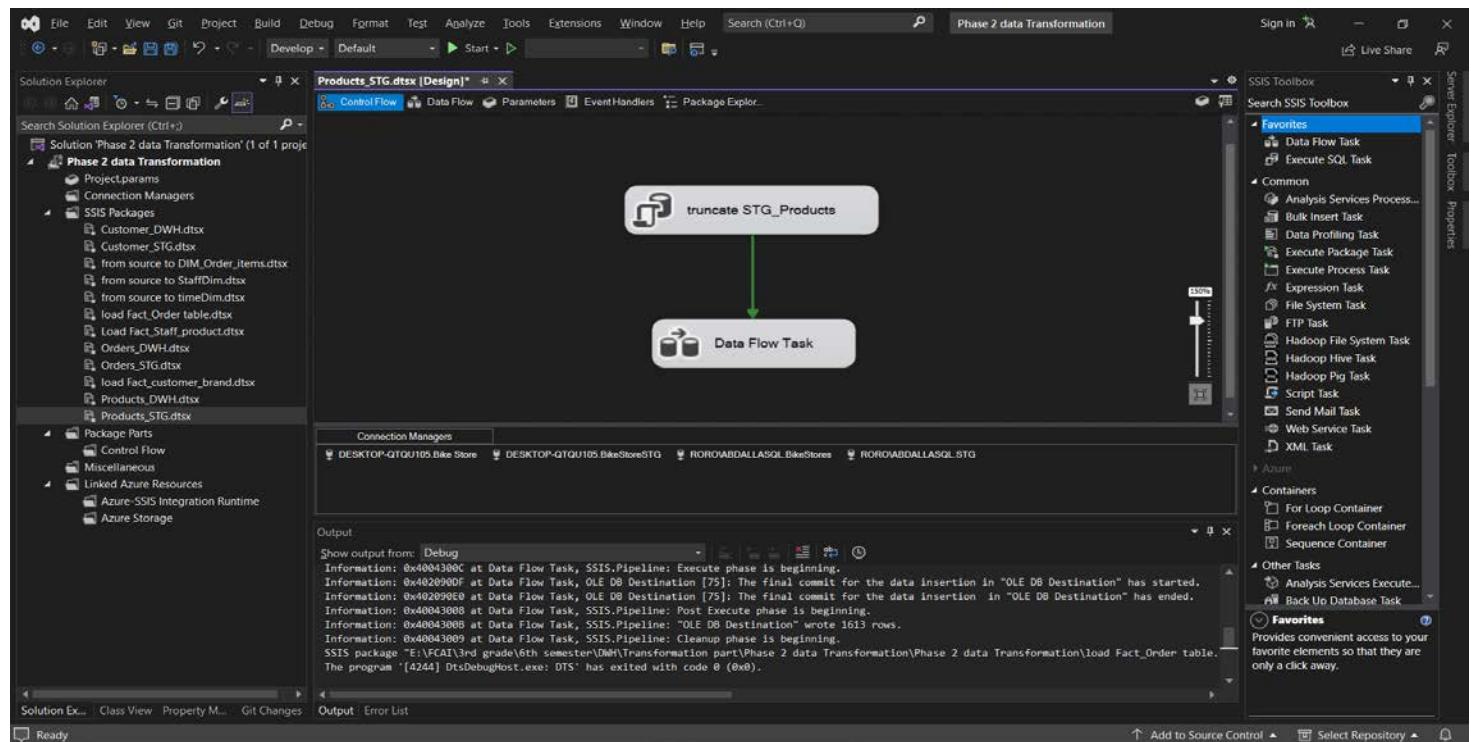


Control Flow Date DIM

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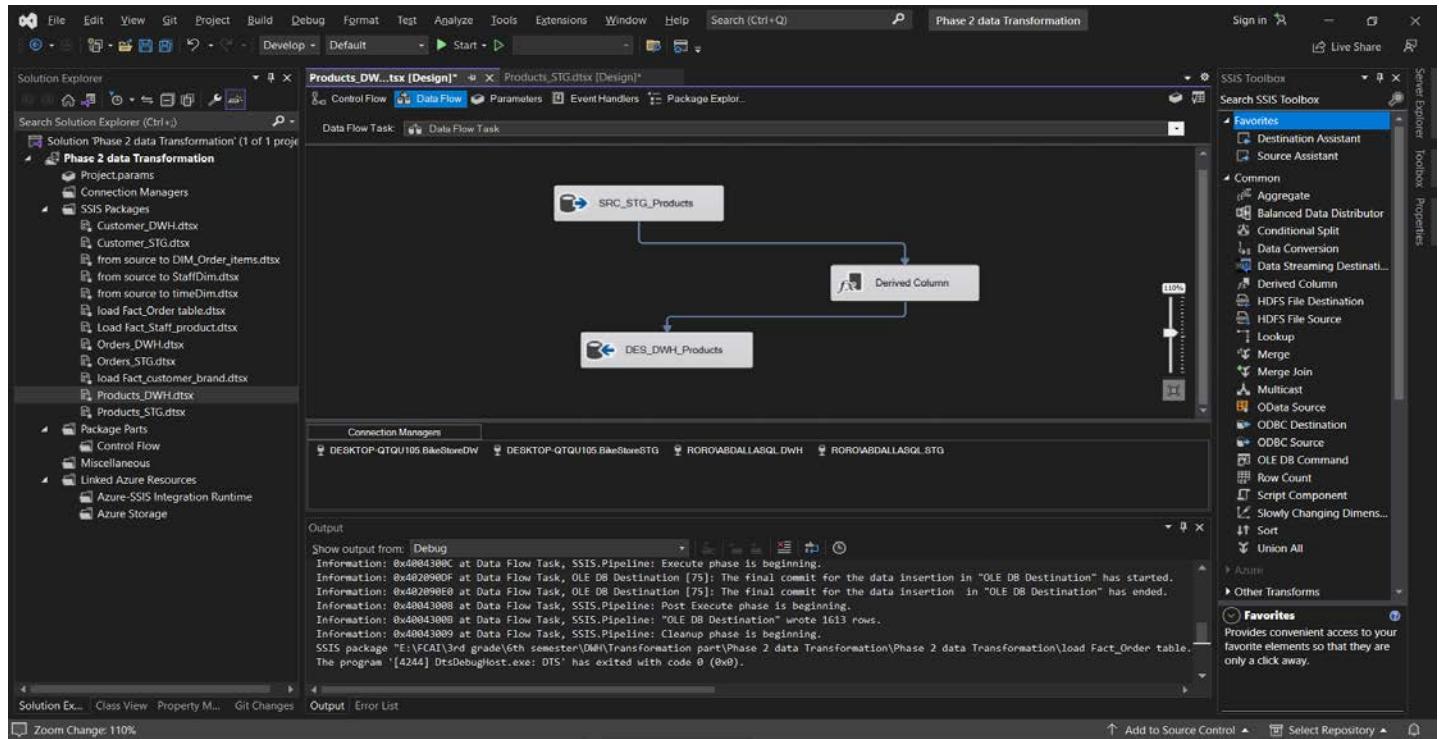
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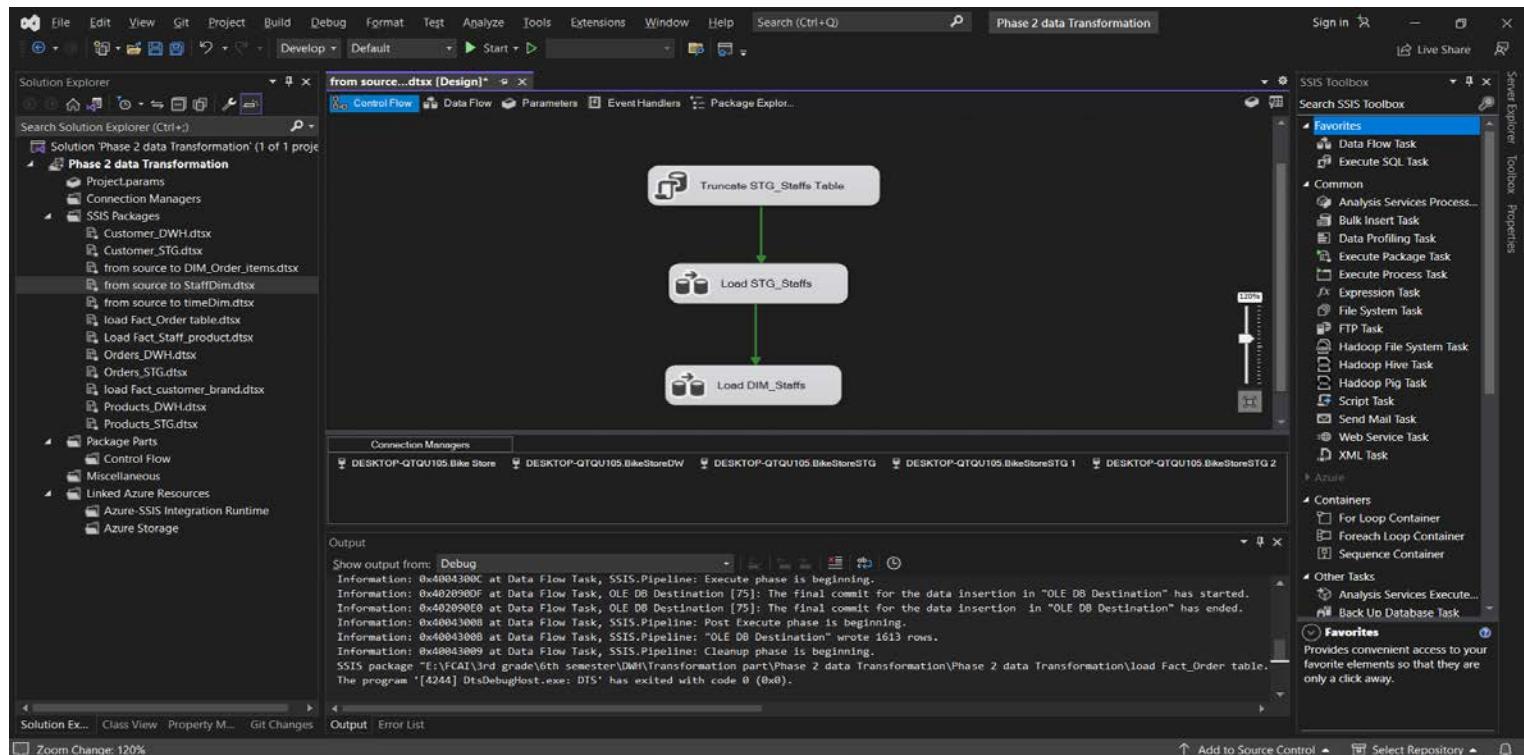


Data Flow Transfer Products Data from STG to DWH

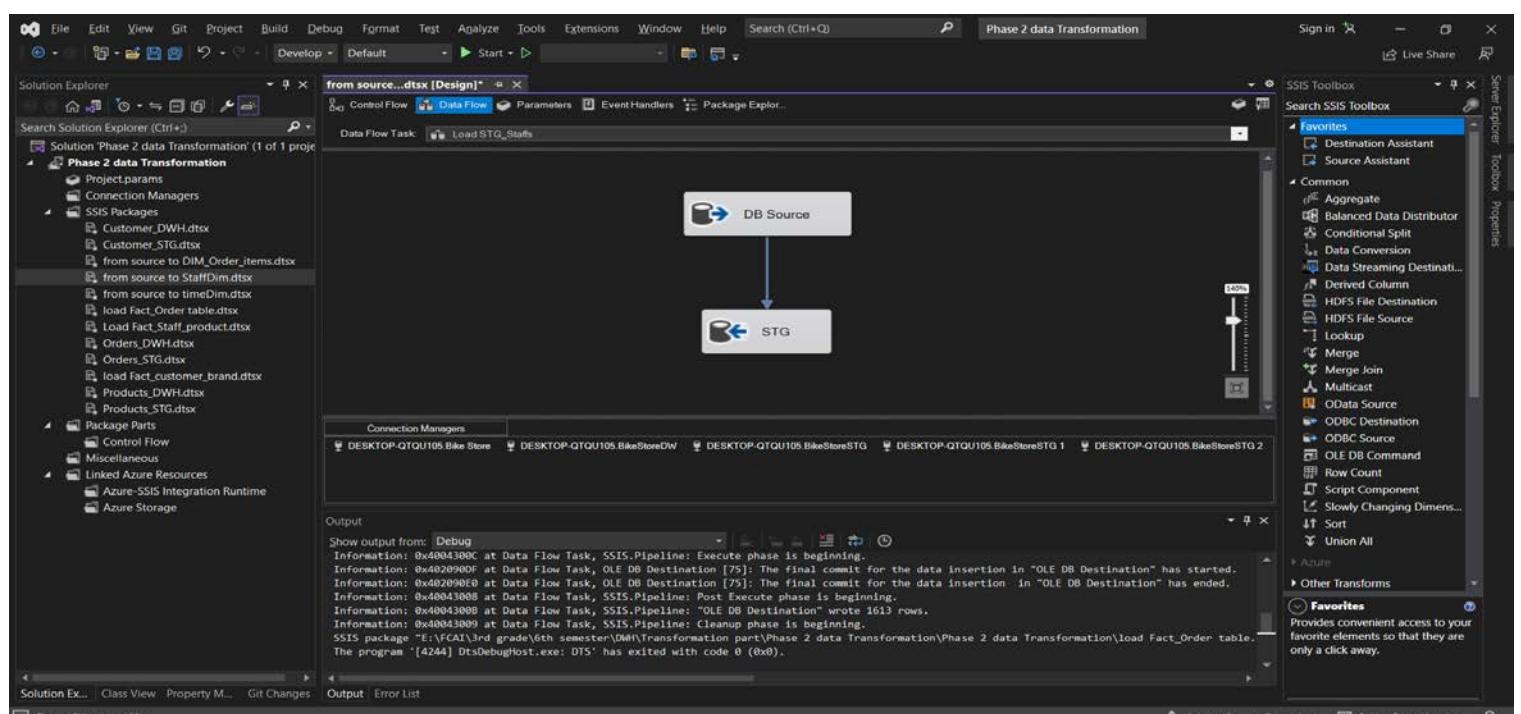
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From_source_to_DIM_staffs_control_flow

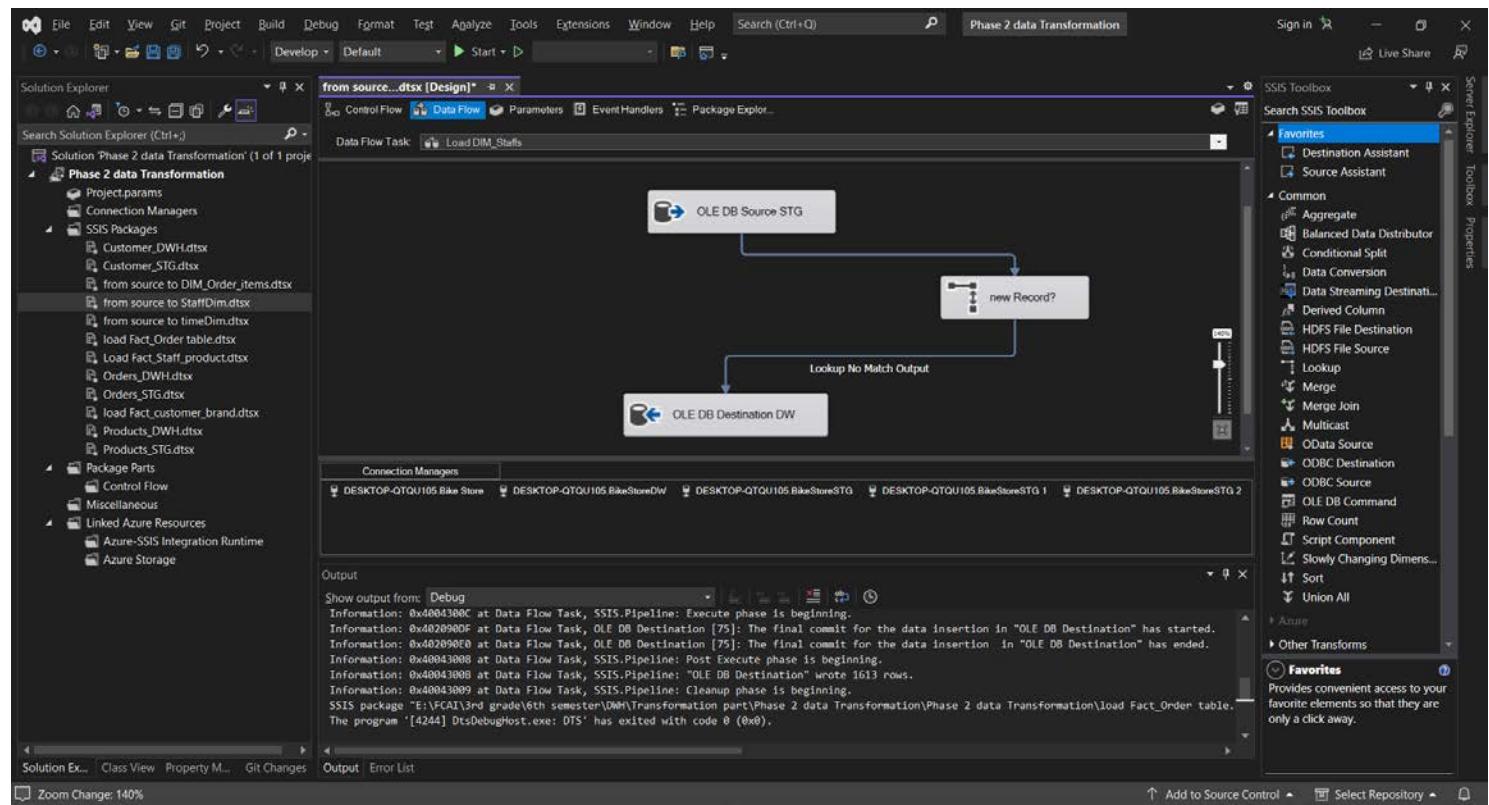


from_source_to_DIM_staffs_data_flow_from_source_to_STG

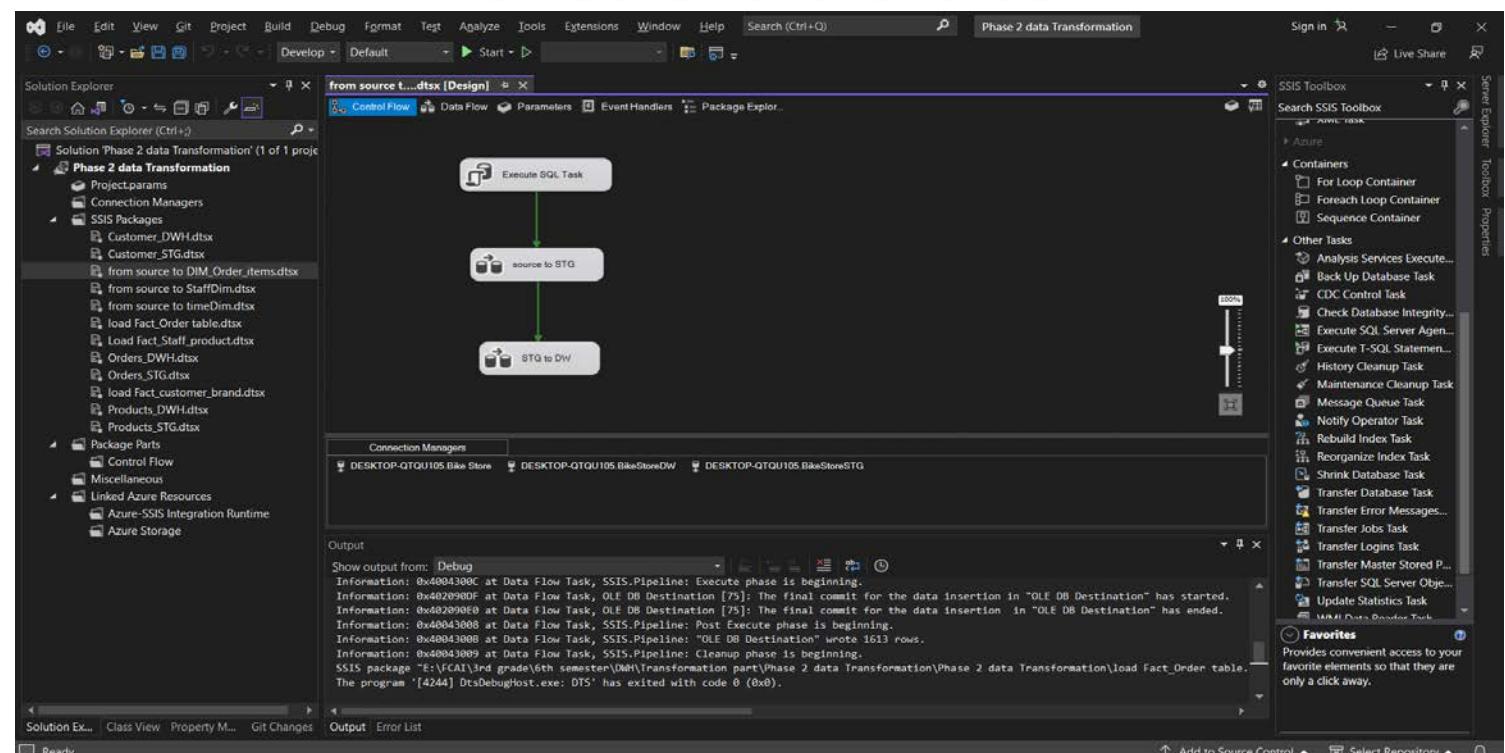
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from_source_to_DIM_staffs_data_flow_from_STG_to_DW

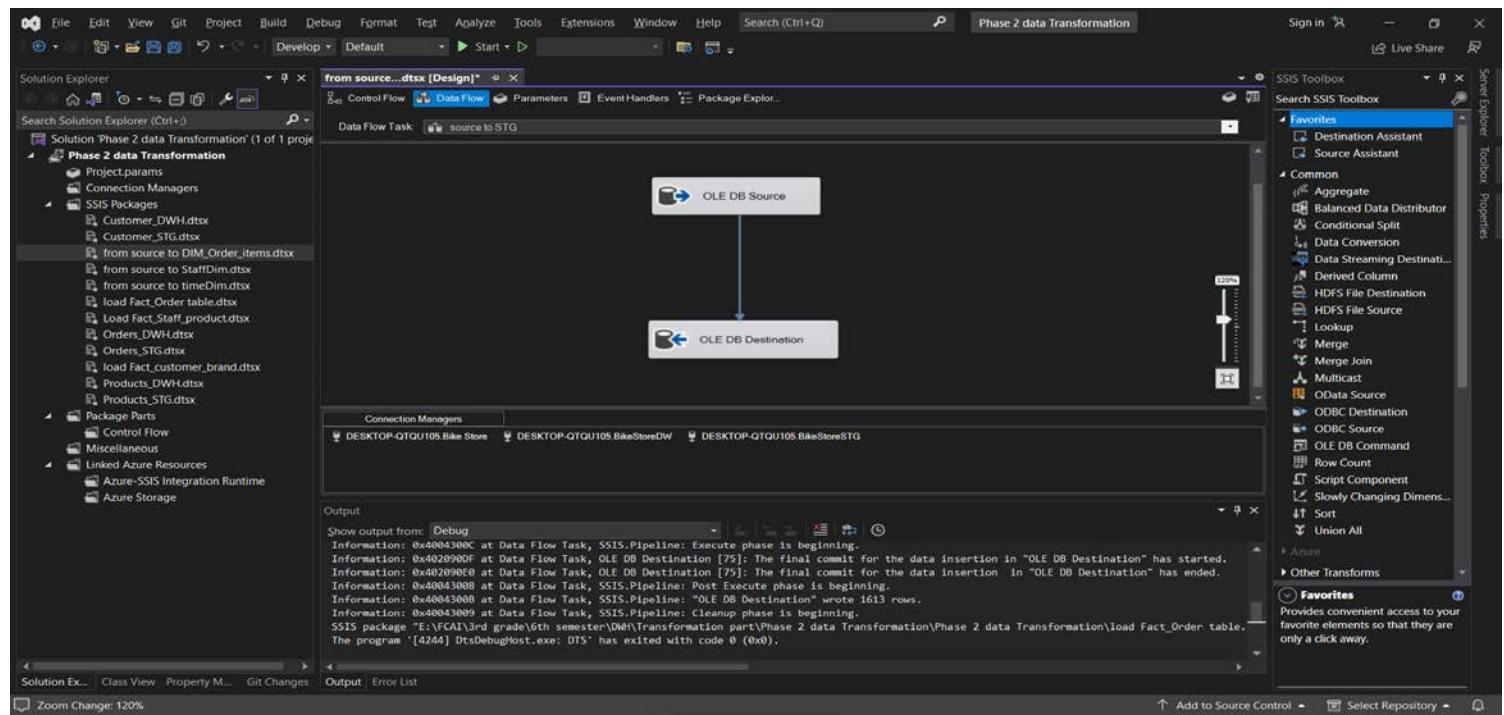


from_source_to_DIM_order_items_control_flow

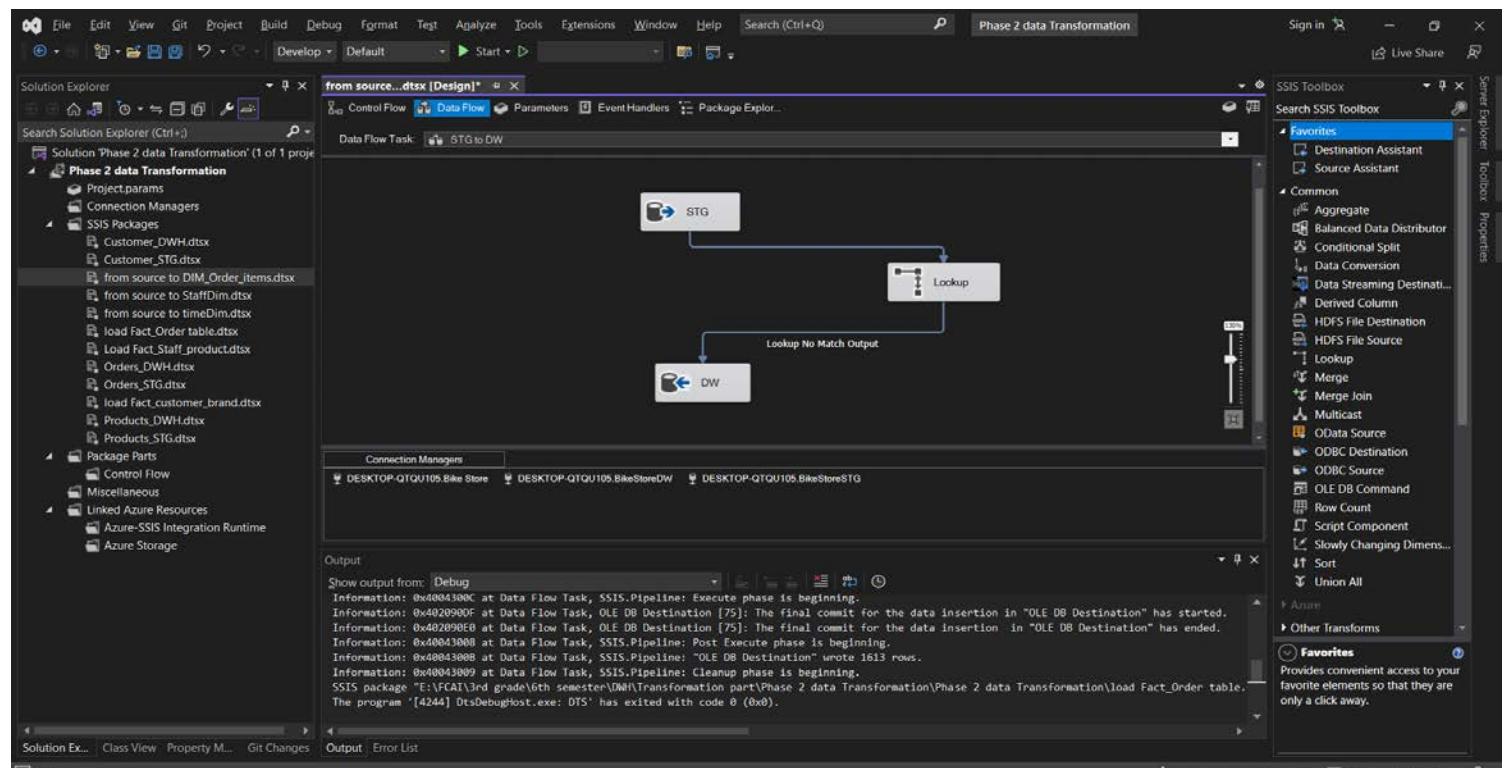
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from_source_to_STG_order_items_data_flow

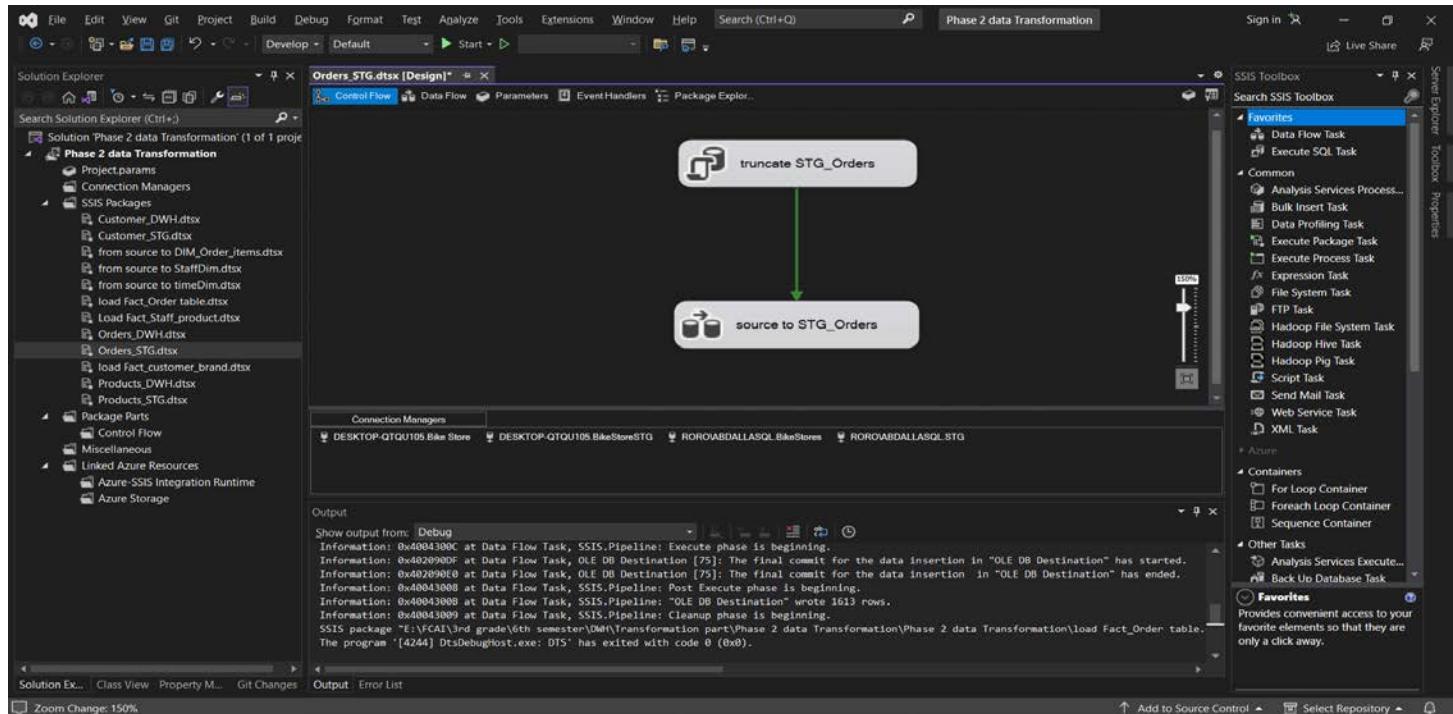


from_STG_to_DW_order_items_data_flow

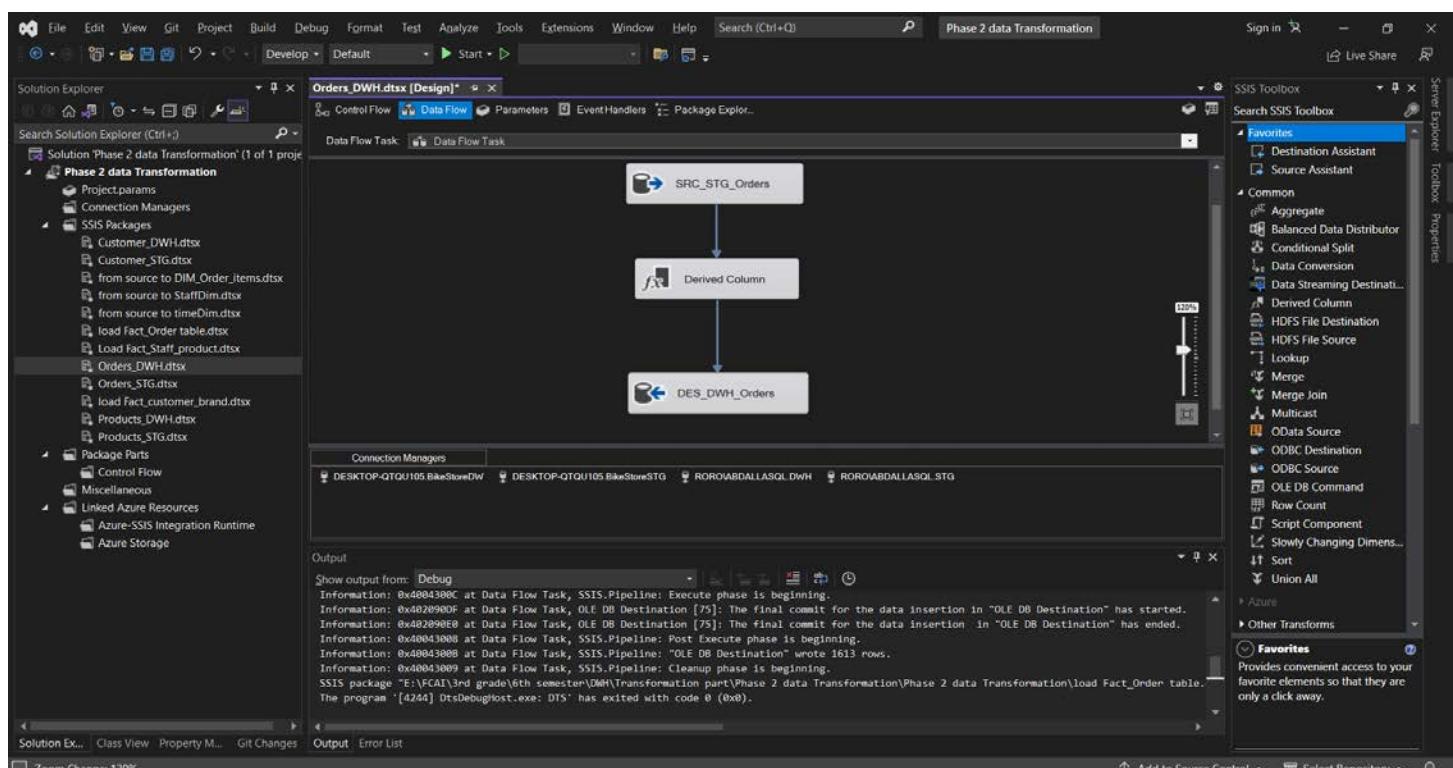
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Orders_STG_control_flow

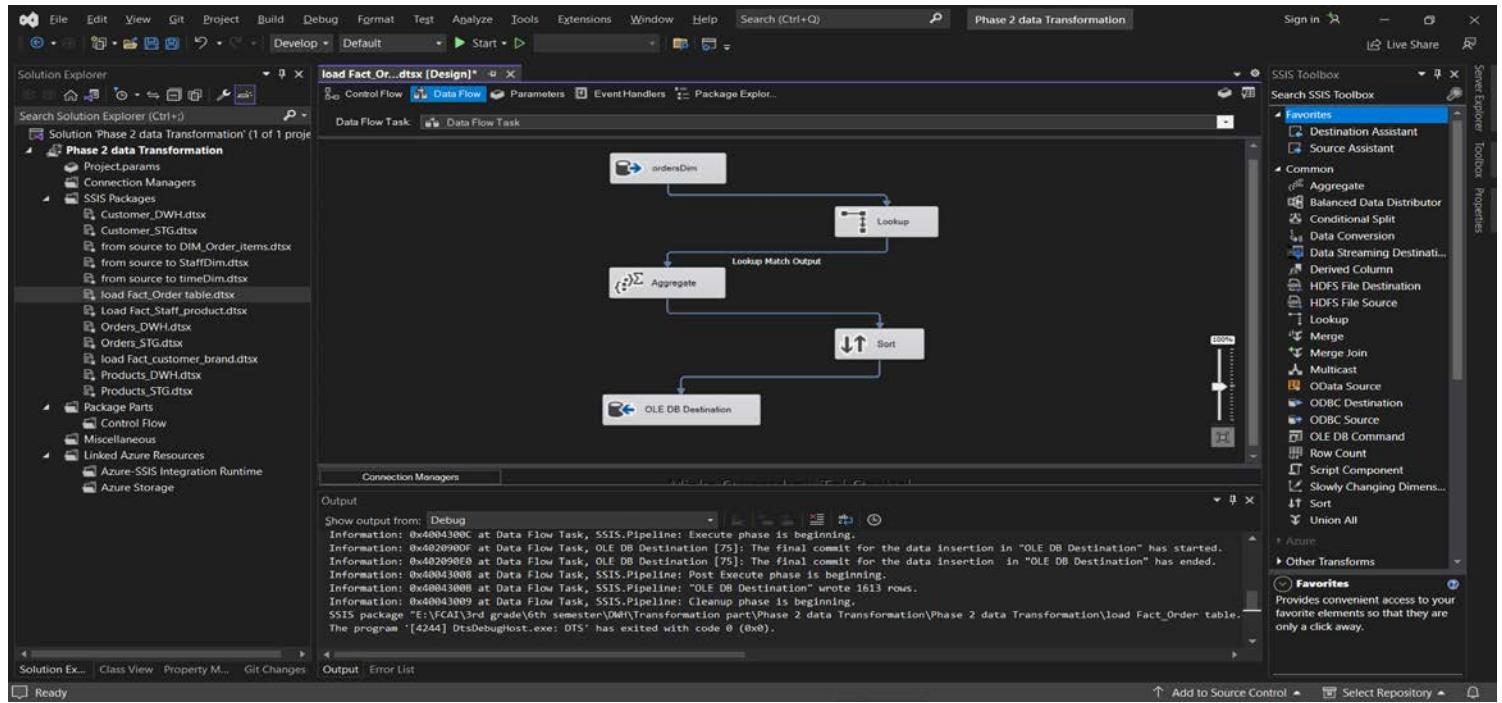


Order_Stg_to_Orders_DWH

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load_Fact_Order_table

SQLQuery2.sql - DESKTOP-QTQU105.BikeStoreDW (DESKTOP-QTQU105)\Prof (71)* - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

New Query Execute

Object Explorer

System Tables
FileTables
External Tables
Graph Tables
production.brands
Columns
Keys
Constraints
Triggers
Indexes
Statistics
production.categories
production.products
production.stocks
sales.customers
sales.order_items
sales.orders
Columns
Keys
Constraints
Triggers
Indexes
Statistics
sales.staffs
sales.stores

SQLQuery2.sql - D...QTQU105\Prof (71)* SQLQuery3.sql - D...QTQU105\Prof (70)* SQLQuery4.sql - D...QTQU105\Prof (65)*

```
drop table Fact_Orders
create table Fact_Orders(
    fact_order_id int identity(1,1) primary key,
    customer_id int references DIM_Customer(customer_id),
    store_id int references DIM_Stores(store_id),
    staff_id int references DIM_Staffs(staff_id),
    year int,
    Quarter INT,
    orders_number int
)
select * from Fact_Orders
```

Results Messages

fact_order_id	customer_id	store_id	staff_id	year	Quarter	orders_number
1	1	2	6	2016	4	1
2	2	5	1	2016	2	1
3	3	5	1	2016	4	1
4	4	7	2	2016	1	1
5	5	8	2	2016	4	1
6	6	9	2	2016	1	1
7	7	12	2	2016	1	1
8	8	13	3	2016	2	1
9	9	14	3	2016	3	2
10	10	16	2	2016	3	1
11	11	17	2	2016	2	1
12	12	17	2	2016	3	1
13	13	18	2	2016	4	1
14	14	20	3	2016	4	1
15	15	22	2	2016	2	1
16	16	24	1	2016	2	1
17	17	26	2	2016	2	1
18	18	27	2	2016	4	1
19	19	30	1	2016	3	1

Query executed successfully.

DESKTOP-QTQU105 (15.0 RTM) DESKTOP-QTQU105\Prof (71) BikeStoreDW 00:00:00 1,613 rows

Fact_orders_query

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Screenshot of Microsoft Visual Studio showing the SSIS Data Flow Task for the 'Load Fact_Staff_product' package.

The Data Flow Task diagram shows the following components and flow:

- Inputs:** OrdersDim and timeDim.
- Processors:** Sort, Merge Join, Sort 1, Sort 3, Aggregate, and Sort 2.
- Outputs:** OLE DB Destination.

The flow starts with OrdersDim and timeDim being sorted. These are then joined using a Merge Join. The result is sorted again (Sort 1). This is followed by a Lookup Match Output step, which then leads to an Aggregate step. Finally, the data is sorted one last time (Sort 2) before being inserted into the OLE DB Destination.

Toolbox on the right lists various SSIS components like Aggregate, Balanced Data Distributor, Conditional Split, Data Conversion, etc.

Load_Fact_Staff_product

Screenshot of Microsoft SQL Server Management Studio (SSMS) showing the execution of a query against the BikeStoreDW database.

The query is:

```
store_id int references DIM_Stores(store_id),
product_id int references DIM_Products(product_id),
quantity INT NOT NULL,
year int

)
select * from Fact_Staff_product
```

The results show the following data:

	brand_id	brand_name	customers_num	year
1	1	Electra	853	2016
2	2	Heller	67	2016
3	3	Pure Cycles	201	2016
4	4	Ritchey	62	2016
5	5	Surly	297	2016
6	6	Trek	293	2016
7	7	Electra	552	2017
8	8	Haro	189	2017
9	9	Heller	23	2017
10	10	Pure Cycles	49	2017
11	11	Ritchey	12	2017
12	12	Sun Bicycles	418	2017
13	13	Surly	240	2017
14	14	Trek	587	2017
15	15	Electra	324	2018
16	16	Haro	31	2018
17	17	Heller	7	2018
18	18	Pure Cycles	8	2018
19	19	Ritchey	3	2018
20	20	Strider	16	2018
21	21	Sun Bicycles	67	2018
22	22	Surly	68	2018
23	23	Trek	355	2018

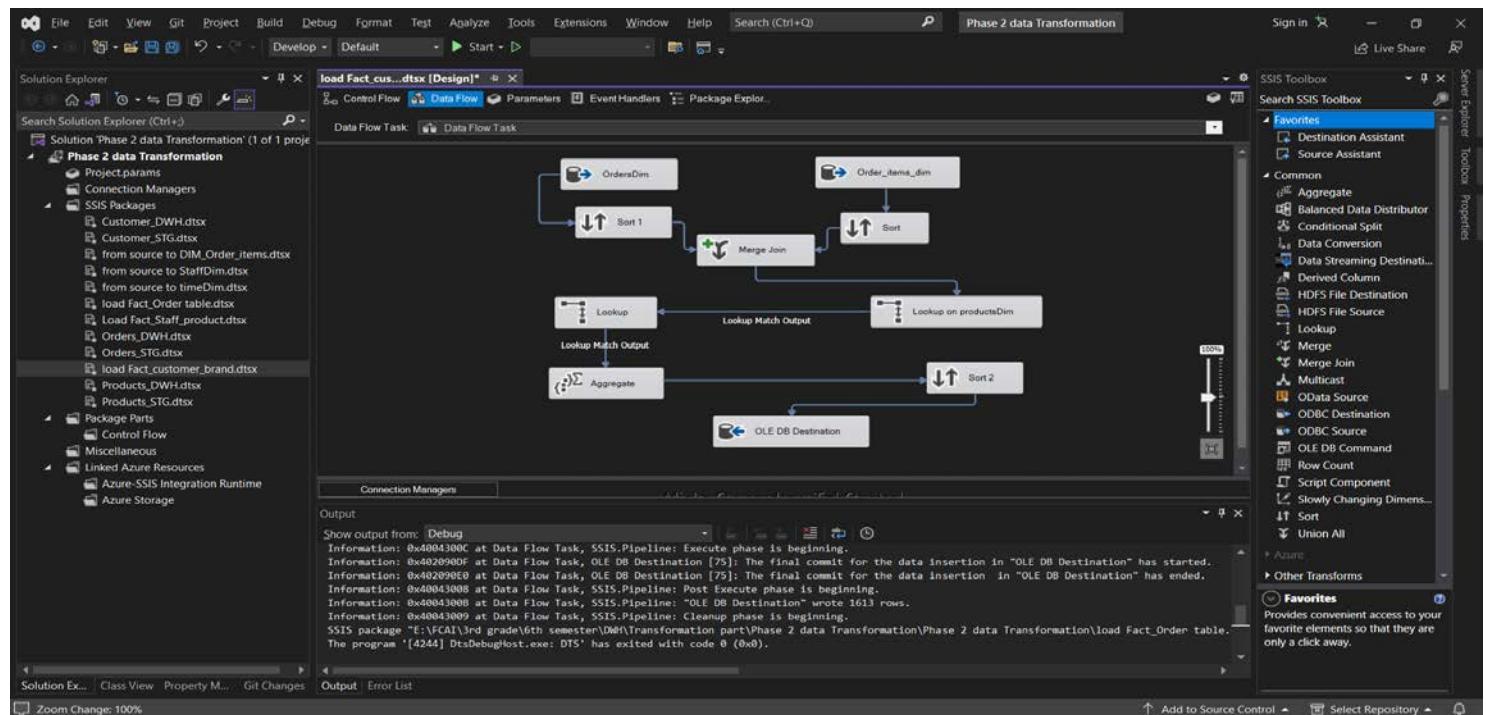
Message bar at the bottom: "Query executed successfully."

Fact_staff_product_query

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Load_Fact_Customer_Brand

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. In the Object Explorer, the 'BikeStoreDW' database is selected. In the center pane, a query window displays the creation of a table:

```
create table Fact_Customer_brans(
    brand_id int identity(1,1) primary key,
    brand_name varchar(255),
    customers_num int,
    year int ,
)
```

Below the creation statement, a 'select * from Fact_Customer_brans' query is run, and the results are displayed in a grid:

brand_id	brand_name	customers_num	year
1	Electra	853	2016
2	Heller	67	2016
3	Pure Cycles	201	2016
4	Ritchey	62	2016
5	Surly	297	2016
6	Trek	293	2016
7	Electra	552	2017
8	Haro	189	2017
9	Heller	23	2017
10	Pure Cycles	49	2017
11	Ritchey	12	2017
12	Sun Bicycles	418	2017
13	Surly	240	2017
14	Trek	587	2017
15	Electra	324	2018
16	Haro	31	2018
17	Heller	7	2018
18	Pure Cycles	8	2018
19	Ritchey	3	2018
20	Strider	16	2018
21	Sun Bicycles	67	2018
22	Surly	68	2018

At the bottom of the screen, a message indicates: 'Query executed successfully.'

Fact_customer_brands_query

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2023/2024



Job Schedule Properties - Customer_STG

Name: Customer_STG Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:09:29 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM ▼

Occurs every: 1 hour(s) ▼ Starting at: 12:00:00 AM ▼
Ending at: 11:59:59 PM ▼

Duration

Start date: 5/ 8/2023 ▼ End date: 5/31/2023 ▼
 No end date:

Summary

Description: Occurs every week on Sunday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Customer_DW

Name: Customer_DW Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:09:55 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM
 Occurs every: 1 hour(s) Starting at: 12:00:00 AM Ending at: 11:59:59 PM

Duration

Start date: 5/ 8/2023 End date: 5/ 8/2023 No end date:

Summary

Description: Occurs every week on Monday at 12:00:00 AM. Schedule will be used starting on 5/8/2023.

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2023/2024



Job Schedule Properties - Order_items_DW

Name: Order_items_DW Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:10:35 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 6:00:00 AM Duration

Occurs every: 1 hour(s) Starting at: 6:00:00 AM

Ending at: 11:59:59 PM

Duration

Start date: 5/ 8/2023 End date: 5/31/2023

No end date:

Summary

Description: Occurs every week on Sunday at 6:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Orders_STG

Name: Orders_STG Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:09:39 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM

Occurs every: 1 hour(s) Starting at: 12:00:00 AM
Ending at: 11:59:59 PM

Duration

Start date: 5/ 8/2023 End date: 5/31/2023

No end date:

Summary

Description: Occurs every week on Sunday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Orders_DW

Name: Orders_DW Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:10:06 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM (Up/Down)
 Occurs every: 1 hour(s) Starting at: 12:00:00 AM (Up/Down)
Ending at: 11:59:59 PM (Up/Down)

Duration

Start date: 5/ 8/2023 End date: 5/31/2023 (Up/Down)
 No end date:

Summary

Description: Occurs every week on Monday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Products_STG

Name: Products_STG Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:09:48 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM ▼

Occurs every: 1 hour(s) Starting at: 12:00:00 AM ▼
Ending at: 11:59:59 PM ▼

Duration

Start date: 5/ 8/2023 End date: 5/31/2023 ▼

No end date:

Summary

Description: Occurs every week on Sunday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Products_DW

Name: Products_DW Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:10:15 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM Starting at: 12:00:00 AM
 Occurs every: 1 hour(s) Ending at: 11:59:59 PM

Duration

Start date: 5/ 8/2023 End date: 5/31/2023
 No end date:

Summary

Description: Occurs every week on Monday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Staff_DW

Name: Staff_DW Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:10:27 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 6:00:00 AM ▼

Occurs every: 1 hour(s) ▼ Starting at: 6:00:00 AM ▼
Ending at: 11:59:59 PM ▼

Duration

Start date: 5/ 8/2023 End date: 5/31/2023 ▼

No end date:

Summary

Description: Occurs every week on Sunday at 6:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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Job Schedule Properties - Load_Time_Dim

Name: Load_Time_Dim Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:10:45 PM

Frequency

Occurs: Weekly

Recurs every: 1 week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: 12:00:00 AM Up/Down arrows

Occurs every: 1 hour(s) Up/Down arrows Starting at: 12:00:00 AM Up/Down arrows
Ending at: 11:59:59 PM Up/Down arrows

Duration

Start date: 5/ 8/2023 Up/Down arrows End date: 5/31/2023 Up/Down arrows
 No end date:

Summary

Description: Occurs every week on Monday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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Job Schedule Properties - Load_Fact_Orders

Name: Jobs in Schedule

Schedule type: Enabled

One-time occurrence

Date: Time:

Frequency

Occurs: ▼

Recurs every: week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at: ▼

Occurs every: hour(s) ▼ Starting at: ▼
Ending at: ▼

Duration

Start date: ▼ End date: ▼
 No end date:

Summary

Description: ^ ▼

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Job Schedule Properties - Load_Fact_Staff_Products

Name: Load_Fact_Staff_Products Jobs in Schedule

Schedule type: Recurring Enabled

One-time occurrence

Date: 5/ 8/2023 Time: 6:11:14 PM

Frequency

Occurs: Weekly

Recur every: 1 week(s) on

Monday Wednesday Friday
 Tuesday Thursday Saturday Sunday

Daily frequency

Occurs once at: 12:00:00 AM

Occurs every: 1 hour(s) Starting at: 12:00:00 AM Ending at: 11:59:59 PM

Duration

Start date: 5/ 8/2023 End date: 5/31/2023
 No end date:

Summary

Description: Occurs every week on Wednesday at 12:00:00 AM. Schedule will be used between 5/8/2023 and 5/31/2023.

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2023/2024



Job Schedule Properties - Load_Fact_Customer_Brands

Name: [Jobs in Schedule](#)

Schedule type: Enabled

One-time occurrence

Date: Time:

Frequency

Occurs:

Recurs every: week(s) on

Monday Wednesday Friday Saturday
 Tuesday Thursday Sunday

Daily frequency

Occurs once at:

Occurs every: Starting at:
Ending at:

Duration

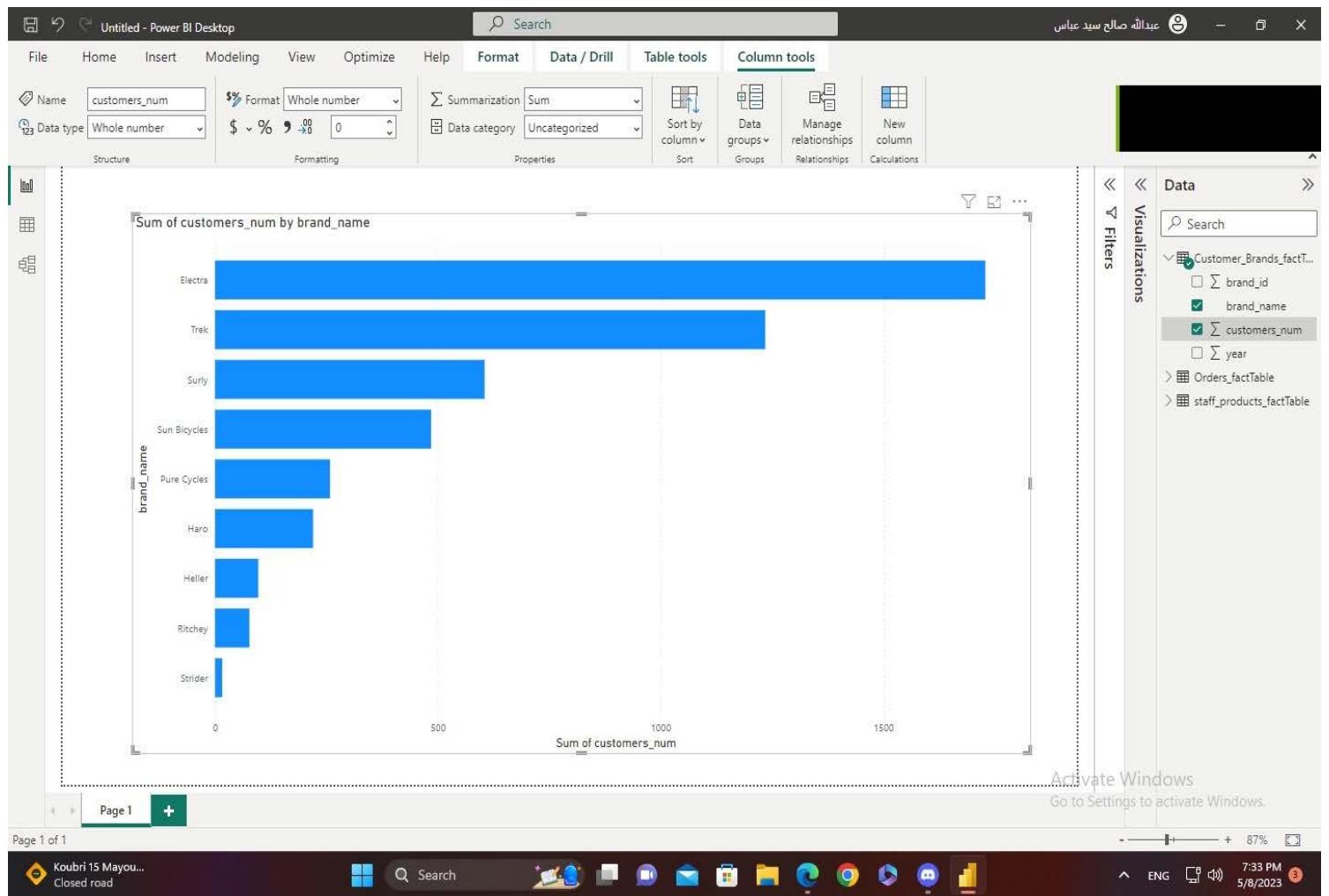
Start date: End date:
 No end date:

Summary

Description:



Screenshots for interactive dashboard for the DWH



Interactive dashboard for Customer numbers Grouped by Brand Name

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Untitled - Power BI Desktop

File Home Insert Modeling View Optimize Help Format Data / Drill Table tools Column tools

Name: year Format: Whole number \$ % .00 0

Summarization: Don't summarize Data category: Uncategorized Sort by column: Sort Groups: Data groups Relationships: Manage relationships New column Calculations:

customer_id	Sum of Quarter	orders_number	staff_id	store_id	year
1	4	1	6	2	2016
1	4	1	6	2	2018
1	2	1	7	2	2018
2	3	1	2	1	2017
2	1	1	3	1	2017
2	2	1	3	1	2018
3	1	1	2	1	2018
3	6	1	3	1	2018
4	1	1	6	2	2017
4	2	1	6	2	2018
4	4	1	7	2	2017
5	4	1	2	1	2016
5	2	1	2	1	2018
5	2	1	3	1	2016
6	3	1	7	2	2017
6	5	1	7	2	2018
7	1	1	7	2	2016
7	2	2	7	2	2018
8	4	1	7	2	2016
8	3	1	7	2	2017
8	2	1	7	2	2018
9	1	1	6	2	2016
9	2	1	6	2	2018
9	1	1	7	2	2018
10	2	1	7	2	2017
10	5	1	7	2	2018
11	3	1	6	2	2017
11	2	1	6	2	2018
11	1	1	7	2	2018
12	1	1	6	2	2016
12	1	1	6	2	2017
12	2	1	7	2	2018
13	2	1	9	3	2016
Total	3765				

Activate Windows
Go to Settings to activate Windows.

Page 1 +

GOOG +1.55%

Search ENG 9:17 PM 5/8/2023 87%

Interactive dashboard for Orders Fact Table

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The screenshot shows the Power BI Desktop interface with a data grid open. The data grid has columns: customer_id, fact_order_id, Quarter, orders_number, staff_id, store_id, and year. The 'year' column is currently selected, indicated by a blue border. In the top ribbon, the 'Column tools' tab is active. A dropdown menu for 'Summarization' is open, showing 'Sum' as the selected option. Other options include 'Count', 'Average', and 'Max'. The 'Format' tab is also visible in the ribbon.

customer_id	fact_order_id	Quarter	orders_number	staff_id	store_id	year
2	635	1	1	3	1	2017
2	636	3	1	2	1	2017
2	1325	2	1	3	1	2018
3	1326	1	1	2	1	2018
3	1327	2	1	3	1	2018
3	1328	4	1	3	1	2018
5	2	2	1	3	1	2016
5	3	4	1	2	1	2016
5	1330	2	1	2	1	2018
24	16	2	1	2	1	2016
24	651	4	1	3	1	2017
24	1357	2	1	2	1	2018
30	19	3	1	2	1	2016
30	20	3	1	3	1	2016
30	1363	2	1	3	1	2018
31	21	2	1	3	1	2016
31	22	3	1	3	1	2016
31	1364	2	1	2	1	2018
32	23	2	1	2	1	2016
32	24	4	1	2	1	2016
32	1365	2	1	2	1	2018
33	25	4	1	3	1	2016
33	1366	2	1	3	1	2018
33	1367	3	1	2	1	2018
40	27	4	1	3	1	2016
40	659	3	1	2	1	2017
40	1375	2	1	3	1	2018
46	29	1	1	3	1	2016
46	665	3	1	2	1	2017
46	1381	2	1	3	1	2018
47	666	2	1	2	1	2017
47	667	3	1	3	1	2017
47	1382	2	1	3	1	2018

Interactive dashboard for Staffs products Fact Table