



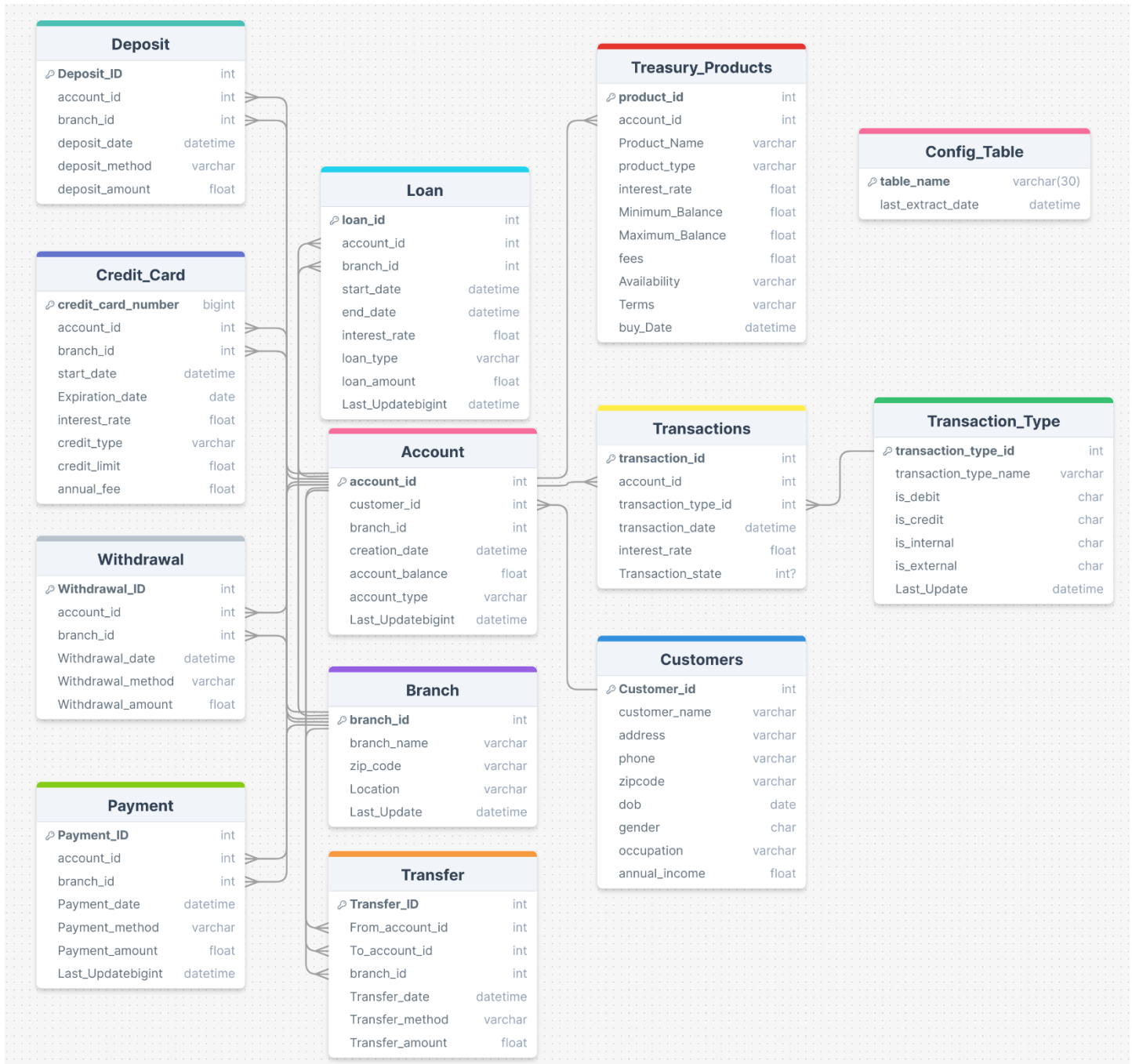
Datawarehouse Project

TA:- ENG. Ahmed Mohamed Galal

| Name | ID |
|-------------------------|----------|
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| Mohamed Hany | 20210358 |
| Hagar Ragaee | 20211108 |



- Physical model of the source system





- Fact Tables:-

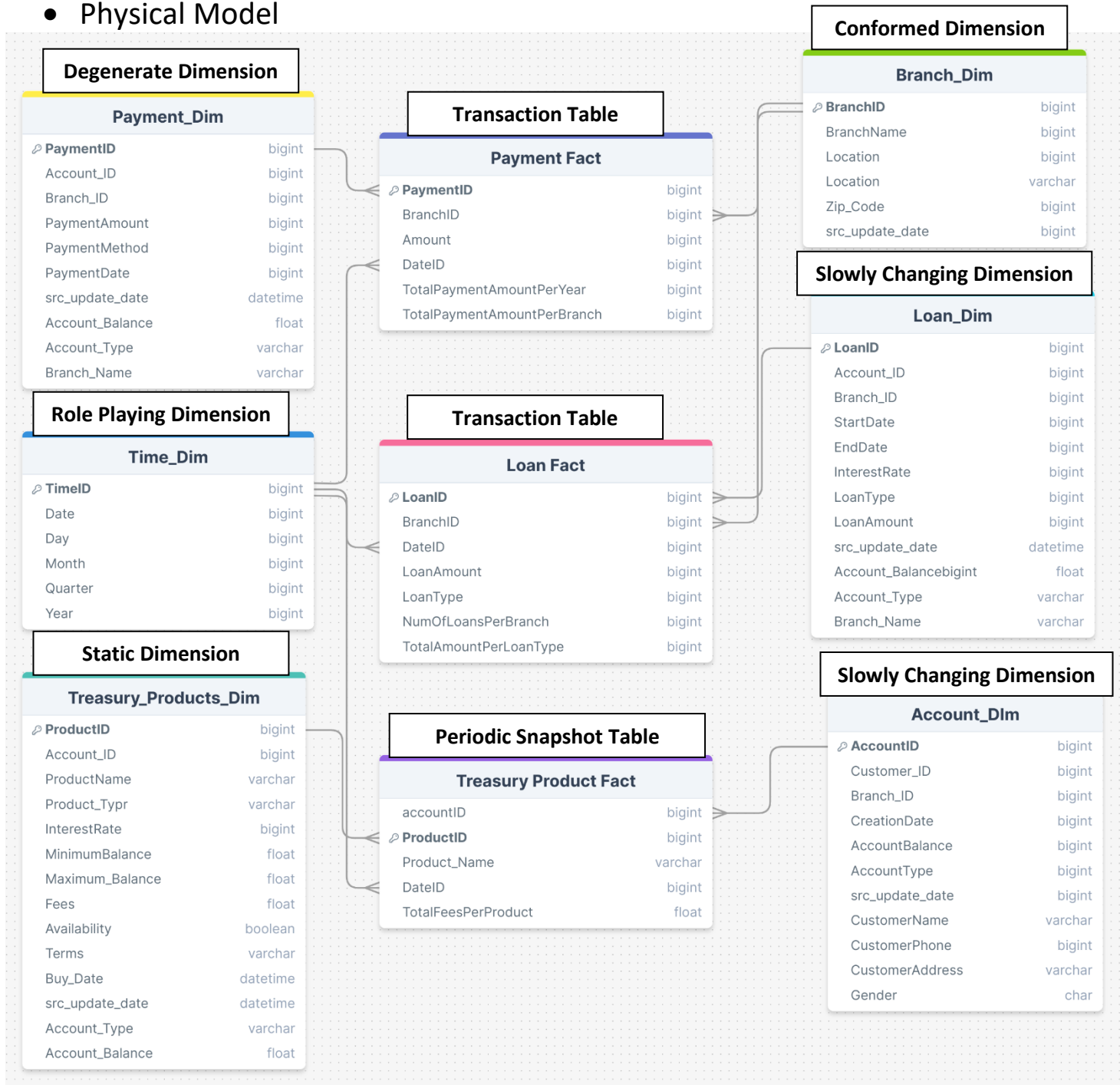
| Fact table | Representation | Measures |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Loan_Fact | This fact table represents information about loans granted by the bank. It contains data about loan amounts, type, interest rates, terms, and other loan-specific attributes with each Branch. | Total loans per branch Total loan amount per loan type |
| Product fact | This fact table represents information about the different products and services offered by the bank, such as mortgages, investments, insurance policies, etc. It includes data about the product type, pricing, terms, and other product-specific attributes. | Total fees per product |
| Payment fact | This fact table represents information about payments made by customers to the bank or received by customers from the bank. It includes data about the payment amount, date, time, location, and other payment-specific attributes. It also includes data about the accounts and customers involved in each payment transaction. | Total payment amount per year Total payment amount per branch |

- Dimensions:-

| Dimension Table | Representation |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time_Dim | This dimension is used to track various time-related information, such as date, day, month, quarter, year, etc. It can be used to filter and analyze data based on different time periods. |
| Treasury_Products_Dim | This dimension is used to track information related to different treasury products offered by the bank, such as savings accounts, money market accounts, certificates of deposit, etc. It can be used to analyze and compare different products based on their interest rates, fees, minimum balance requirements, etc. |
| Branch_Dim | This dimension is used to track information related to the various branches of the bank, such as branch location, address, phone number, etc. It can be used to filter and analyze data based on different branches. |
| Loan_Dim | This dimension is used to track information related to loans offered by the branch that made by a specific customer, such as loan type, interest rate, loan amount, start date, end date, etc. It can be used to analyze and compare different loans based on their terms and performance |
| Account_Dim | This dimension is used to track information related to bank accounts, such as account type, account balance, creation date, etc. It can be used to analyze and compare different accounts based on their performance and contains informations about the customer who have this account such as customer name,phone,address. |
| Payment_Dim | This dimension is used to track information related to payments made by customers in a specific branch , such as payment amount, payment date, payment method, etc. It can be used to analyze and compare different payments based on their amounts and sources. |

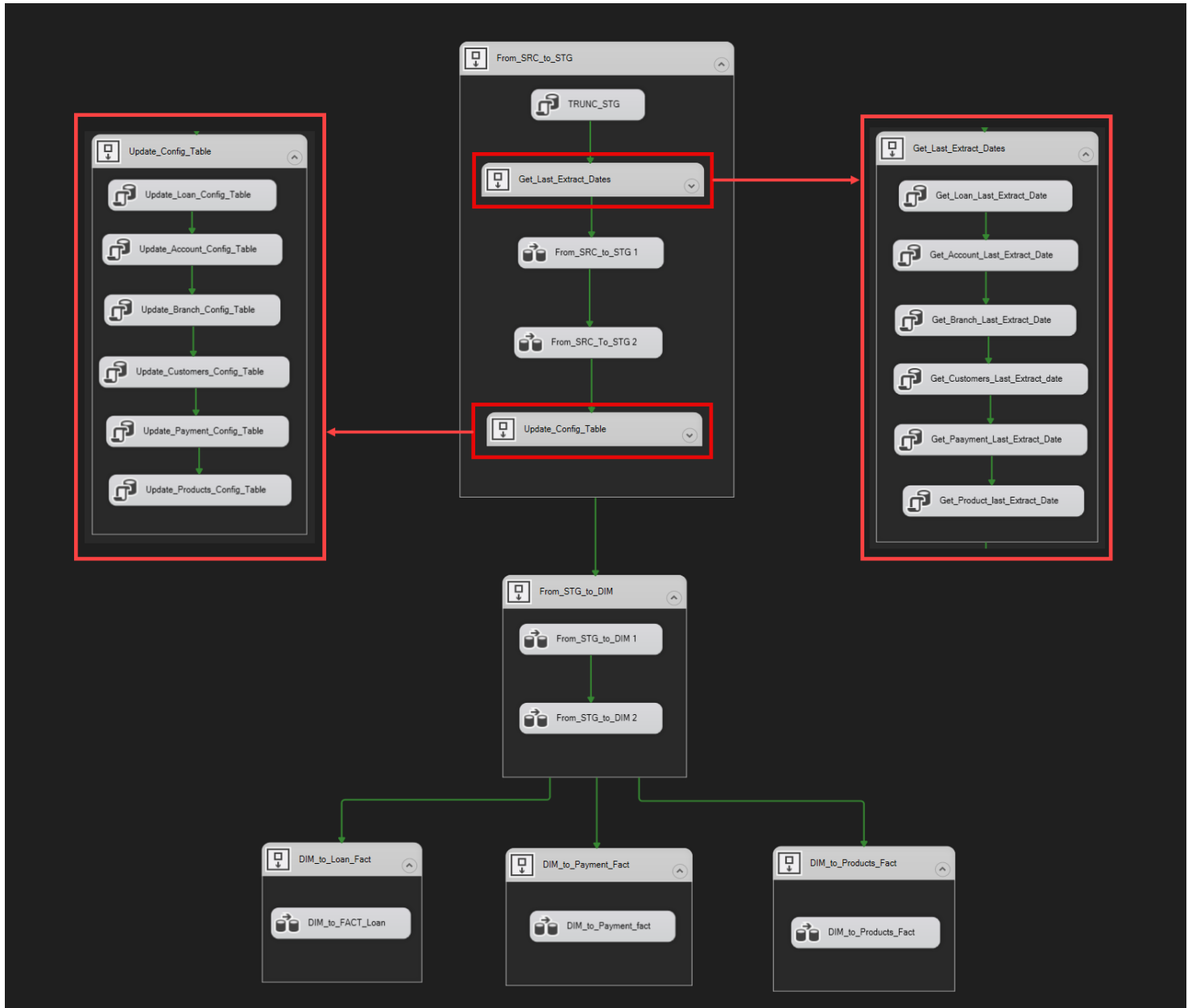


- Physical Model





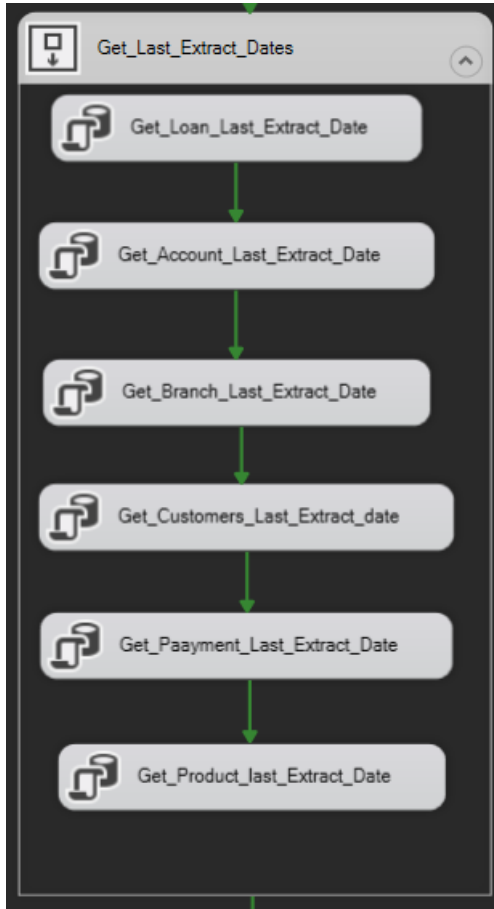
- Control Flow:-



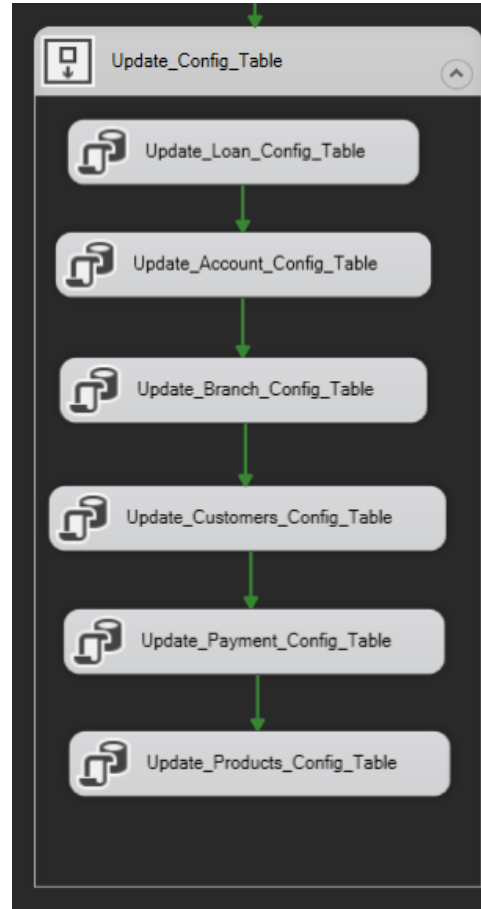


- Data Flow Tasks:-

1. Last Extract Date

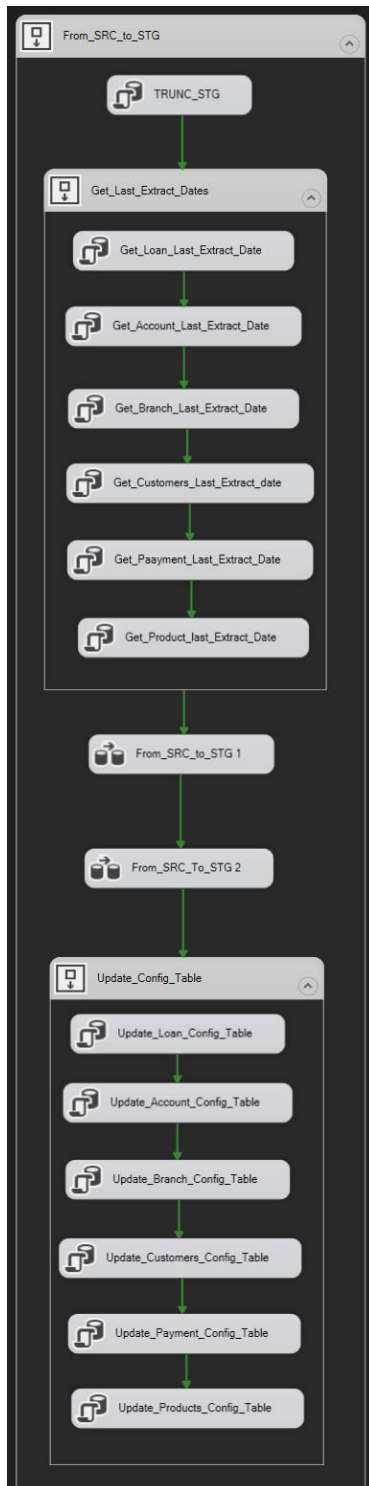


2. Update Config Table



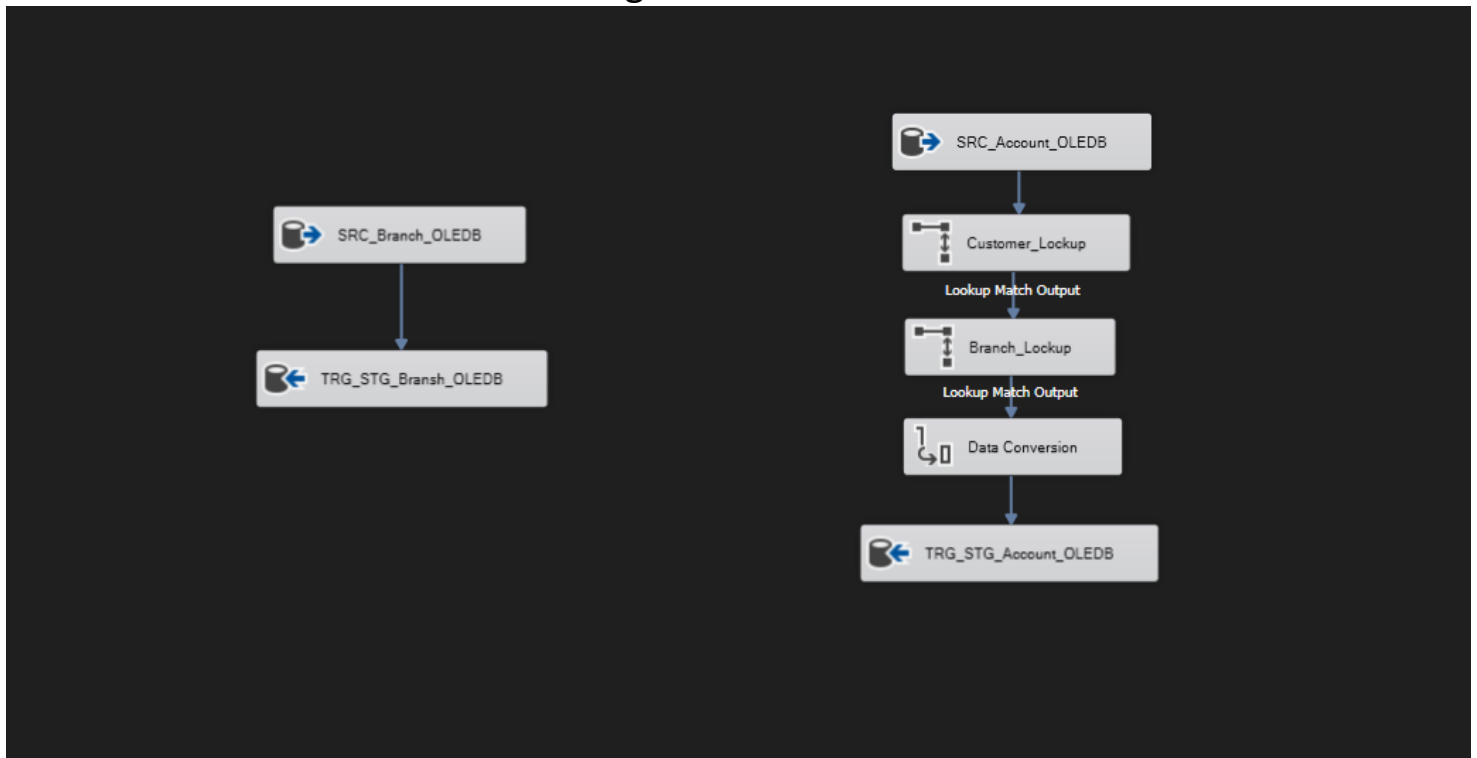


3. From Source to Stage

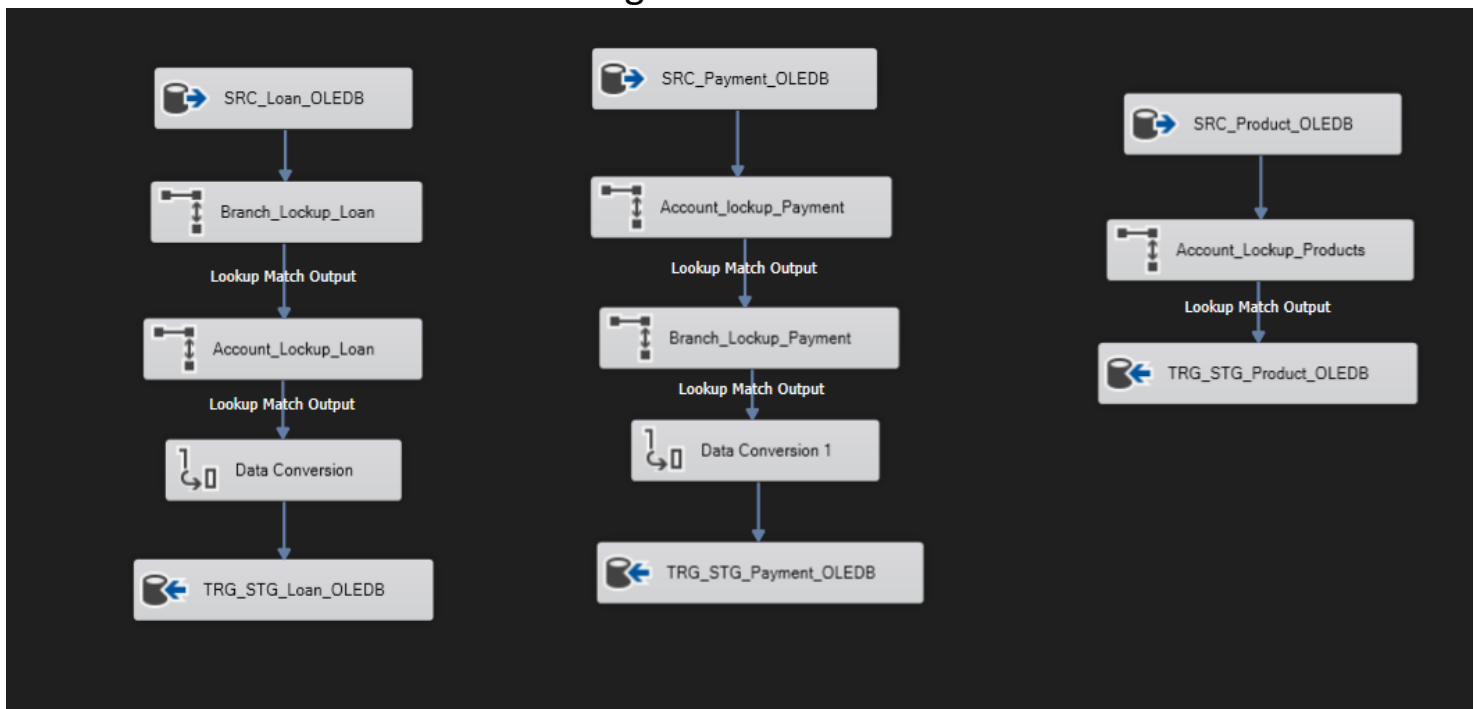




a. From Source to Stage 1

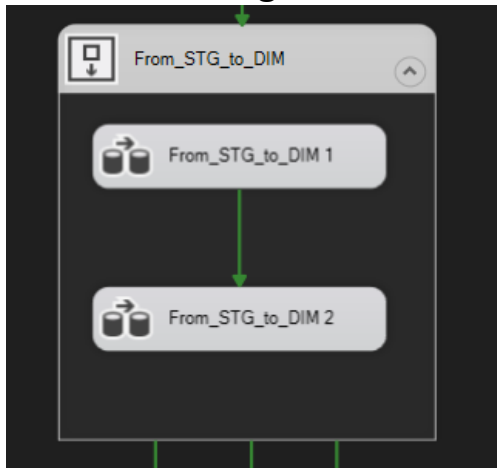


b. From Source to Stage 2

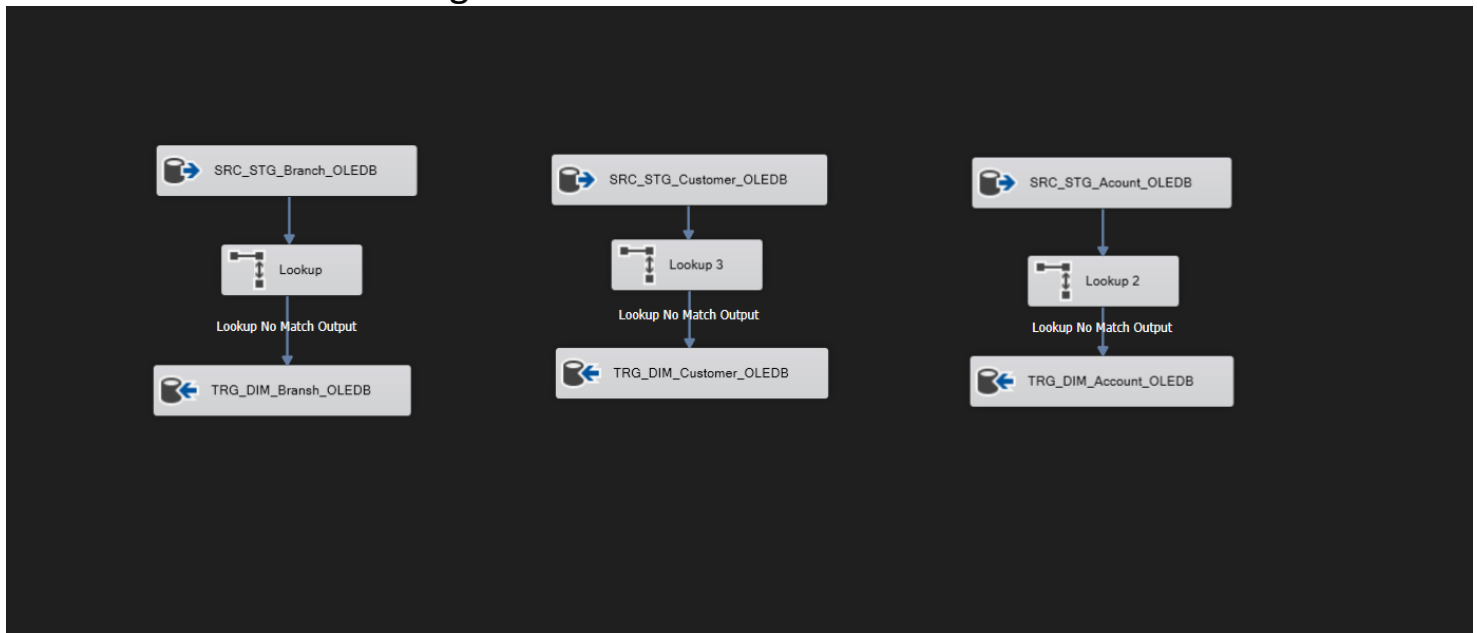




4. From Stage to Dim

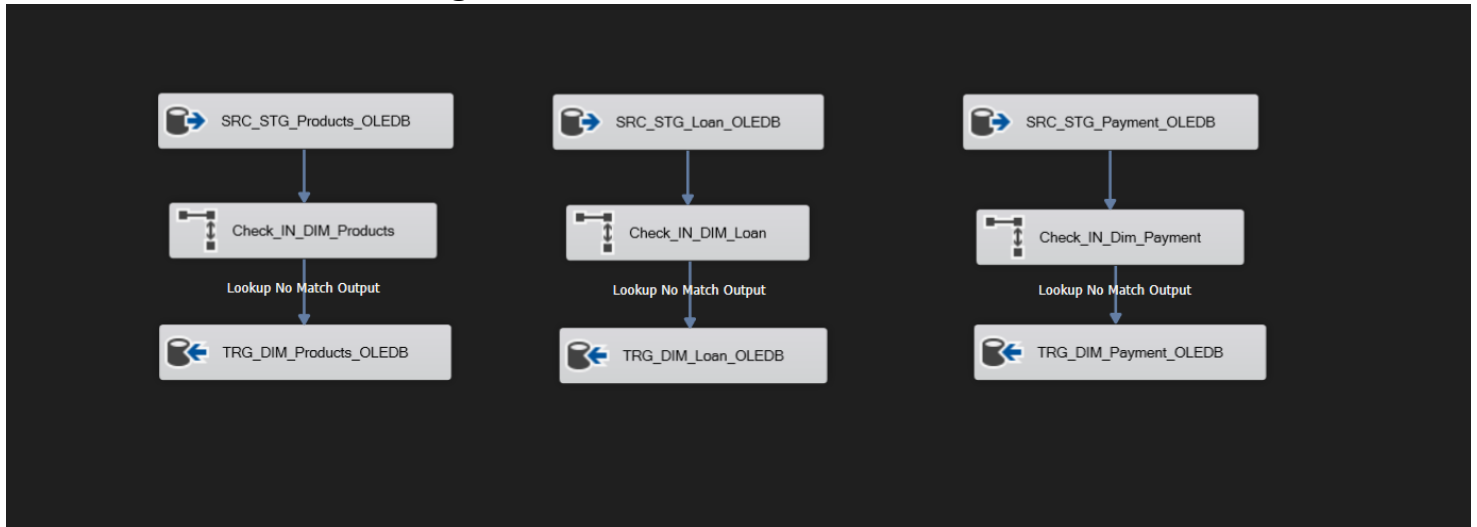


a. From Stage to Dim 1



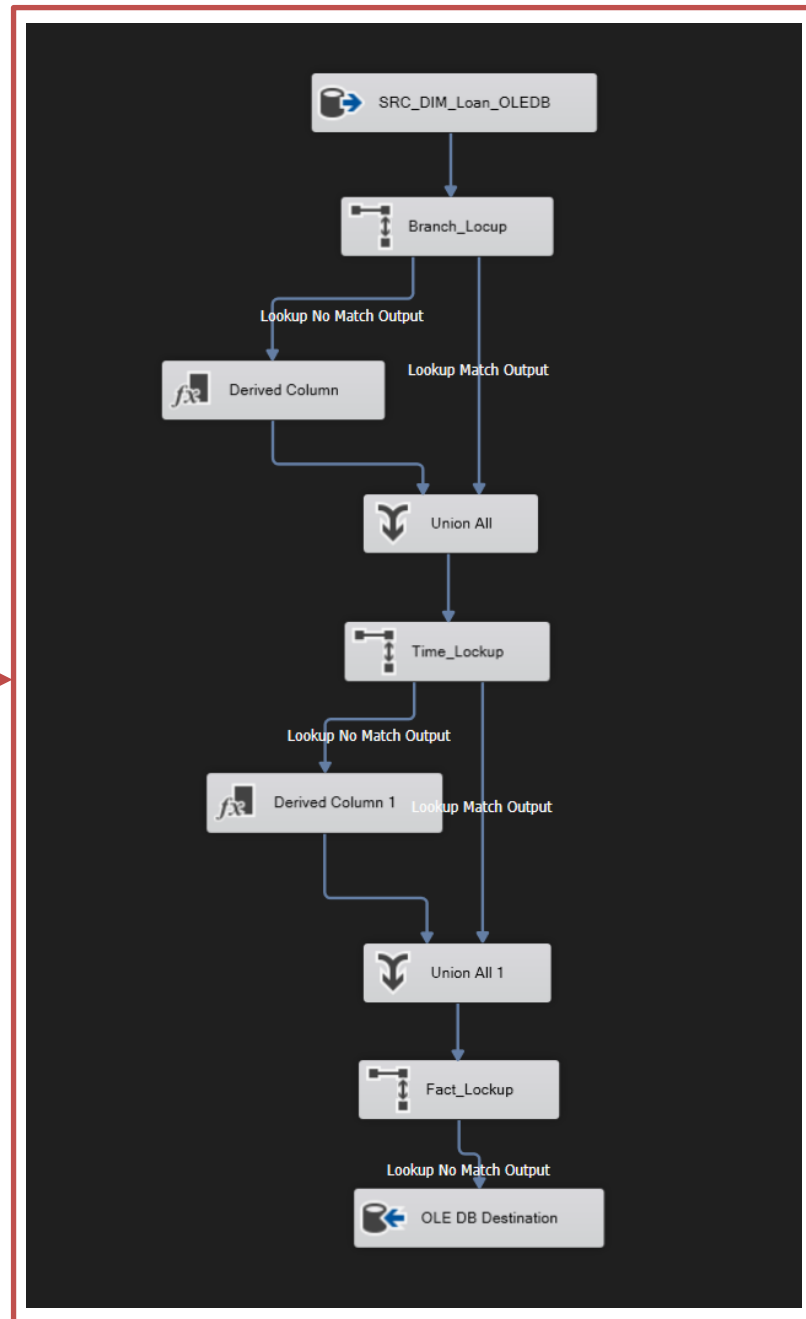
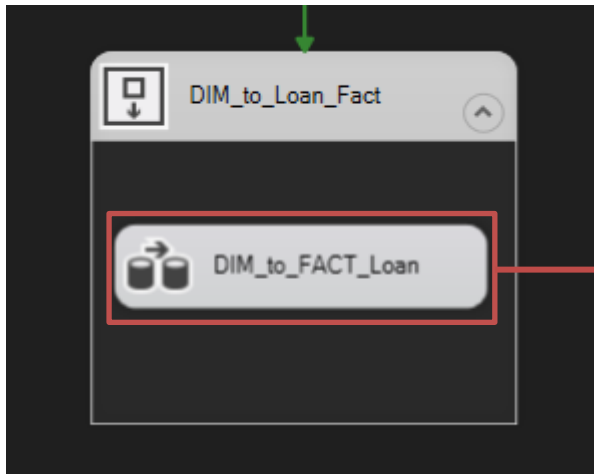


b. From Stage to Dim 2



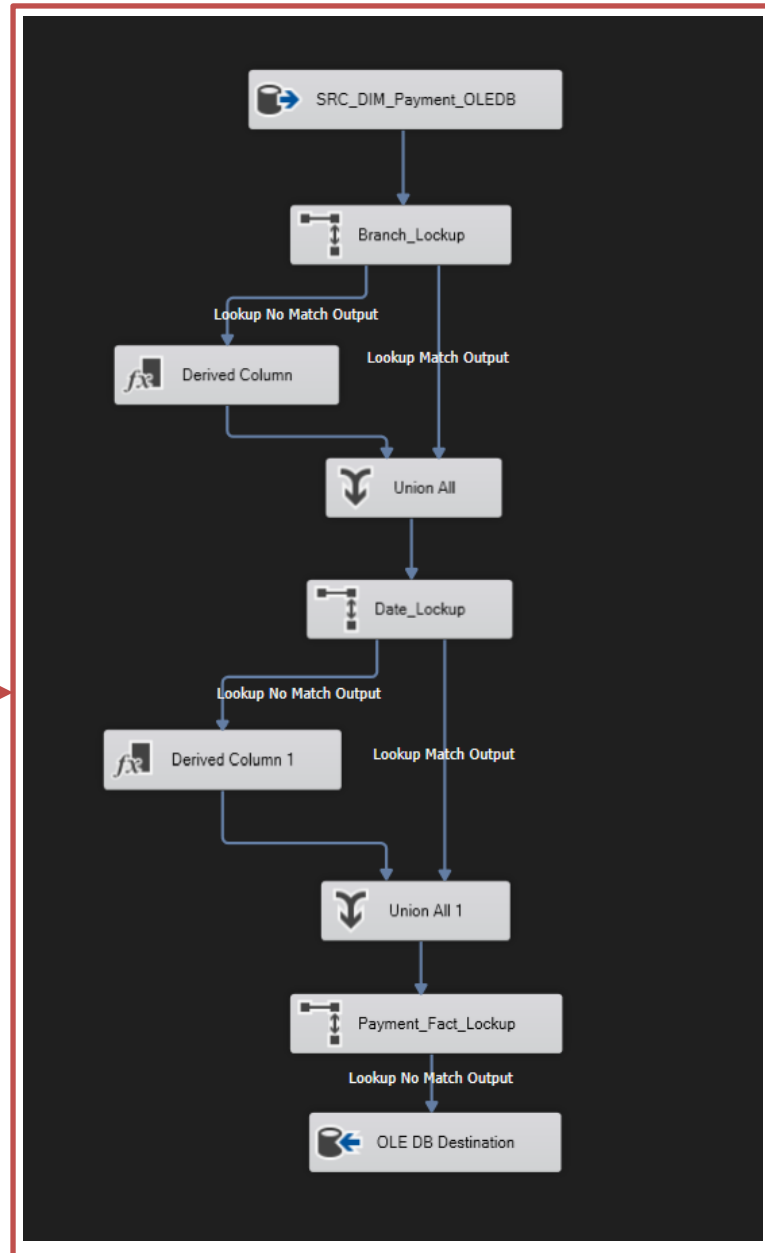
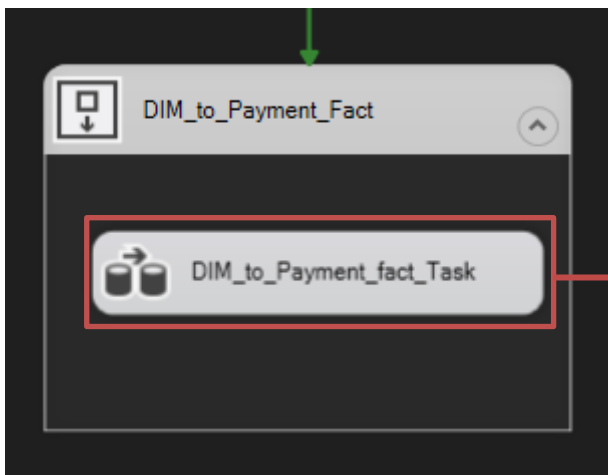


5. Dimension to Fact Loan



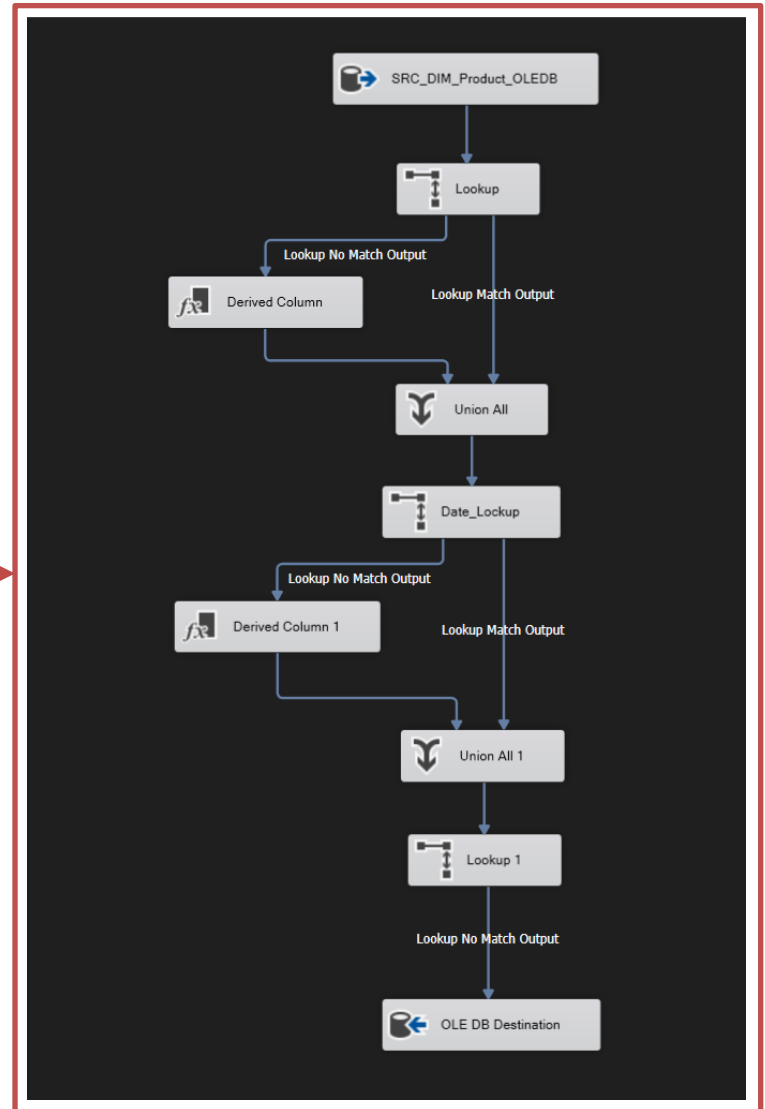
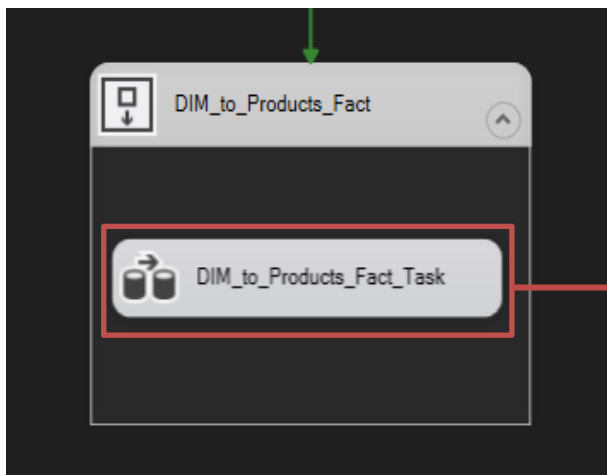


6. Dimension to Fact Payment



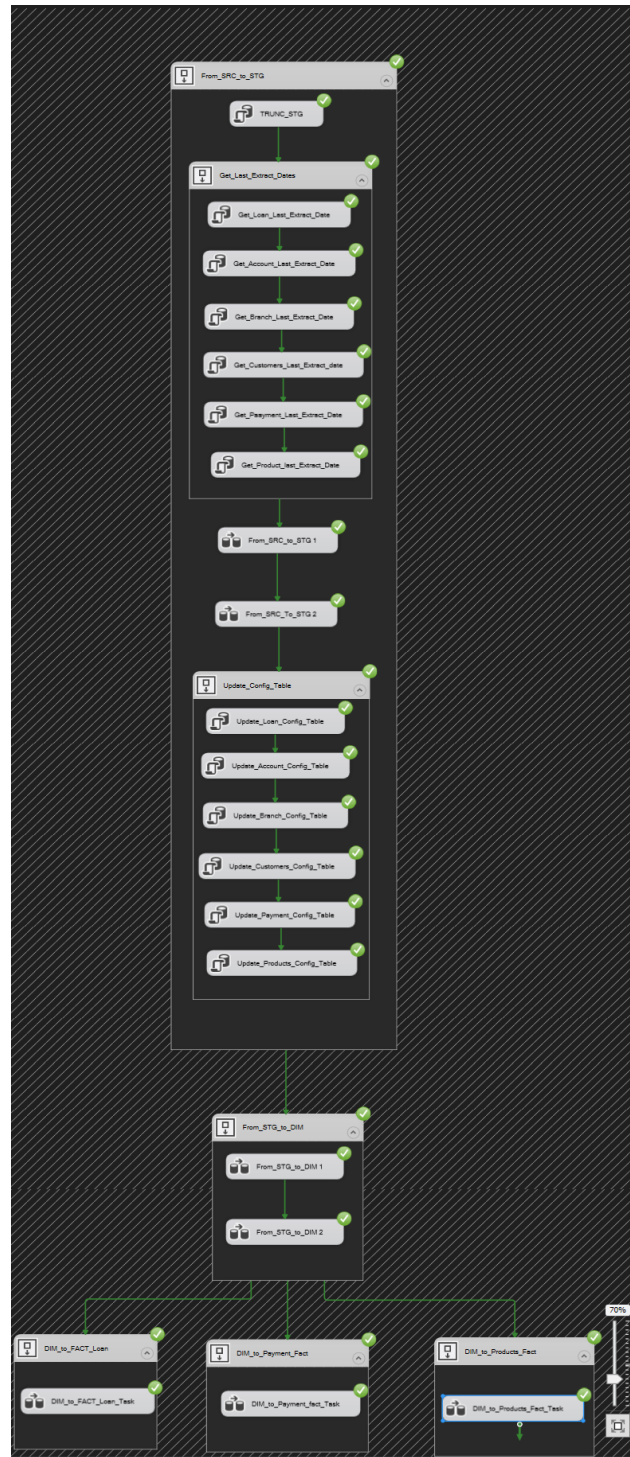


7. Dimension to Fact Products





- Running SSIS





- Job Step

Job Properties - Assignment_1

Select a page

- General
- Steps
- Schedules
- Alerts
- Notifications
- Targets

Connection

Server:
Mahmoud

Connection:
MAHMOUD\mahmod

[View connection properties](#)

Progress

Ready

Script Help

Job step list:

| S... | Name | Type | On Succ... | On Fa |
|------|--------------|-------------------------------------|--------------|--------|
| 1 | Assignment_1 | SQL Server Integration Services ... | Quit the ... | Quit t |

Move step:

Start step:

1:Assignment_1

New... Insert... Edit Delete

OK Cancel



- Scheduling

Job Properties - Assignment_1

Select a page

- General
- Steps
- Schedules
- Alerts
- Notifications
- Targets

Script ? Help

Schedule list:

| ID | Name | Enabl... | Description |
|----|--------------------------|----------|----------------------------------------------------|
| 9 | Assignment_1 Monthly ... | Yes | Occurs every month on day 1 at 12:00:00 AM. Sch... |

Job Schedule Properties - Assignment_1 Monthly Running

Name: Assignment_1 Monthly Running Jobs in Schedule

Schedule type: Recurring ☒ Enabled

One-time occurrence

Date: 15-May-24 Time: 8:45:26 PM

Frequency

Occurs: Monthly

☒ Day 1 of every 1 month(s)

☐ The first Monday of every 1 month(s)

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: 15-May-24 ☐ End date: 15-May-24 ☒ No end date:

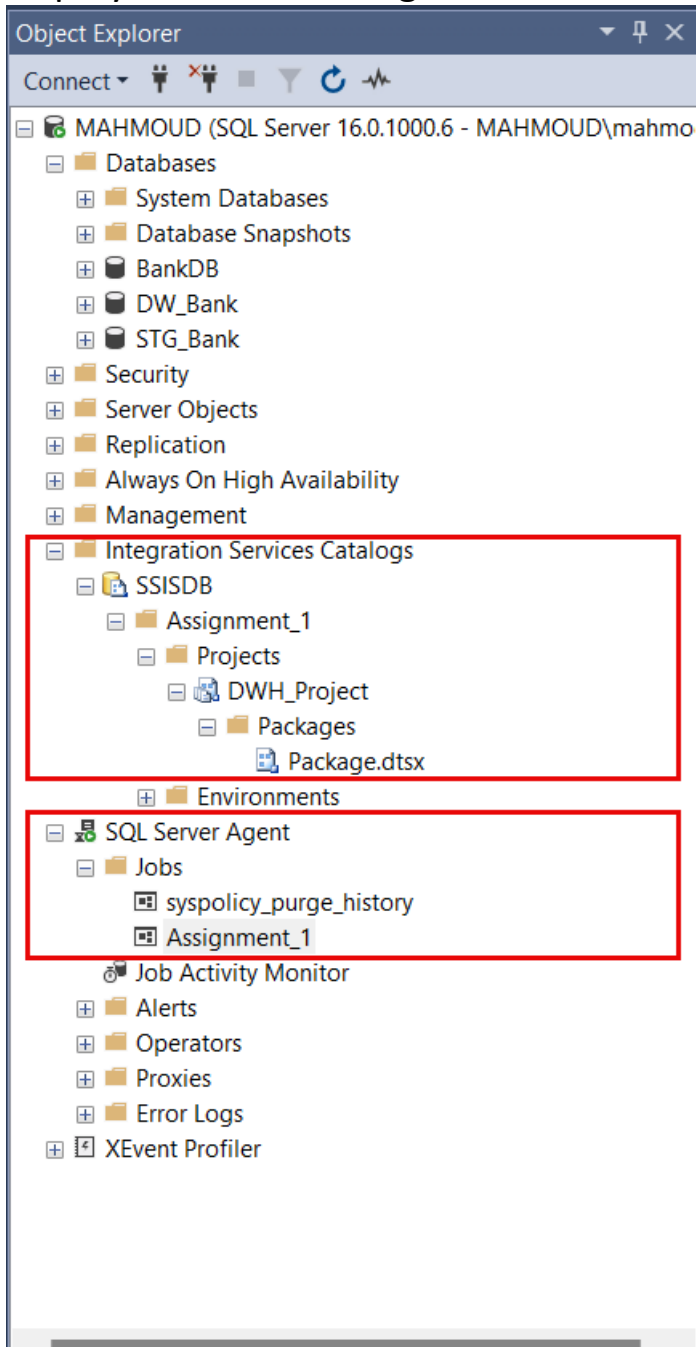
Summary

Description: Occurs every month on day 1 at 12:00:00 AM. Schedule will be used starting on 15-May-24.

OK Cancel Help



- Deployment Scheduling





• Queries

○ Number of loans per branch

PRODUCTS.sql - M...OUD\mahmod (60)* PAYMENT.sql - MA...OUD\mahmod (59)* LOAN.sql - MAHM...OUD\mahmod (56)*

```

SELECT [branch_id] as Branc_ID , COUNT(*) AS Total_Loans
FROM [DW_Bank].[dbo].[FACT_LOAN]
GROUP BY [branch_id]
ORDER BY total_loans DESC;

```

150 %

Results Messages

| | Branc_ID | Total_Loans |
|----|----------|-------------|
| 1 | 99 | 4 |
| 2 | 109 | 4 |
| 3 | 124 | 4 |
| 4 | 361 | 4 |
| 5 | 474 | 4 |
| 6 | 440 | 3 |
| 7 | 443 | 3 |
| 8 | 480 | 3 |
| 9 | 296 | 3 |
| 10 | 376 | 3 |
| 11 | 131 | 3 |
| 12 | 44 | 3 |
| 13 | 172 | 3 |
| 14 | 135 | 3 |
| 15 | 197 | 3 |
| 16 | 43 | 2 |
| 17 | 190 | 2 |
| 18 | 209 | 2 |
| 19 | 181 | 2 |
| 20 | 184 | 2 |
| 21 | 215 | 2 |
| 22 | 240 | 2 |
| 23 | 258 | 2 |
| 24 | 26 | 2 |
| 25 | 32 | 2 |
| 26 | 20 | 2 |
| 27 | 68 | 2 |

Query executed successfully.

MAHMOUD (16.0 RTM) | MAHMOUD\mahmod (56) | master | 00:00:00 | 140 rows

Ln 17 Col 27 Ch 27 INS

○ Total Fees per product

PRODUCTS.sql - M...OUD\mahmod (52)*

```

-- Total fees per Product_Name
SELECT Product_Name, SUM([Total_Fees]) AS Total_Fees
FROM [DW_Bank].[dbo].[FACT_Treasury_PRODUCT]
GROUP BY Product_Name
ORDER BY Total_Fees DESC;

```

150 %

Results Messages

| | Product_Name | Total_Fees |
|----|-------------------------------|------------|
| 1 | Government Securities | 3052116.15 |
| 2 | Stocks | 1814442.34 |
| 3 | Debentures | 1810130.9 |
| 4 | Forward Contracts | 1614747.22 |
| 5 | Mutual Funds | 1258799.71 |
| 6 | Commercial Paper | 1161435.83 |
| 7 | Certificates of Deposit (CDs) | 1146786.09 |
| 8 | Bonds | 1027921.97 |
| 9 | Spot Contracts | 906957.49 |
| 10 | Exchange-Traded Funds (ETFs) | 830784.02 |
| 11 | Treasury Bills | 827449.18 |

Query executed successfully.

MAHMOUD (16.0 RTM) | MAHMOUD\mahmod (52) | master | 00:00:00 | 11 rows



○ Total Loan Amount per Loan Type

PRODUCTS.sql - M...OUD\mahmod (60))* PAYMENT.sql - MA...OUD\mahmod (59))* LOAN.sql - MAHM...OUD\mahmod (56))*

```

SELECT [loan_type], SUM([loan_amount]) AS Total_Loans_Amount
FROM [DW_Bank].[dbo].[FACT_LOAN]
GROUP BY [loan_type]
ORDER BY Total_Loans_Amount DESC;

```

150 %

Results Messages

| | loan_type | Total_Loans_Amount |
|----|-----------------------|--------------------|
| 1 | 'Payday loans' | 13999818.87 |
| 2 | 'Auto loans' | 12393983.52 |
| 3 | 'Personal loans' | 12187573.26 |
| 4 | 'Home equity loans' | 11479313.85 |
| 5 | 'Business loans' | 10636650.82 |
| 6 | 'Credit card loans' | 10618733.81 |
| 7 | 'Student loans' | 9514685.21 |
| 8 | 'Construction loans' | 8706510.53 |
| 9 | 'Consolidation loans' | 8206552.85 |
| 10 | 'Home mortgages' | 8088827.4 |

Query executed successfully. MAHMOUD (16.0 RTM) MAHMOUD\mahmod (56) master 00:00:00 10 rows

○ Total Payment Amount per branch In Time

PRODUCTS.sql - M...OUD\mahmod (60))* PAYMENT.sql - MA...OUD\mahmod (59))* LOAN.sql - MAHM...OUD\mahmod (56))*

```

SELECT [date_id2] as [Date], [branch_id] as Branch_ID, SUM([amount]) AS Total_Amount
FROM [DW_Bank].[dbo].[Payment_fact]
GROUP BY [date_id2], [branch_id]
HAVING COUNT(*) > 0
ORDER BY Total_Amount DESC;

```

150 %

Results Messages

| | Date | Branch_ID | Total_Amount |
|----|-------------------------|-----------|--------------|
| 1 | 2010-03-03 00:00:00.000 | 227 | 9942 |
| 2 | 2016-10-06 00:00:00.000 | 261 | 9718 |
| 3 | 2015-12-21 00:00:00.000 | 273 | 9705 |
| 4 | 2010-04-30 00:00:00.000 | 42 | 9679 |
| 5 | 2016-04-03 00:00:00.000 | 164 | 9534 |
| 6 | 2010-01-01 00:00:00.000 | 370 | 9529 |
| 7 | 2008-01-06 00:00:00.000 | 135 | 9519 |
| 8 | 2018-12-17 00:00:00.000 | 111 | 9464 |
| 9 | 2021-04-16 00:00:00.000 | 331 | 9441 |
| 10 | 2006-10-29 00:00:00.000 | 443 | 9345 |
| 11 | 2013-08-29 00:00:00.000 | 357 | 9330 |
| 12 | 2019-01-31 00:00:00.000 | 383 | 9263 |
| 13 | 2019-05-20 00:00:00.000 | 423 | 9255 |
| 14 | 2007-09-05 00:00:00.000 | 11 | 9182 |
| 15 | 2016-06-23 00:00:00.000 | 257 | 9181 |
| 16 | 2001-10-16 00:00:00.000 | 474 | 9177 |
| 17 | 2018-03-26 00:00:00.000 | 192 | 9167 |
| 18 | 2011-05-15 00:00:00.000 | 447 | 9125 |
| 19 | 2001-01-17 00:00:00.000 | 172 | 9118 |
| 20 | 2000-12-13 00:00:00.000 | 432 | 9088 |
| 21 | 2022-12-17 00:00:00.000 | 303 | 9070 |
| 22 | 2004-05-20 00:00:00.000 | 112 | 8939 |
| 23 | 2003-07-09 00:00:00.000 | 163 | 8807 |
| 24 | 2023-02-10 00:00:00.000 | 327 | 8399 |
| 25 | 2007-08-24 00:00:00.000 | 400 | 8393 |

Query executed successfully. MAHMOUD (16.0 RTM) MAHMOUD\mahmod (59) master 00:00:00 196 rows

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- Dashboard

