



2024

Faculty of Computers and Artificial Intelligence Cairo University

2024 – Second Semester

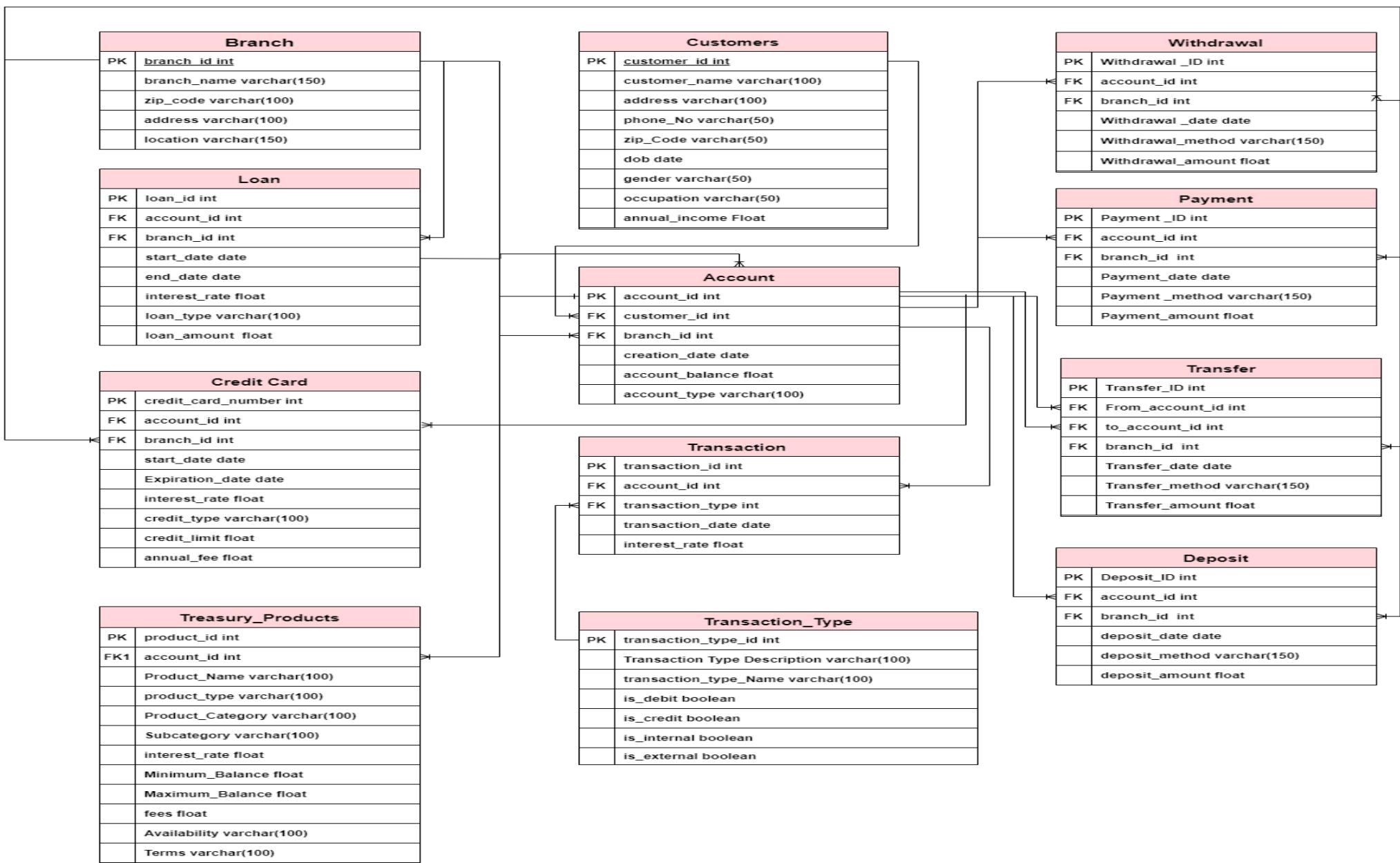
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Data Warehouse

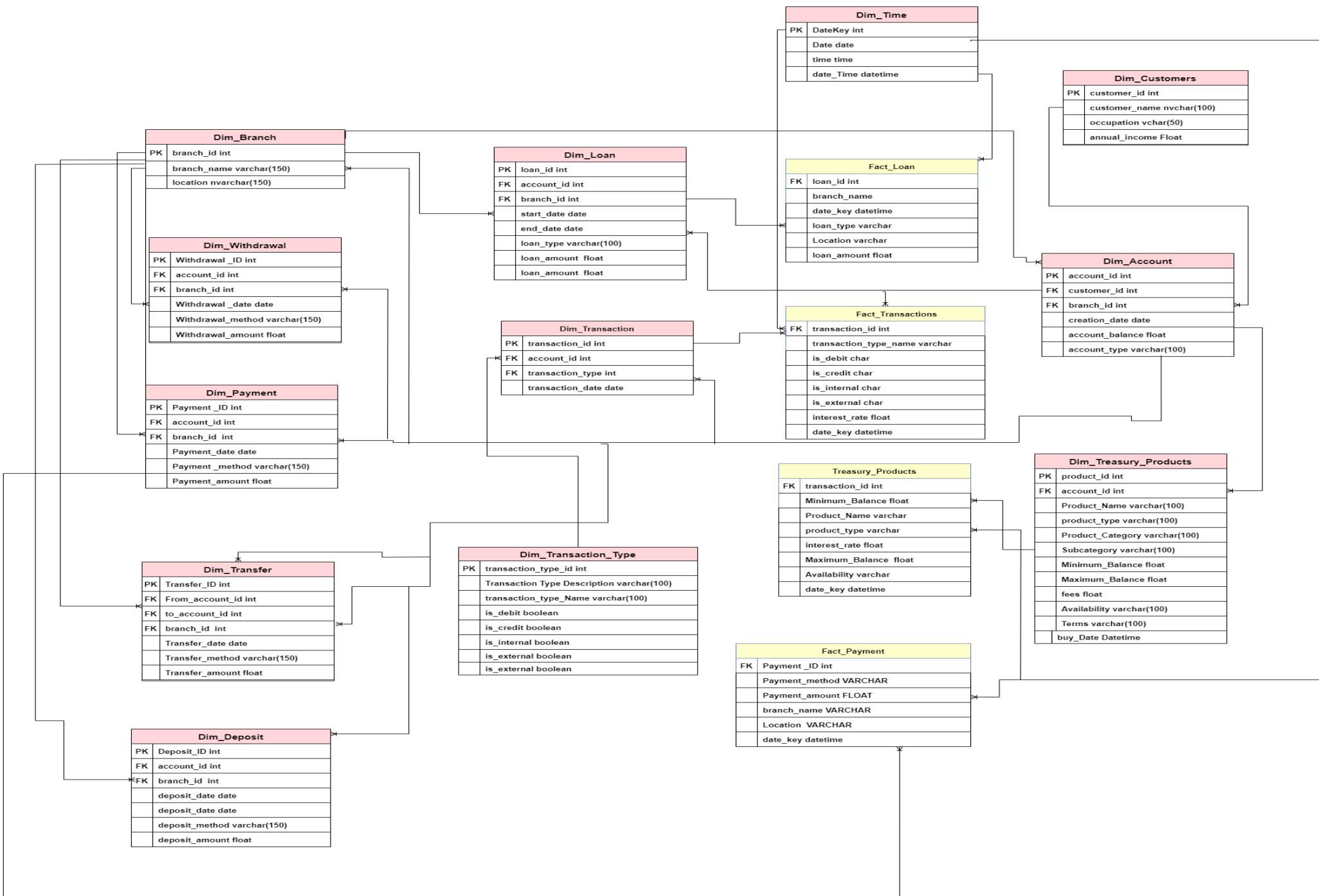
DW PROJECT

UNDER SUPERVISION: ENG. AHMED MOHAMED GALAL

Physical model of the source system



Physical model of your model



3.a. Business Process for the model: Bank Transactions with customer accounts and his treasury Products

3.b.c.

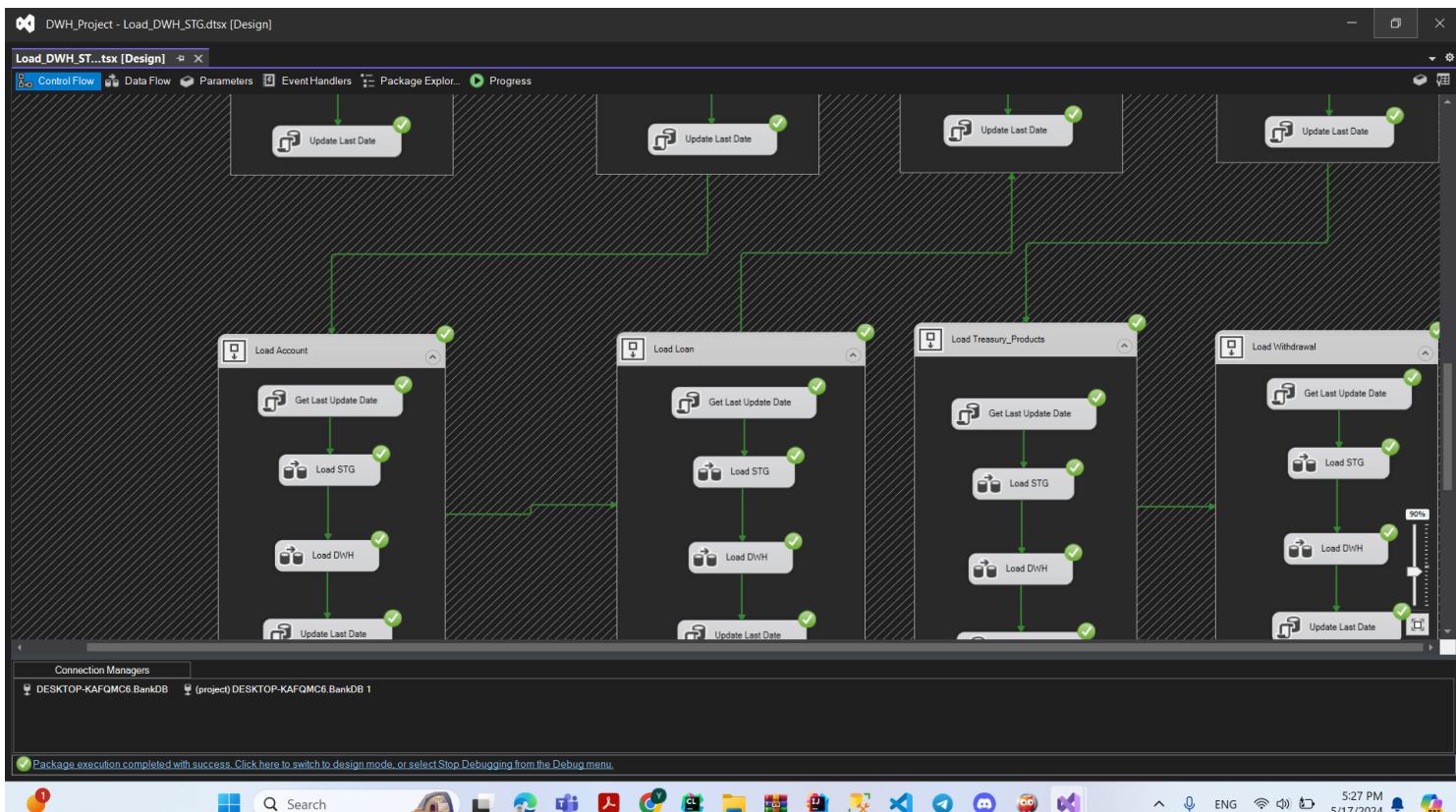
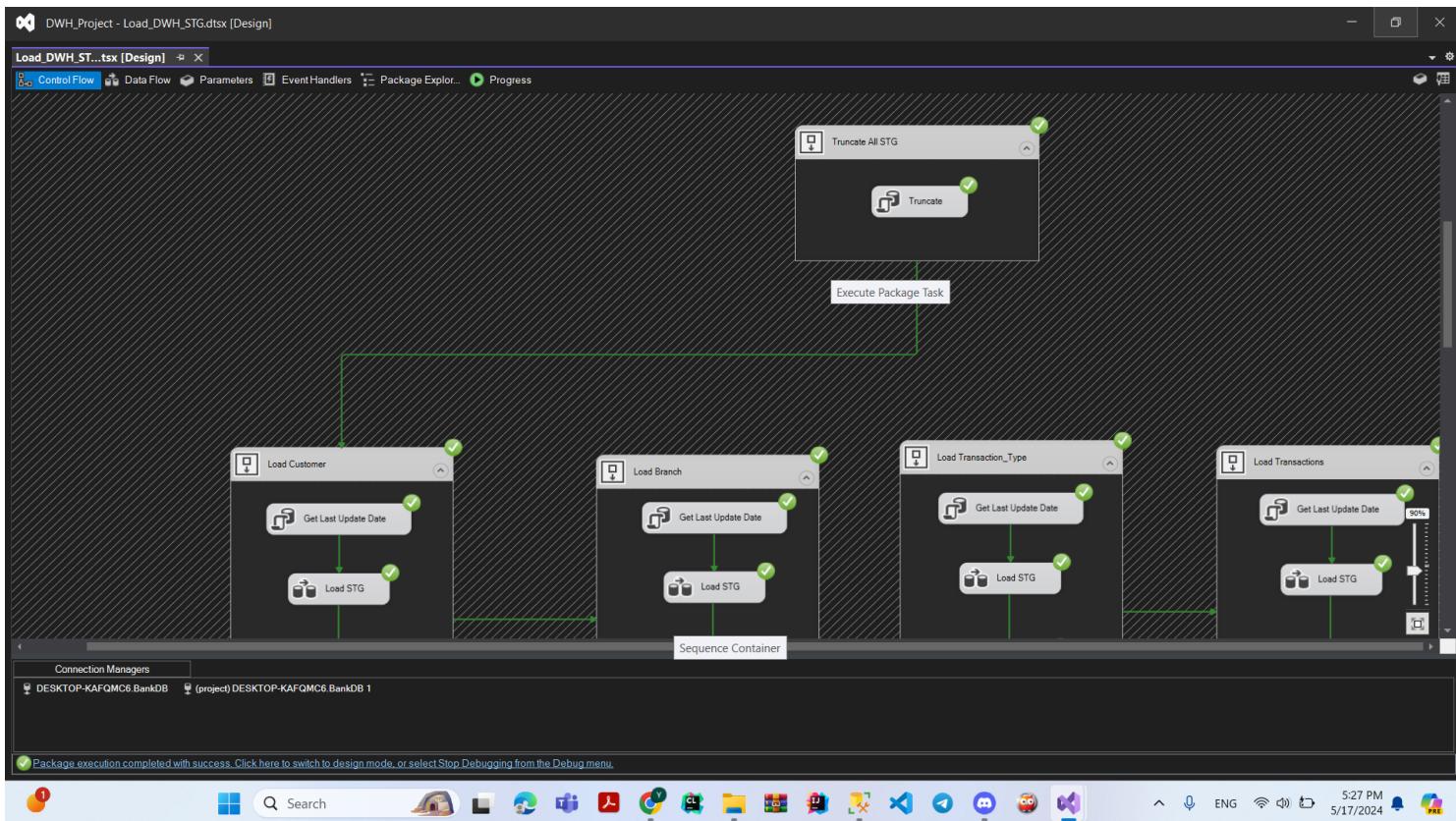
Fact Table Name	Representation	Measures
Fact_Loan (Transaction)	Shows data about loans made by the bank. It includes data about loan amounts, types, interest rates, terms, and other loan-specific attributes with each Branch.	<ul style="list-style-type: none"> loan_amount (Full) Every record shows the loan made to the account in a particular date format from the bank branch.
Fact_Transactions (Transaction)	Shows data about different types of transactions that occur within the bank, including deposits, withdrawals, transfers, and payments. It includes data about the transaction amount, date, time, location, and other transaction-specific attributes.	<ul style="list-style-type: none"> interest_rate (Semi) Every record shows the transaction that the account performed in a particular date format.
Treasury_Products (Transaction)	Shows data 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.	<ul style="list-style-type: none"> interest_rate (Semi) Fees (Full) Every record shows the product-specific sales transaction in a particular date format.
Fact_Payment (Transaction)	Shows data about payments that customers have made or received from the bank. It includes data about the payment's amount, date, time, place, and other payment-specific attributes. It also includes data about the accounts and customers that performed each payment transaction.	<ul style="list-style-type: none"> Payment_amount (Full) Every record shows the payment transaction made by the account in a particular date format.

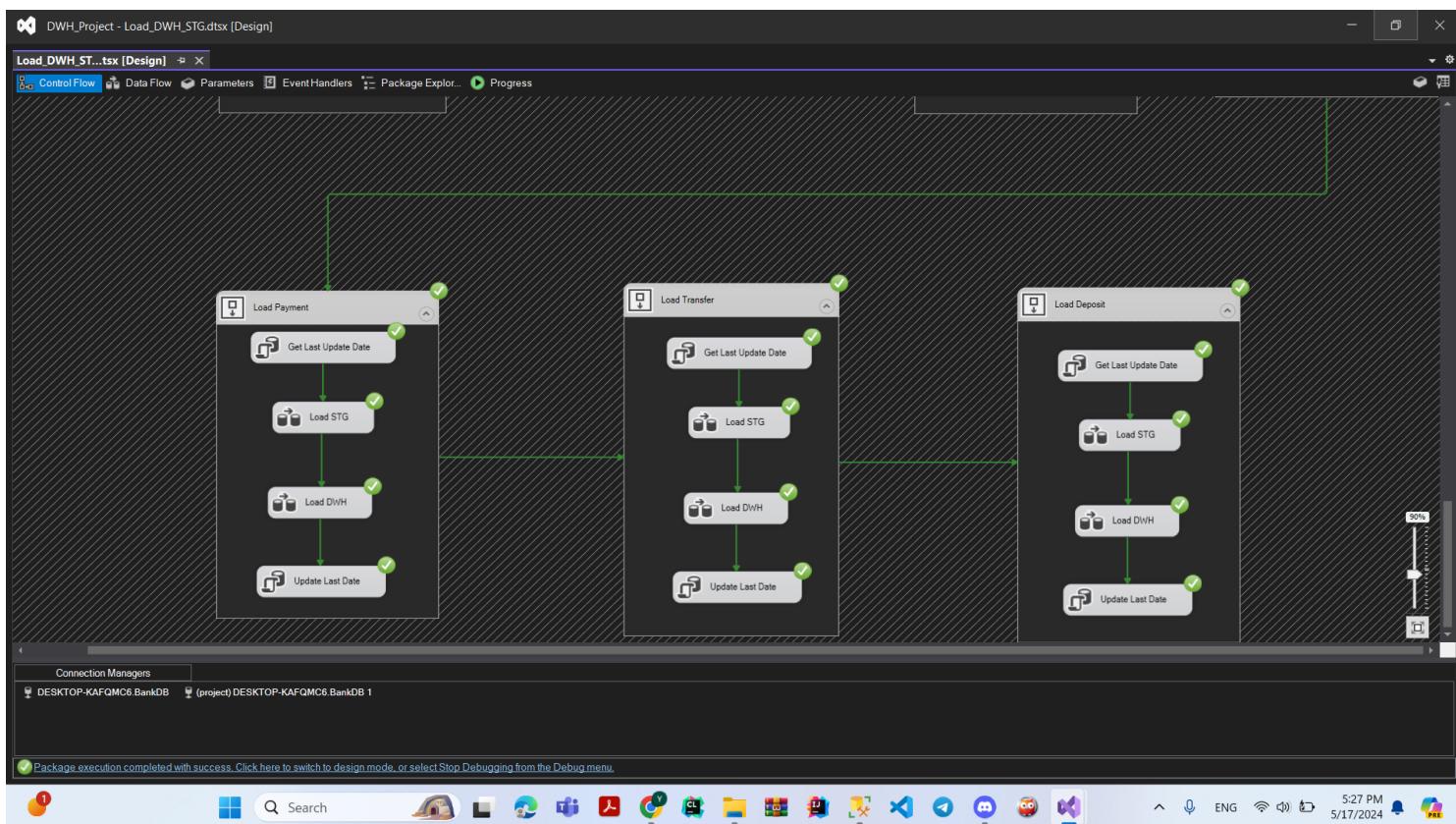
3.d Dimensions Representation

Dimension Table Name	Representation
Dim_Time conformed	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.
Dim_Treasury_Products Slowly(Type1)	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

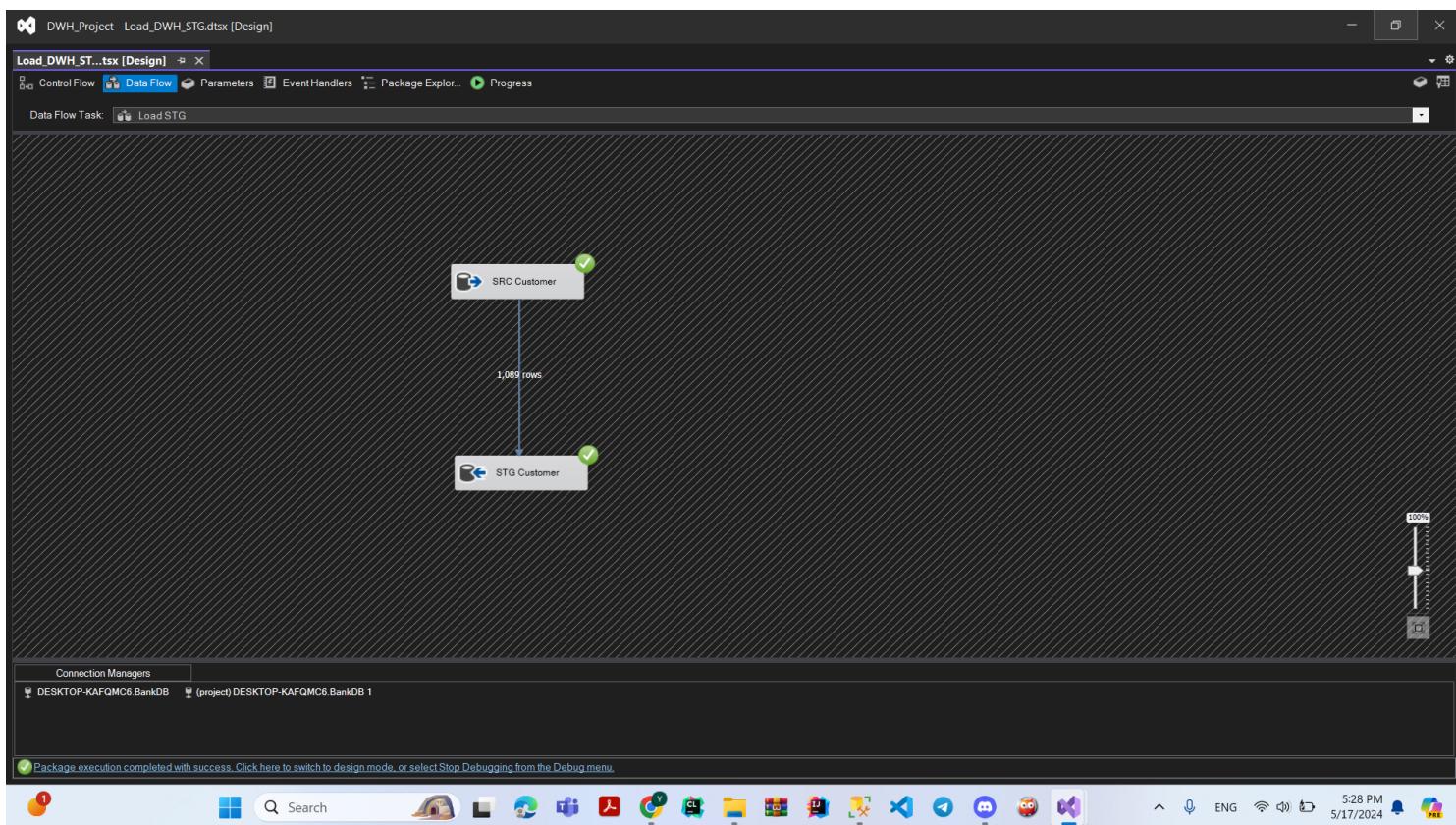
	analyze and compare different products based on their interest rates, fees, minimum balance requirements, etc.
Dim_Branch Slowly(Type1) & Conformed	This dimension is used to track information related to the various branches of the bank, such as branch location, address, phone number, etc. It can be used to filter and analyze data based on different branches.
Dim_Loan Slowly(Type1)	This dimension is used to track information related to loans offered by the bank, 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.
Dim_Customers Slowly(Type1)	This dimension is used to track information related to bank customers, such as customer name, address, phone number, occupation, annual income, etc. It can be used to analyze and segment customers based on their demographics and behaviors.
Dim_Account Slowly(Type1)& conformed	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.
Dim_Transaction Slowly(Type1)	This dimension is used to track information related to different transactions, such as transaction date, transaction type, transaction amount, etc. It can be used to filter and analyze data based on different types of transactions.
Dim_Transaction_Type Slowly(Type1)	This dimension is used to track information related to different transaction types, such as deposit, withdrawal, transfer, payment, etc. It can be used to filter and analyze data based on different types of transactions.
Dim_Deposit Slowly(Type1)	This dimension is used to track information related to deposits made by customers, such as deposit amount, deposit date, deposit method, etc. It can be used to analyze and compare different deposits based on their amounts and sources.
Dim_Transfer Slowly(Type1)	This dimension is used to track information related to transfers made between accounts, such as transfer amount, transfer date, transfer method, etc. It can be used to analyze and compare different transfers based on their amounts and sources.
Dim_Payment Slowly(Type1)	This dimension is used to track information related to payments made by customers, 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.
Dim_Withdrawal Slowly(Type1)	This dimension is used to track information related to withdrawals made by customers, such as withdrawal amount, withdrawal date, withdrawal method, etc. It can be used to analyze and compare different withdrawals based on their amounts and sources.

Package To Load STG and DWH

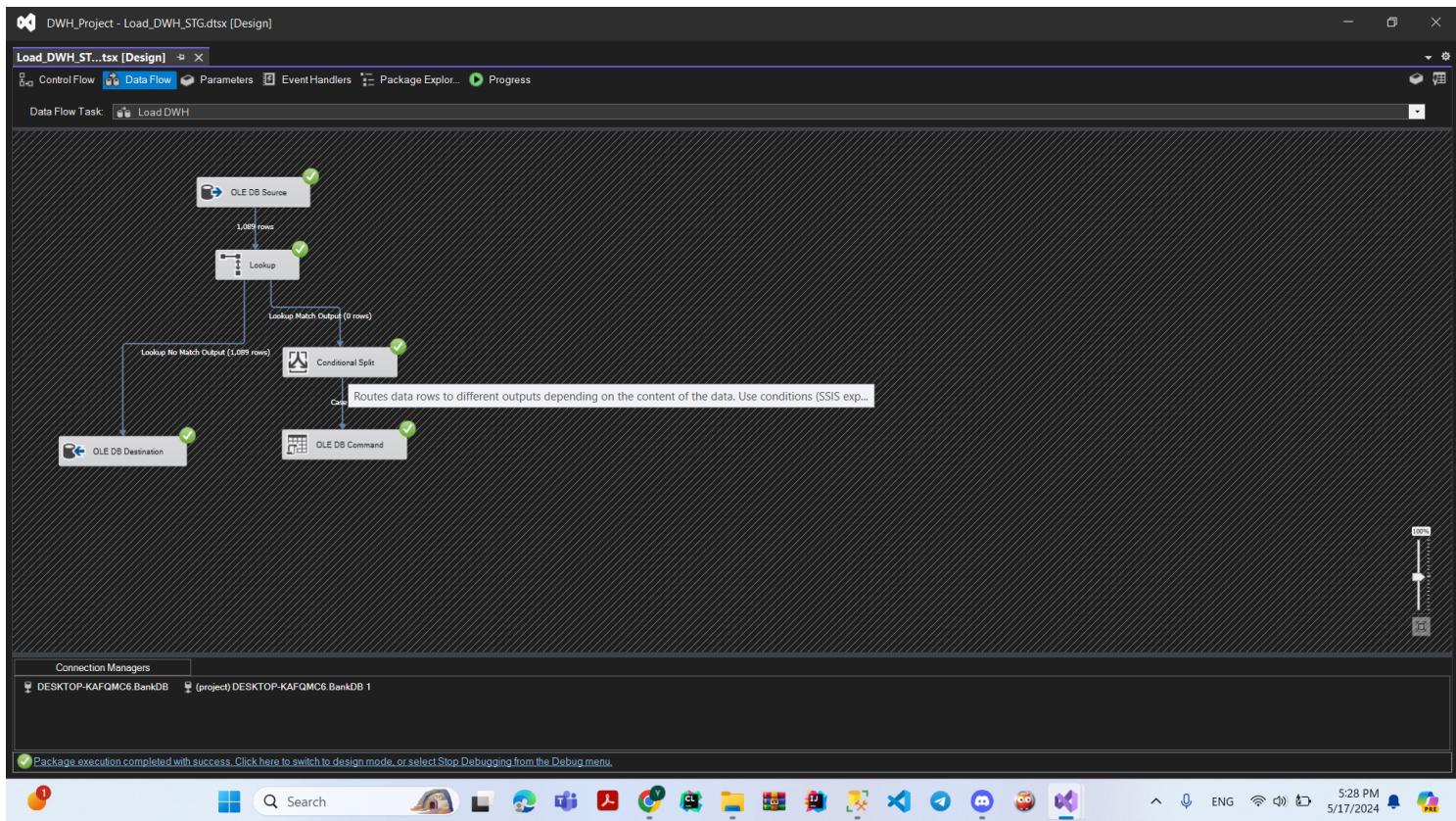




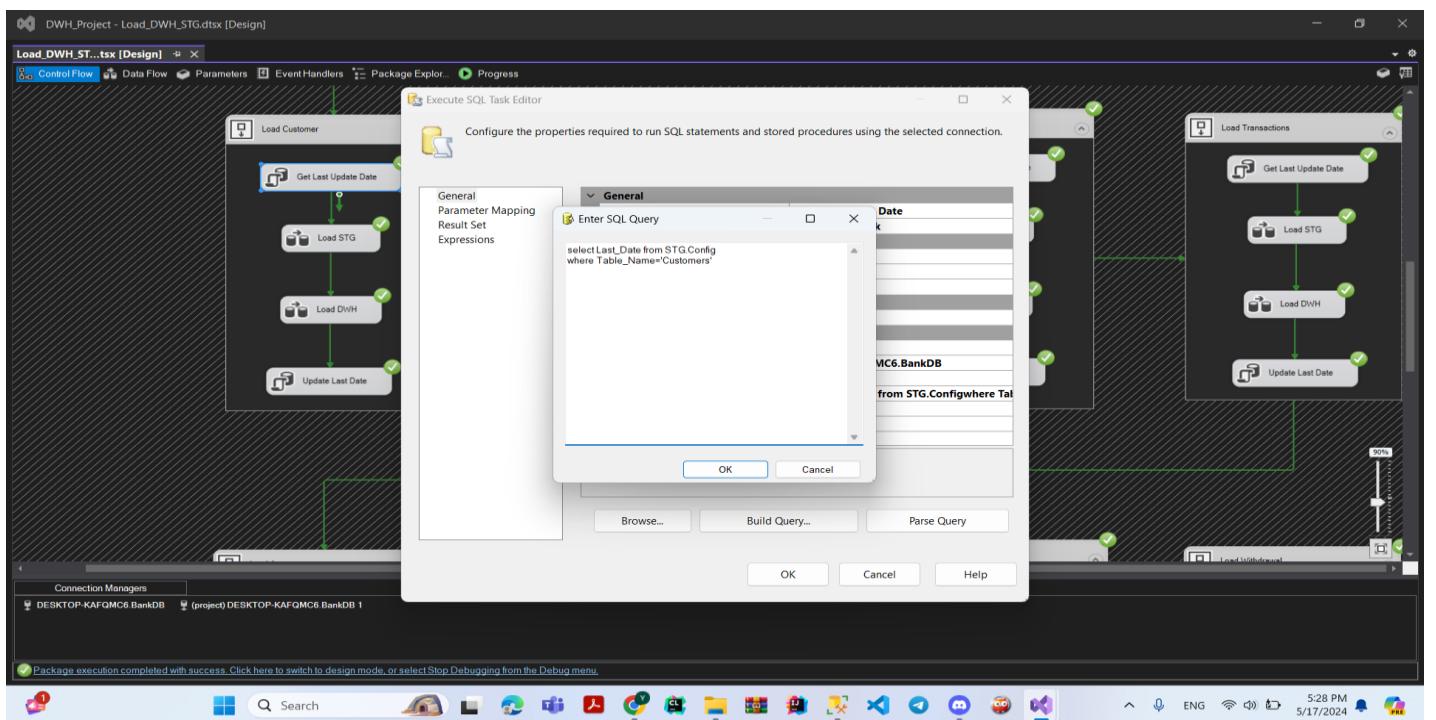
EX: For STG Load



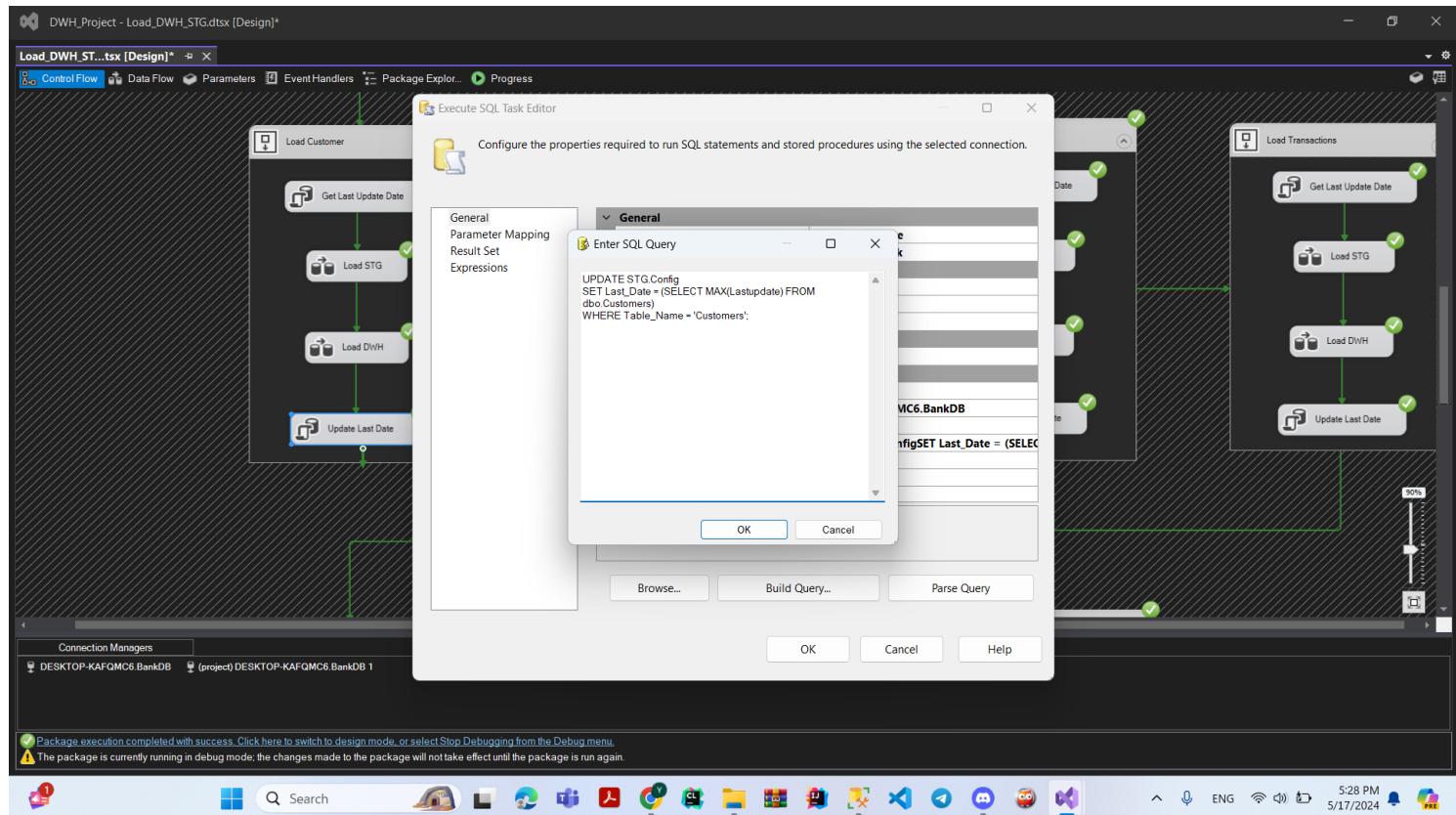
Ex: For Load DWH



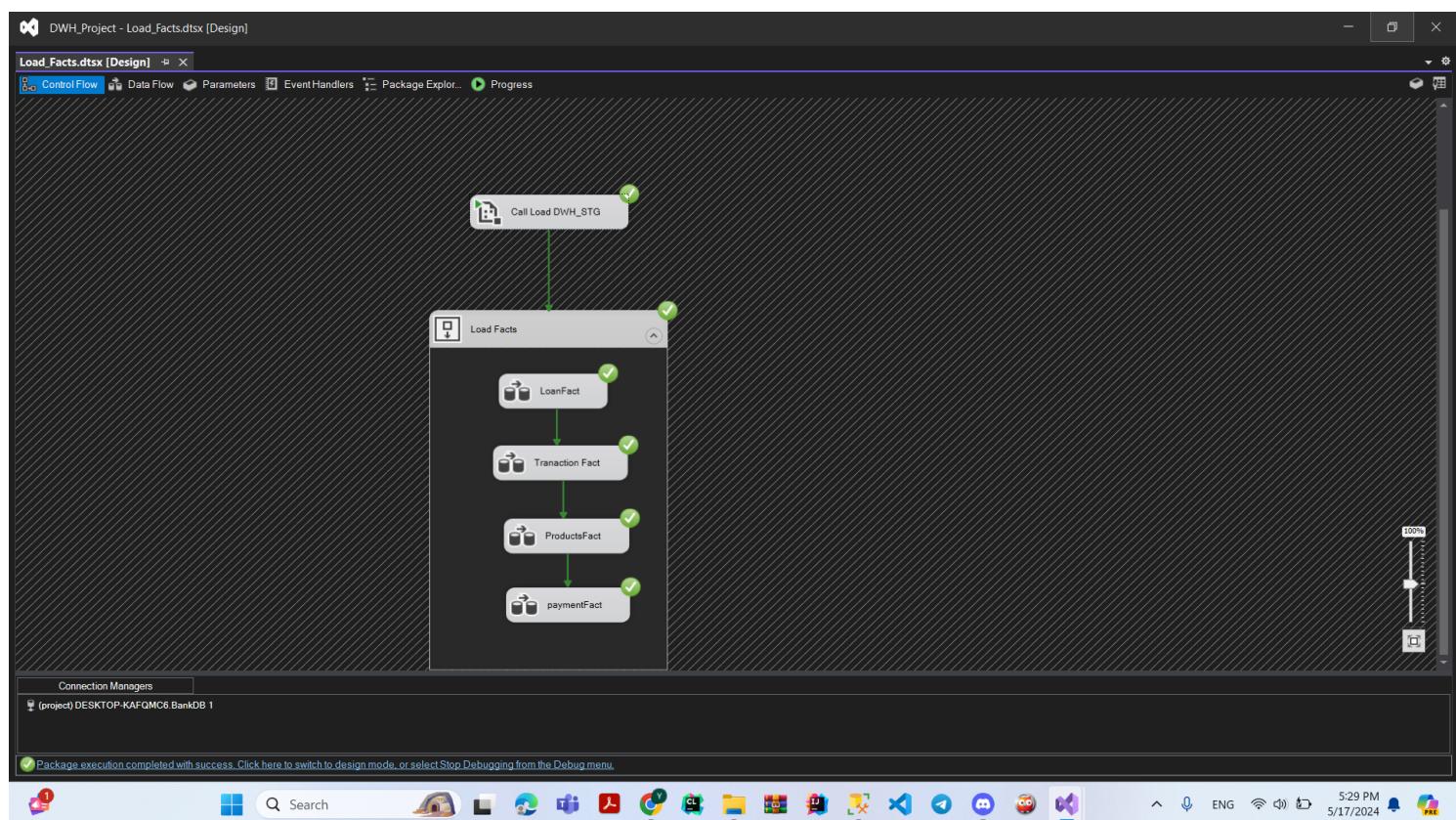
Incremental Load



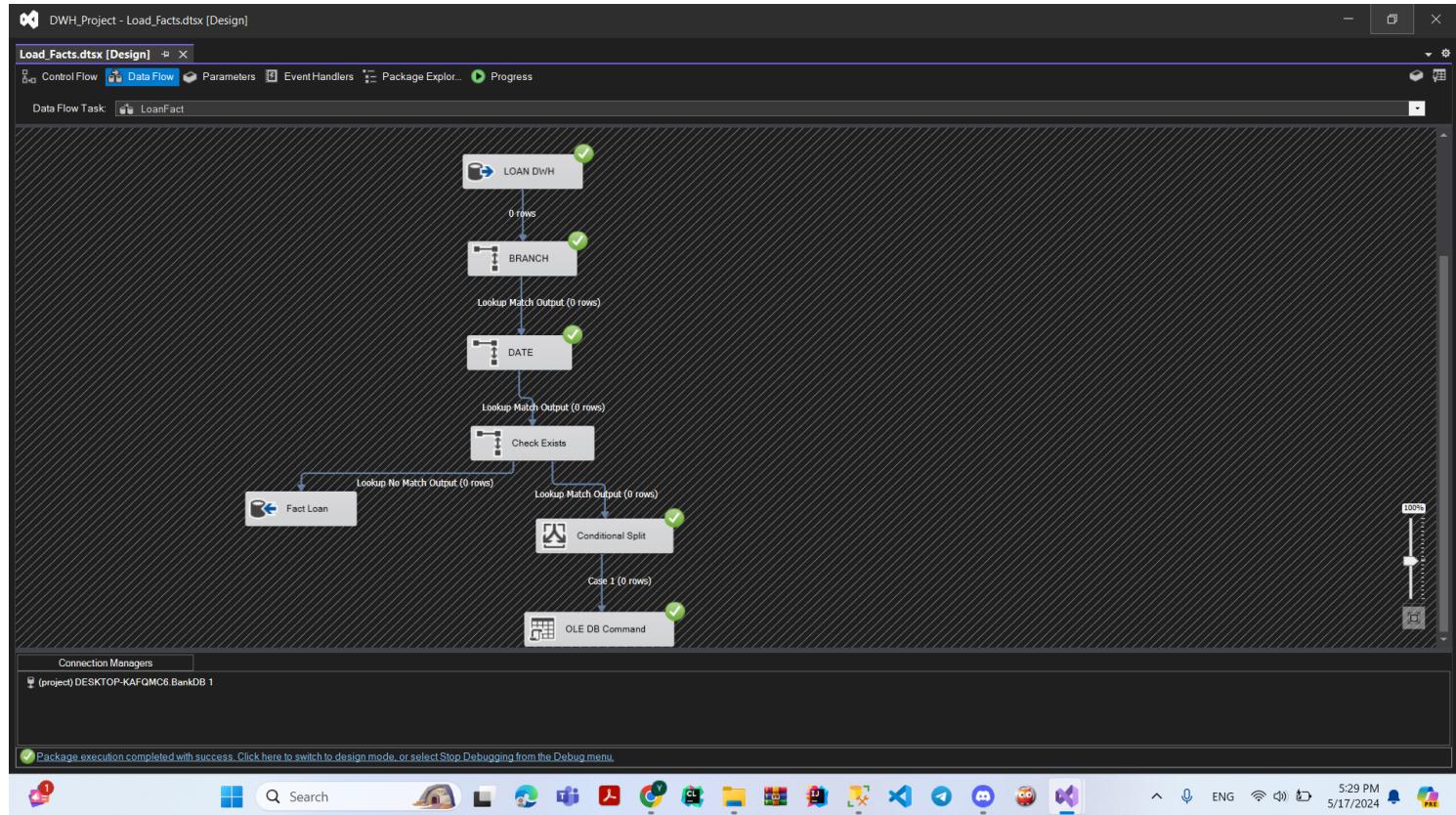
Update Date After Load



Package Call Package to Run Load DWH &STG then Load Facts



EX :For Load Fact Table



This Link To Watch Complete Project Photos

[Press ME](#)

Queries Screenshot For Load Fact

--Total Loan Amount by Year:

```
SELECT Year_Number, SUM(loan_amount) AS Total_Loan_Amount
FROM DWH.Fact_Loan
GROUP BY Year_Number
ORDER BY Total_Loan_Amount DESC;
```

Results

Year_Number	Total_Loan_Amount
1983	5284745.58
2013	3856060.94
2016	3715297.14
2004	3666461.45
1968	3567532.45
1997	3321636.38
1958	3008291.87
1986	2822945.6
1965	2397238.18
1953	2374730.28
1951	2329763.87
1959	2292855.28
1978	2087510.04
1998	2009229.34
2017	2002462.28
2009	1954462.98
2022	1900636.55
1973	1886050.66
2006	1873082.97
1982	1823647.83
1950	1802229.68
2021	1741026.78
1991	1736039.62

Query executed successfully.

--Average Loan Amount by Loan Type:

```
SELECT loan_type, AVG(loan_amount) AS Average_Loan_Amount
FROM DWH.Fact_Loan
GROUP BY loan_type
ORDER BY Average_Loan_Amount DESC;
```

Results

loan_type	Average_Loan_Amount
'Construction loans'	580434.035333333
'Payday loans'	559992.7548
'Personal loans'	529894.489565217
'Home equity loans'	521786.993181818
'Student loans'	500772.005789474
'Auto loans'	495759.3408
'Consolidation loans'	482738.026941176
'Business loans'	476947.6777272727
'Home mortgages'	449379.3
'Credit card loans'	408412.838846154

Query executed successfully.

--Total Loan Amount by Branch and Month:

```

SELECT branch_name, Month_Name, SUM(loan_amount) AS Total_Loan_Amount
FROM DWH.Fact_Loan
GROUP BY branch_name, Month_Name
ORDER BY branch_name, Month_Name;

```

Results

branch_name	Month_Name	Total_Loan_Amount
Anderson Inc	April	585746.16
Anderson Inc	August	385049.31
Anderson Inc	January	628201.08
Balstien, Monahan and Auer	September	326797.32
Bartell, Rutherford and Harvey	January	960524.22
Bartell, Rutherford and Harvey	March	908963.54
Bashirian-Stauber	March	887919.14
Baumbach, Kris and Ebert	January	211169.04
Beahan, Hyatt and Donnelly	January	130890.58
Becker, Hammes and Crona	March	775773.81
Becker, Hammes and Crona	September	241934.4
Beier-Welch	January	887366.6
Bergnaum and Sons	September	316165.49
Bergstrom, Cormier and Mraz	February	478821.53
Bernier Inc	June	337708.38
Bosco, Macejkovic and Fadel	February	865398.07
Bosco, Macejkovic and Fadel	March	640757.38
Boyle-Nitzsche	July	10959.63
Braun, Miller and Kautzer	April	296226.63
Braun, Miller and Kautzer	August	681451.42
Brettenberg LLC	January	112187.11
Brekke-Kunze	October	429418.78
Cartwright-Yundt	March	936549.24

Query executed successfully.

--Number of Loans Issued by Quarter and Year:

```

SELECT Year_Number, Quarter_Number, COUNT(loan_id) AS Number_Of_Loans
FROM DWH.Fact_Loan
GROUP BY Year_Number, Quarter_Number
ORDER BY Year_Number, Quarter_Number;

```

Results

Year_Number	Quarter_Number	Number_Of_Loans
1950	2	1
1950	3	2
1950	4	1
1951	1	2
1951	3	1
1951	4	2
1952	3	1
1953	1	1
1953	2	1
1953	3	1
1953	4	1
1954	1	2
1954	4	1
1955	4	3
1956	1	1
1957	2	1
1957	4	1
1958	2	2
1958	3	2
1959	1	1
1959	2	2
1959	3	1
1959	4	1

Query executed successfully.

--Total Loan Amount by Location and Year:

```

SELECT Location, Year_Number, SUM(loan_amount) AS Total_Loan_Amount
FROM DWH.Fact_Loan
GROUP BY Location, Year_Number
ORDER BY Location, Year_Number;

```

Results

	Location	Year_Number	Total_Loan_Amount
1	D Derek Junction	1991	26128.94
2	O Spohn Pass	2017	307097.21
3	O Stuetz Court	1990	172746.64
4	00 Waxwing Junction	1973	103720.85
5	0012 Carey Junction	2001	936549.24
6	005 Del Sol Trail	1959	45001.07
7	01 Nova Trail	1997	725772.73
8	01 Nova Trail	2012	457191.66
9	0164 Hoffman Place	1965	746890.23
10	0164 Hoffman Place	1978	59787.73
11	0164 Hoffman Place	2005	72895.9
12	0164 Hoffman Place	2011	470253.51
13	02 Merry Street	1987	742532.28
14	02 Merry Street	2006	445035.26
15	0239 Loftgordon Crossing	1964	45554.21
16	0239 Loftgordon Crossing	1990	279728.18
17	0239 Loftgordon Crossing	2014	338025.15
18	02409 Miller Way	2005	487382.38
19	0378 Loftgordon Way	1952	216699.38
20	04 Cottonwood Plaza	1955	462379.17
21	04 Cottonwood Plaza	1991	241950.06
22	04 Cottonwood Plaza	2021	541278.09
23	04 Schlimgen Plaza	1975	193898.81

Query executed successfully.

--Top 5 Branches by Total Loan Amount:

```

SELECT TOP 5 branch_name, SUM(loan_amount) AS Total_Loan_Amount
FROM DWH.Fact_Loan
GROUP BY branch_name
ORDER BY Total_Loan_Amount DESC;

```

Results

	branch_name	Total_Loan_Amount
1	Witing Group	2752592
2	Hirthe-Schimmel	2716136.03
3	Wyman-Jacobson	2142699.65
4	Murray-Williams	2135422.37
5	Herman, Von and Purdy	2071123.31

Query executed successfully.

Fact1_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

--Loan Amount Distribution by Week of Year:

```
SELECT Week_Of_Year, SUM(loan_amount) AS Total_Loan_Amount
FROM DWH.Fact_Loan
GROUP BY Week_Of_Year
ORDER BY Week_Of_Year;
```

Results

branch_name	Total_Loan_Amount
Witting Group	2752592
Hirthe-Schimmel	2716136.03
Wyman-Jacobson	2142699.65
Murray-Willms	2135422.37
Herman, Von and Purdy	2071123.31

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) | DESKTOP-KAFQMC6\dell (53) | BankDB | 00:00:00 | 5 rows

Queries Screenshot For Transaction Fact

Fact2_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

--Total Number of Transactions by Year:

```
SELECT Year_Number, COUNT(transaction_id) AS Total_Transactions
FROM DWH.Fact_Transactions
GROUP BY Year_Number
ORDER BY Year_Number;
```

--Total Interest Earned by Year:

```
SELECT Year_Number, MAX(interest_rate) AS Total_Interest
FROM DWH.Fact_Transactions
WHERE is_credit = 1
```

Results

Year_Number	Total_Transactions
1	16
2	14
3	23
4	15
5	16
6	15
7	11
8	23
9	20
10	12
11	15
12	10
13	16
14	8
15	19
16	13
17	12

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) | DESKTOP-KAFQMC6\dell (53) | BankDB | 00:00:00 | 24 rows

--Total Interest Earned by Year:

```
SELECT Year_Number, MAX(interest_rate) AS Total_Interest
FROM DWH.Fact_Transactions
WHERE is_credit = 1
GROUP BY Year_Number
ORDER BY Year_Number;
```

--Average Interest Rate by Transaction Type:

```
SELECT transaction_type_name, AVG(interest_rate) AS Average_Interest_Rate
```

Year_Number	Total_Interest
2000	0.98
2001	0.94
2002	0.99
2003	0.96
2004	0.93
2005	0.86
2006	0.97
2007	0.97
2008	0.86
2009	1
2010	0.93
2011	1
2012	0.94
2013	0.76
2014	1
2015	0.97
2016	0.87

Query executed successfully.

--Average Interest Rate by Transaction Type:

```
SELECT transaction_type_name, AVG(interest_rate) AS Average_Interest_Rate
FROM DWH.Fact_Transactions
GROUP BY transaction_type_name
ORDER BY Average_Interest_Rate DESC;
```

--Total Transactions by Month in a Specific Year (e.g., 2023):

```
SELECT Month, COUNT(*) AS Total_Transactions
FROM DWH.Fact_Transactions
WHERE Year_Number = 2023
GROUP BY Month
ORDER BY Month;
```

transaction_type_name	Average_Interest_Rate
Withdraw	0.53436893203835
Transfer	0.529113924050633
Deposit	0.488068181818182
Payment	0.476341463414634

Query executed successfully.

Fact2_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

```

ORDER BY Average_Interest_Rate DESC;

--Total Transactions by Month in a Specific Year (e.g., 2023):
SELECT Month_Name, COUNT(transaction_id) AS Total_Transactions
FROM DWH.Fact_Transactions
WHERE Year_Number = 2014
GROUP BY Month_Name, Month_Number
ORDER BY Month_Number;

```

188 %

Results Messages

transaction_type_name	Average_Interest_Rate
Withdraw	0.534368932038835
Transfer	0.529113924050633
Deposit	0.488068181818182
Payment	0.476341463414634

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\dell (53)

Snipping Tool

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Fact2_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

```

--Number of Debit vs. Credit Transactions:
SELECT
    SUM(CASE WHEN is_debit = 1 THEN 1 ELSE 0 END) AS Debit_Transactions,
    SUM(CASE WHEN is_credit = 1 THEN 1 ELSE 0 END) AS Credit_Transactions
FROM DWH.Fact_Transactions;

```

188 %

Results Messages

Debit_Transactions	Credit_Transactions
82	270

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\dell (53) BankDB 00:00:00 1 rows

Properties Current connection parameters

Aggregate Status

- Connection fail
- Elapsed time 00:00:00.026
- Finish time 5/17/2024 6:57:22
- Name DESKTOP-KAFQ
- Rows returned 1
- Start time 5/17/2024 6:57:22
- State Open

Connection

- Connection na DESKTOP-KAFQ

Connection Details

- Connection el: 00:00:00.026
- Name
- The name of the connection.

--Total External vs. Internal Transactions:

```
SELECT
    SUM(CASE WHEN is_external = 1 THEN 1 ELSE 0 END) AS External_Transactions,
    SUM(CASE WHEN is_internal = 1 THEN 1 ELSE 0 END) AS Internal_Transactions
FROM DWH.Fact_Transactions;
```

--Total Transactions by Quarter:

The screenshot shows the Microsoft SQL Server Management Studio interface. A query has been run in the main pane, and the results are displayed in a table titled 'Results'. The table has two columns: 'External_Transactions' and 'Internal_Transactions'. There is one row with the value 167 in the first column and 185 in the second column. The status bar at the bottom indicates 'Query executed successfully.'

	External_Transactions	Internal_Transactions
1	167	185

--Total Transactions by Quarter:

```
SELECT Year_Number AS Year, Quarter_Number, COUNT(transaction_id) AS Total_Transactions
FROM DWH.Fact_Transactions
GROUP BY Year_Number, Quarter_Number
ORDER BY Year_Number, Quarter_Number;
```

--Transactions Distribution by Month Name:

The screenshot shows the Microsoft SQL Server Management Studio interface. A query has been run in the main pane, and the results are displayed in a table titled 'Results'. The table has three columns: 'Year', 'Quarter_Number', and 'Total_Transactions'. The data spans from 2000 to 2004. The status bar at the bottom indicates 'Query executed successfully.'

Year	Quarter_Number	Total_Transactions
2000	1	4
2000	2	4
2000	3	2
2000	4	6
2001	1	3
2001	2	4
2001	3	2
2001	4	5
2002	1	5
2002	2	7
2002	3	3
2002	4	8
2003	1	4
2003	2	2
2003	3	6
2003	4	3
2004	1	6

Fact2_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

```

GROUP BY Year_Number, Quarter_Number
ORDER BY Year_Number, Quarter_Number;

-- Transactions Distribution by Month Name:
SELECT Month_Name, COUNT(transaction_id) AS Total_Transactions
FROM DWH.Fact_Transactions
GROUP BY Month_Name, Month_Number
ORDER BY Month_Number;

```

Results

Year	Quarter_Number	Total_Transactions
1	2000 1	4
2	2000 2	4
3	2000 3	2
4	2000 4	6
5	2001 1	3
6	2001 2	4
7	2001 3	2
8	2001 4	5
9	2002 1	5
10	2002 2	7
11	2002 3	3
12	2002 4	8
13	2003 1	4
14	2003 2	2
15	2003 3	6
16	2003 4	3
17	2004 1	5

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) | DESKTOP-KAFQMC6\dell (53) | BankDB | 00:00:00 | 90 rows

Queries Screenshot For Products Fact

Fact3_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

```

-- Total Balance by Product Type and Year:
SELECT product_type, Year_Number, SUM(Maximum_Balance) AS Total_Balance
FROM DWH.Fact_Treasury_Products
GROUP BY product_type, Year_Number
ORDER BY Year_Number, product_type;

-- Average Interest Rate by Product Type:
SELECT product_type, AVG(interest_rate) AS Average_Interest_Rate
FROM DWH.Fact_Treasury_Products
GROUP BY product_type;

```

Results

product_type	Year_Number	Total_Balance
Derivative Products	1950	298161
Fixed Income Products	1950	154493
Money Market Products	1950	191362
Structured Products	1950	685697
Derivative Products	1951	405257
Equity Products	1951	320662
Fixed Income Products	1951	115479
Foreign Exchange (FX) Services	1951	636001
Commodities	1952	150151
Derivative Products	1952	180681
Money Market Products	1952	149831
Equity Products	1953	100457
Money Market Products	1953	496668
Fixed Income Products	1954	467683
Foreign Exchange (FX) Services	1954	246611
Money Market Products	1954	209940
Commodities	1956	192235

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) | DESKTOP-KAFQMC6\dell (53) | BankDB | 00:00:00 | 90 rows

Fact3_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

BankDB Execute

```
GROUP BY product_type, Year_Number
ORDER BY Year_Number, product_type;

--Average Interest Rate by Product Type:
SELECT product_type, AVG(interest_rate) AS Average_Interest_Rate
FROM DWH.Fact_Treasury_Products
GROUP BY product_type
ORDER BY Average_Interest_Rate DESC;

--Total Fees by Year:
```

Results Messages

product_type	Average_Interest_Rate
Equity Products	0.56058235294118
Money Market Products	0.559090909090909
Fixed Income Products	0.5296
Foreign Exchange (FX) Services	0.473478260869565
Structured Products	0.468823529411765
Derivative Products	0.453
Commodities	0.372272727272727

Query executed successfully.

Snipping Tool

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Fact3_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

BankDB Execute

```
--Total Fees by Year:
SELECT Year_Number, SUM(fees) AS Total_Fees
FROM DWH.Fact_Treasury_Products
GROUP BY Year_Number
ORDER BY Year_Number;

--Product Availability Count:
SELECT Availability, COUNT(product_id) AS Product_Count
FROM DWH.Fact_Treasury_Products
GROUP BY Availability
```

Results Messages

Year_Number	Total_Fees
1950	772934.52
1951	986275.66
1952	229251.06
1953	381538.14
1954	816465.27
1955	810906.76
1956	909200.95
1957	495982.61
1958	1065366.78
1959	319485.33
1960	155122.98
1961	129380.93
1962	722969.34
1963	1153963.77
1964	832960.36
1965	862779.47
1966	116060.22

Query executed successfully.

Snipping Tool

Screenshot copied to clipboard and saved
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--Product Availability Count:

```
SELECT Availability, COUNT(product_id) AS Product_Count
FROM DWH.Fact_Treasury_Products
GROUP BY Availability
ORDER BY Product_Count DESC;
```

-- NEEDED BRANCH NAME INSTEAD OF ID--

--Total Balance by Branch and Month:

```
SELECT branch_id, Month_Name, SUM(Maximum_Balance) AS Total_Balance
```

Availability	Product_Count
1	86
0	60

Query executed successfully.

-- NEEDED BRANCH NAME INSTEAD OF ID--

--Total Balance by Branch and Month:

```
SELECT branch_id, Month_Name, SUM(Maximum_Balance) AS Total_Balance
FROM DWH.Fact_Treasury_Products
GROUP BY branch_id, Month_Name, Month_Number
ORDER BY branch_id, Month_Number;
```

--Average Fees by Product Type and Year:

```
SELECT product_type, Year_Number, AVG(fees) AS Average_Fees
```

branch_id	Month_Name	Total_Balance
1	July	136352
2	September	102030
3	November	285252
4	20	140869
5	22	141431
6	May	300713
7	32	187969
8	36	123010
9	36	186385
10	43	178052
11	43	157376
12	43	369669
13	50	152795
14	50	120358
15	56	186591
16	57	112400
17	61	200040

Query executed successfully.

Fact3_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

```

ORDER BY branch_id, Month_Number;

--Average Fees by Product Type and Year:
SELECT product_type, Year_Number, AVG(fees) AS Average_Fees
FROM DWH.Fact_Treasury_Products
GROUP BY product_type, Year_Number
ORDER BY Year_Number, product_type;

--Total Balance by Account and Year:
SELECT account_id, Year_Number, SUM(Maximum_Balance) AS Total_Balance

```

Results

product_type	Year_Number	Average_Fees
Derivative Products	1950	80210.64
Fixed Income Products	1950	93664.71
Money Market Products	1950	148543.32
Structured Products	1950	92576.3025
Derivative Products	1951	56106.4
Equity Products	1951	97822.02
Fixed Income Products	1951	80965.89
Foreign Exchange (FX) Services	1951	135361.6325
Commodities	1952	90514.21
Derivative Products	1952	61837.09
Money Market Products	1952	76899.76
Equity Products	1953	178350.09
Money Market Products	1953	67729.35
Fixed Income Products	1954	67076.6866666667
Foreign Exchange (FX) Services	1954	138936.225
Money Market Products	1954	168681.38
Commodities	1955	77461.46

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\dell (53)

Snipping Tool

Screenshot copied to clipboard and saved
Select here to mark up and share.

Fact3_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

```

ORDER BY Year_Number, product_type;

--Total Balance by Account and Year:
SELECT account_id, Year_Number, SUM(Maximum_Balance) AS Total_Balance
FROM DWH.Fact_Treasury_Products
GROUP BY account_id, Year_Number
ORDER BY Year_Number, account_id;

--Total Treasury Products by Month in a Specific Year (e.g., 2023):

```

Results

account_id	Year_Number	Total_Balance
4	1950	195699
28	1950	187969
3	1950	104710
4	1950	354611
5	1950	191362
389	1950	154493
7	1950	140869
31	1951	113381
9	1951	170539
10	1951	185889
11	1951	131619
12	1951	183916
13	1951	152815
14	1951	150123
15	1951	115479
16	1951	142057
17	1951	121621

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\dell (53)

Snipping Tool

Screenshot copied to clipboard and saved
Select here to mark up and share.

Fact3_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (53)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

BankDB

Object Explorer

```

ORDER BY Year_Number, account_id;

--Total Treasury Products by Month in a Specific Year (e.g., 1950):
SELECT Month_Name, COUNT(product_id) AS Total_Products
FROM DWH.Fact_Treasury_Products
WHERE Year_Number = 1950
GROUP BY Month_Name, Month_Number
ORDER BY Month_Number;

```

Results Messages

Month_Name	Total_Products
January	2
February	2
August	1
November	2
December	1

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\dell (53) BankDB 00:00:00 5 rows

Ready Ln 46 Col 1 Ch 1 INS

Properties Current connection parameters

Aggregate Status Connection fail Elapsed time 00:00:00.025 Finish time 5/17/2024 7:01:32 Name DESKTOP-KAFQ Rows returned 5 Start time 5/17/2024 7:01:32 State Open

Connection Connection na DESKTOP-KAFQ Connection details Connection id: 000000000025 Name The name of the connection.

Queries Screenshot For Payment Fact

Fact4_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (64)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

BankDB

Object Explorer

```

--Total Payment Amount for Each Month in a Specific Year (e.g., 2003):
SELECT Month_Name, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
WHERE Year_Number = 2003
GROUP BY Month_Name, Month_Number
ORDER BY Month_Number;

```

Results Messages

Month_Name	Total_Payment_Amount
February	2317
March	2073
June	2467
July	8807
September	1772
October	5892
December	5585

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\dell (64)

Ready Ln 47 Col 1 Ch 1 INS

Screenshot copied to clipboard and saved Select here to mark up and share.

Fact4_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (64)) - Microsoft SQL Server Management Studio

-- Total Payment Amount by Year:

```
SELECT Year_Number, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
GROUP BY Year_Number
ORDER BY Year_Number;
```

-- in power bi

--Average Payment Amount by Payment Method:

```
SELECT Payment_method, AVG(Payment_amount) AS Average_Payment_Amount
FROM DWH.Fact_Payment
```

Results

Year_Number	Total_Payment_Amount
1	2000
2	62300
3	30333
4	28913
5	35553
6	13966
7	37029
8	80189
9	20500
10	33992
11	53163
12	23699
13	27806
14	41075
15	37759
16	31547
17	86023

Messages

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) | DESKTOP-KAFQMC6\dell (64) | BankDB | 00:00:00 | 24 rows

Ready

Ln 1 Col 1 Ch 1 INS

Properties

Aggregate Status

Connection fail
Elapsed time 00:00:00.037
Finish time 5/17/2024 7:05:42 AM
Name DESKTOP-KAFQ
Rows returned 24
Start time 5/17/2024 7:05:42 AM
State Open

Connection

Connection na DESKTOP-KAFQ

Connection Details

Connection id: 000000000037
Name The name of the connection.

Fact4_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\dell (64)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

-- GROUP BY Year_Number
-- ORDER BY Year_Number;

-- in power bi

--Average Payment Amount by Payment Method:

```
SELECT Payment_method, AVG(Payment_amount) AS Average_Payment_Amount
FROM DWH.Fact_Payment
GROUP BY Payment_method
ORDER BY Average_Payment_Amount DESC;
```

Results

Payment_method	Average_Payment_Amount
Credit card	5177.38888888889
Cash	4897.37142857143
Cheque	4891.32432432432
Online transfer	4089.25
Debit card	3950.92307692308

Messages

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) | DESKTOP-KAFQMC6\dell (64)

Ready

Ln 7 Col 1 Ch 1 INS

Properties

Current connection parameters

Aggregate Status

Connection fail
Elapsed time 00:00:00.037
Finish time 5/17/2024 7:05:42 AM
Name DESKTOP-KAFQ
Rows returned 24
Start time 5/17/2024 7:05:42 AM
State Open

Connection

Connection na DESKTOP-KAFQ

Connection Details

Connection id: 000000000037
Name The name of the connection.

Snipping Tool

Screenshot copied to clipboard and saved
Select here to mark up and share.

--Total Payment Amount by Branch and Month:

```
SELECT branch_name, Month_Name, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
GROUP BY branch_name, Month_Name, Month_Number
ORDER BY branch_name, Month_Number;
```

--Number of Payments by Quarter and Year:

```
SELECT Year_Number, Quarter_Number, COUNT(Payment_ID) AS Number_Of_Payments
FROM DWH.Fact_Payment
```

branch_name	Month_Name	Total_Payment_Amount
Abbott-Kasulke	May	7703
Bashirian-Steuber	April	638
Baumbach, Heaney and Nader	July	2470
Baumbach, Kris and Ebert	July	1226
Beahan and Sons	September	4844
Beahan, Hyatt and Donnelly	December	5270
Beier-Welch	March	9942
Beier-Welch	April	4345
Beier-Welch	December	6187
Bergnaum and Sons	October	6618
Bernier Inc	January	969
Blick, Bosco and Anderson	August	6789
Blick-Tremblay	October	213
Boyle-Nitsche	March	140
Boyle-Nitsche	June	9181
Braun, Miller and Kautzer	April	2283
Douglas, Miller and Kautzer	July	??

Query executed successfully.

--Number of Payments by Quarter and Year:

```
SELECT Year_Number, Quarter_Number, COUNT(Payment_ID) AS Number_Of_Payments
FROM DWH.Fact_Payment
GROUP BY Year_Number, Quarter_Number
ORDER BY Year_Number, Quarter_Number;
```

--Total Payment Amount by Location and Year:

```
SELECT Location, Year_Number, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
```

Year_Number	Quarter_Number	Number_Of_Payments
2000	2	1
2000	4	1
2001	1	4
2001	2	4
2001	3	1
2001	4	4
2002	1	3
2002	2	1
2002	3	4
2002	4	1
2003	1	2
2003	2	1
2003	3	2
2003	4	3
2004	1	4
2004	2	2
2004	3	2

Query executed successfully.

--Total Payment Amount by Location and Year:

```
SELECT Location, Year_Number, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
GROUP BY Location, Year_Number
ORDER BY Location, Year_Number;
```

--in power bi

--Top 5 Branches by Total Payment Amount:

Location	Year_Number	Total_Payment_Amount
0 Independence Terrace	2007	5880
0 Lotherville Crossing	2012	6806
0 Lotherville Crossing	2014	6470
0012 Carey Junction	2015	606
010 Prentice Junction	2019	2278
0164 Hoffman Place	2001	4715
0239 Lottgordon Crossing	2007	6281
0239 Lottgordon Crossing	2009	5363
0249 Miller Way	2001	781
0261 Redwing Plaza	2022	1965
03 McBride Alley	2013	9330
04 Cottonwood Plaza	2009	4521
04 Schlimm Plaza	2014	6238
066 Luster Alley	2005	2071
066 Mallory Plaza	2022	5804
0746 Alpine Terrace	2010	7201
076 Ahern Street	2002	1525

Query executed successfully.

--in power bi

--Top 5 Branches by Total Payment Amount:

```
SELECT top 5 branch_name, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
GROUP BY branch_name
ORDER BY Total_Payment_Amount DESC;
```

--in power bi

branch_name	Total_Payment_Amount
Larkin and Sons	20628
Beier-Welch	20474
Hoppe and Sons	18521
Kunze, Koch and Schaefer	17061
Hermann-Schmitt	14996

Query executed successfully.

Fact4_analytical queries.sql - DESKTOP-KAFQMC6.BankDB (DESKTOP-KAFQMC6\ dell (64)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

BankDB Execute

```

GROUP BY branch_name
ORDER BY Total_Payment_Amount DESC

--in power bi
--Total Payment Amount by Month Name:
SELECT Month_Name, SUM(Payment_amount) AS Total_Payment_Amount
FROM DWH.Fact_Payment
GROUP BY Month_Name, Month_Number
ORDER BY Month_Number;

```

Results

Month_Name	Total_Payment_Amount
January	100267
February	66882
March	41164
April	86999
May	82212
June	54908
July	80216
August	83041
September	42878
October	81301
November	65553
December	106013

Query executed successfully.

DESKTOP-KAFQMC6 (16.0 RTM) DESKTOP-KAFQMC6\ dell (64)

Ready

Snipping Tool

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5/17/2024 7:06 PM

Deploy Screenshot

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB Execute

SQLQuery2.sql - D:\KAFQMC6\dell (70)*

Object Explorer

Step	Task	Duration	Message
Succeeded	0.016 Load_DWH_STG.dtsx	Update Last Date	\Package1\Call Load_DWH_STG\PackageLoad_Treasury_Products\Update Last Date
Succeeded	0.281 Load_DWH_STG.dtsx	Load Withdrawal	\Package1\Call Load_DWH_STG\PackageLoad_Withdrawal
Succeeded	0.015 Load_DWH_STG.dtsx	Get Last Update Date	\Package1\Call Load_DWH_STG\PackageLoad_Withdrawal\GetLastUpdate Date
Succeeded	0.156 Load_DWH_STG.dtsx	Load DWH	\Package1\Call Load_DWH_STG\PackageLoad_Withdrawal\Load DWH
Succeeded	0.094 Load_DWH_STG.dtsx	Load STG	\Package1\Call Load_DWH_STG\PackageLoad_Withdrawal\Load STG
Succeeded	0.016 Load_DWH_STG.dtsx	Update Last Date	\Package1\Call Load_DWH_STG\PackageLoad_Withdrawal\Update Last Date
Succeeded	0.031 Load_DWH_STG.dtsx	Truncate All STG	\Package1\Call Load_DWH_STG\Package\Truncate All STG
Succeeded	0.031 Load_DWH_STG.dtsx	Truncate	\Package1\Call Load_DWH_STG\Package\Truncate All STG\Truncate
Succeeded	6.766 Load_Facts.dtsx	Package1	\Package1
Succeeded	6.015 Load_Facts.dtsx	Call Load DWH-STG	\Package1\Call Load_DWH_STG
Succeeded	0.719 Load_Facts.dtsx	Load Facts	\Package1\Load Facts
Succeeded	0.188 Load_Facts.dtsx	LoanFact	\Package1\Load Facts\LoanFact
Succeeded	0.187 Load_Facts.dtsx	paymentFact	\Package1\Load Facts\paymentFact

2/3 Use scroll wheel or PAGE UP & PAGE DOWN to move through pages.

Properties

SQLQuery2.sql File Properties

Misc

- (Name) SQLQuery2.sql
- Date created 5/17/2024 9:29 PM
- Date modified 5/17/2024 9:29 PM
- File path
- File size 0 bytes
- Read-only False

(Name) The name of the file.

Ready

9:35 PM 5/17/2024

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB Execute Object Explorer

SQL Server

Overview

on DESKTOP-KAFQMC6 at 5/17/2024 9:32:44 PM

This report provides an overview of the package tasks and parameters, including execution or validation information.

[View Messages](#)

[View Performance](#)

Execution Information

Operation ID	3
Package	DWH_Project\DWHPackage\Load_Facts.dtsx
Environment	-
Status	Succeeded
Machine	DESKTOP-KAFQMC6

Duration (sec) 8.208
Start Time 5/17/2024 9:30:40 PM
End Time 5/17/2024 9:30:49 PM
Caller DESKTOP-KAFQMC6\dell

Parameters Used

Name	Value	Data Type
CALLER_INFO		String
DUMP_EVENT_CODE	0	String
DUMP_ON_ERROR	False	Boolean
DUMP_ON_EVENT	False	Boolean
LOGGING_LEVEL	1	Int32
SYNCHRONIZED	False	Boolean

(Name) The name of the file.

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB Execute Object Explorer

SQL Server

Overview

on DESKTOP-KAFQMC6 at 5/17/2024 9:32:44 PM

This report provides an overview of the package tasks and parameters, including execution or validation information.

[View Messages](#)

[View Performance](#)

Execution Overview

Result	Duration (sec)	Package Name	Task Name	Execution Path
Succeeded	3.203	Load_DWH_STG.dtsx	Package	[Package1]Call Load_DWH_STG\Package
Succeeded	0.25	Load_DWH_STG.dtsx	Load Account	[Package1]Call Load_DWH_STG\Package\Load_Account
Succeeded	0.016	Load_DWH_STG.dtsx	Get Last Update Date	[Package1]Call Load_DWH_STG\Package\Load_Account\GetLastUpdateDate

Parameters Used

Name	Value	Data Type
LOGGING_LEVEL	1	Int32
SYNCHRONIZED	False	Boolean

Property Overrides

Property Path	Property Value

(Name) The name of the file.

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB

Execute

Object Explorer

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'Solution1' (0 projects)

Miscellaneous Files

SQLQuery2.sql

Properties

SQLQuery2.sql File Properties

Misc

- (Name) SQLQuery2.sql
- Date created 5/17/2024 9:29 PM
- Date modified 5/17/2024 9:29 PM
- File path
- File size 0 bytes
- Read-only False

(Name)
The name of the file.

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB

Execute

Object Explorer

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'Solution1' (0 projects)

Miscellaneous Files

SQLQuery2.sql

Properties

SQLQuery2.sql File Properties

Misc

- (Name) SQLQuery2.sql
- Date created 5/17/2024 9:29 PM
- Date modified 5/17/2024 9:29 PM
- File path
- File size 0 bytes
- Read-only False

(Name)
The name of the file.

Ready

9:34 PM
5/17/2024

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB

Execute

Object Explorer

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'Solution1' (0 projects)

Miscellaneous Files

SQLQuery2.sql

Properties

SQLQuery2.sql File Properties

Misc

- (Name) SQLQuery2.sql
- Date created 5/17/2024 9:29 PM
- Date modified 5/17/2024 9:29 PM
- File path
- File size 0 bytes
- Read-only False

(Name)
The name of the file.

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB

Execute

Object Explorer

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'Solution1' (0 projects)

Miscellaneous Files

SQLQuery2.sql

Properties

SQLQuery2.sql File Properties

Misc

- (Name) SQLQuery2.sql
- Date created 5/17/2024 9:29 PM
- Date modified 5/17/2024 9:29 PM
- File path
- File size 0 bytes
- Read-only False

(Name)
The name of the file.

Ready

9:34 PM
5/17/2024

Overview - 5/17/2024 9:32 PM - DESKTOP-KAFQMC6 - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB Execute

Overview - 5/17/.. DESKTOP-KAFQMC6 SQLQuery2.sql - D...KAFQMC6(dell) (70)* Object Explorer

Succeeded 0.266 Load_DWH_STG.dtsx Load Transfer [Package1]Call Load DWH_STG[Package]Load Transfer

Succeeded 0.016 Load_DWH_STG.dtsx GetLast Update Date [Package1]Call Load DWH_STG[Package]Load Transfer[GetLast Update Date]

Succeeded 0.14 Load_DWH_STG.dtsx Load DWH [Package1]Call Load DWH_STG[Package]Load Transfer[Load DWH]

Succeeded 0.094 Load_DWH_STG.dtsx Load STG [Package1]Call Load DWH_STG[Package]Load Transfer[Load STG]

Succeeded 0.016 Load_DWH_STG.dtsx Update Last Date [Package1]Call Load DWH_STG[Package]Load Transfer[Update Last Date]

Succeeded 0.297 Load_DWH_STG.dtsx Load Treasury_Products [Package1]Call Load DWH_STG[Package]Load Treasury_Products

Succeeded 0.015 Load_DWH_STG.dtsx GetLast Update Date [Package1]Call Load DWH_STG[Package]Load Treasury_Products[GetLast Update Date]

Succeeded 0.156 Load_DWH_STG.dtsx Load DWH [Package1]Call Load DWH_STG[Package]Load Treasury_Products[Load DWH]

Succeeded 0.11 Load_DWH_STG.dtsx Load STG [Package1]Call Load DWH_STG[Package]Load Treasury_Products[Load STG]

Succeeded 0.016 Load_DWH_STG.dtsx Update Last Date [Package1]Call Load DWH_STG[Package]Load Treasury_Products[Update Last Date]

Succeeded 0.281 Load_DWH_STG.dtsx Load Withdrawal [Package1]Call Load DWH_STG[Package]Load Withdrawal

Succeeded 0.015 Load_DWH_STG.dtsx GetLast Update Date [Package1]Call Load DWH_STG[Package]Load Withdrawal[GetLast Update Date]

Properties SQLQuery2.sql File Properties

Misc (Name) SQLQuery2.sql Date created 5/17/2024 9:29 PM Date modified 5/17/2024 9:29 PM File path File size 0 bytes Read-only False

(Name) The name of the file.

Ready

Search

9:35 PM 5/17/2024

Schedule Screenshot

Object Explorer - Microsoft SQL Server Management Studio (Administrator)

File Edit View Project Tools Window Help

BankDB Execute

Object Explorer

Connect

- DESKTOP-KAFQMC6 (SQL Server 16.0.1115.1 - DESKTOP-KAFQMC6(dell))
 - Databases
 - Security
 - Logins
 - Server Roles
 - Credentials
 - Cryptographic Providers
 - Audits
 - Server Audit Specifications
 - Server Objects
 - Replication
 - Always On High Availability
 - Management
 - Integration Services Catalogs
 - SSISDB
 - DWH_Project
 - Projects
 - Packages
 - Load_DWH_STG.dtsx
 - Load_Facts.dtsx
 - Environments
 - SQL Server Agent
 - Jobs
 - CDW_DESKTOP-KAFQMC6_DESKTOP-KAFQMC6_0
 - SSIS Server Maintenance Job
 - syspolicy_purge_history
 - DWH_project
 - Job Activity Monitor
 - Alerts
 - Operators
 - Proxies
 - Error Logs
 - XEvent Profiler

Start Jobs - DESKTOP-KAFQMC6

Action	Status	Message
Start Job 'DWH_project'	Success	
Execute job 'DWH_project'	Success	

Details:

Success 2 Total 2 Success

Properties Miscellaneous Files Project Properties

Misc (Name) Miscellaneous File

(Name) The name of the project.

Ready

10:12 PM 5/17/2024

Dashboard

