

AdventureWorks Data Engineering and Business Intelligence

Project Report

Creative Software

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Project Overview

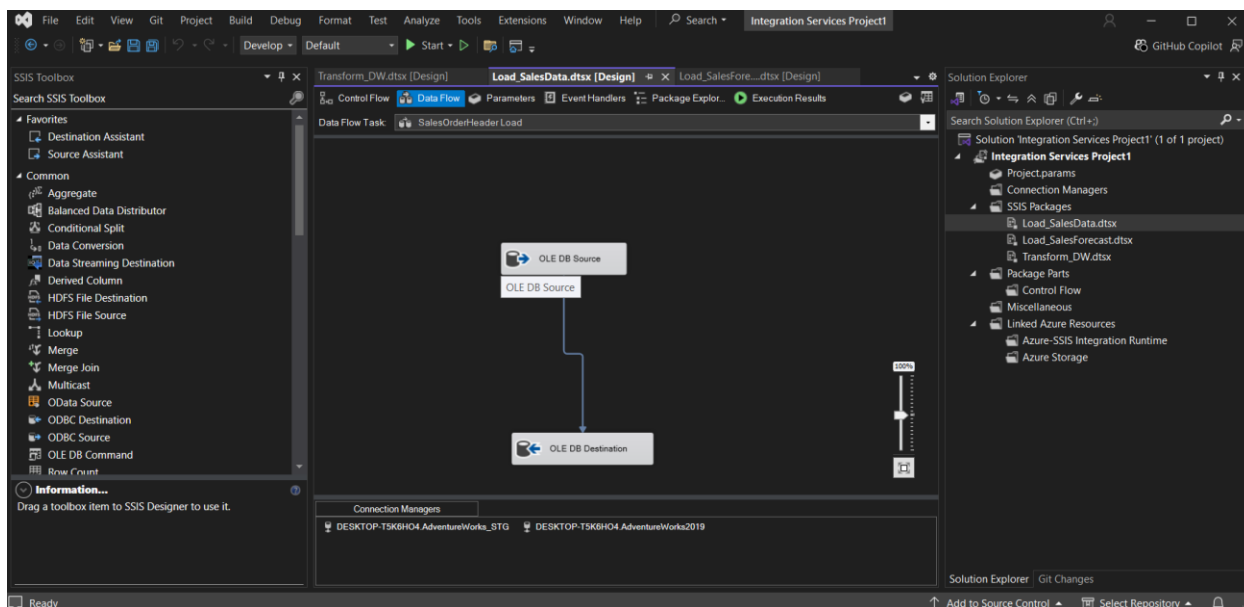
I designed and implemented an on-premises data warehouse solution for AdventureWorks using SQL Server 2019, SSIS, and SSAS. My work involved setting up the environment, developing ETL pipelines with SSIS to extract, transform, and load data from the OLTP database and flat files into a star schema data warehouse.

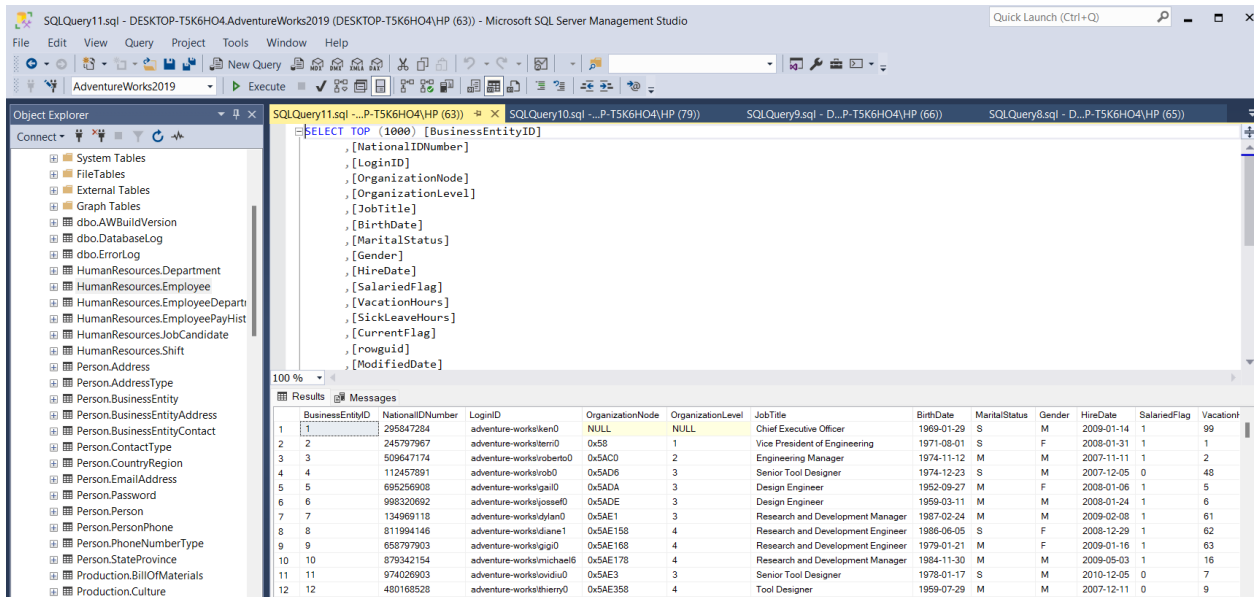
Data Sources

- AdventureWorks2019 Database
- Flat File - salesOrderforecast.csv

Environment Setup

- Installed and configured SQL Server 2019, SSIS, and SSAS.
- Restored the AdventureWorks2019 OLTP database.



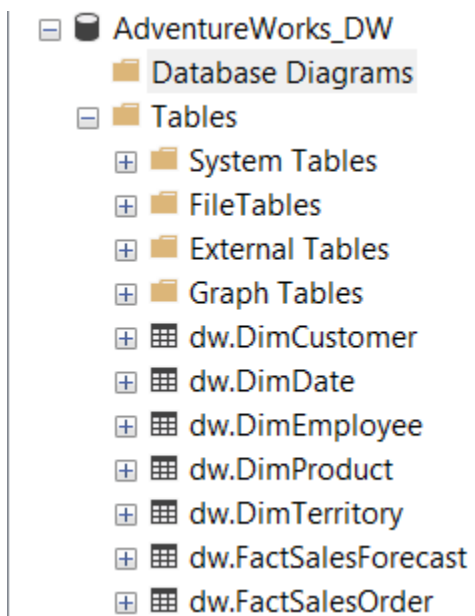


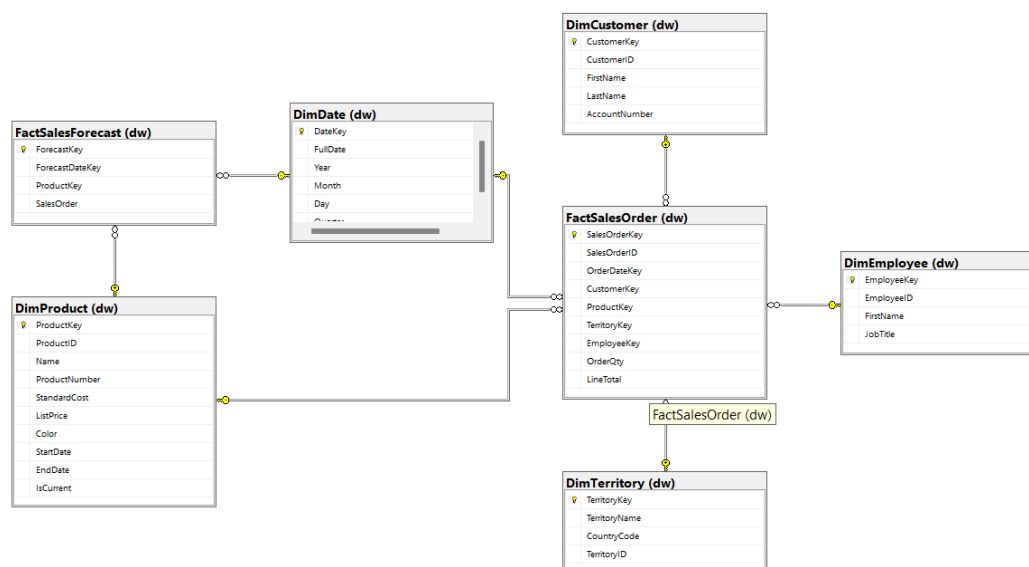
Staging Area

- Staging Tables Created:
 - Customer
 - Employee
 - Person
 - Product
 - SalesForecast
 - SalesOrderDetail
 - SalesOrderheader
 - Territory
- Views Created:
 - SalesForecastWithProduct
 - SalesOrder

4. Data Warehouse Design

- Fact Tables:
 - FactSalesForecast
 - FactSalesOrder
- Dimension Tables:
 - DimCustomer
 - DimDate
 - DimEmployee
 - DimProduct
 - DimTerritory





ETL Process (SSIS Packages)

- SSIS Package 1: Loaded data from AdventureWorks2019 source to staging database.
- SSIS Package 2: Loaded data from salesOrderforecast.csv to staging database.
- SSIS Package 3: Refreshed stored procedure to load data from staging tables to dimension tables.
- SSIS Package 4: Loaded data from staging tables to fact tables (data did not appear in SSMS).

Challenges Faced

- Data from staging tables did not appear in fact tables within SSMS despite successful package execution.

Future Work

Develop SSAS cubes for multi-dimensional analysis (not completed).

Design Power BI dashboards for data visualization and reporting (not completed)

Conclusion

The project successfully established a staging area, designed dimension and fact tables, and developed SSIS packages for ETL processes. However, further debugging is required to ensure data is loaded into fact tables, and future steps include building SSAS cubes and Power BI dashboards for comprehensive data analysis.

GitHub Repository

The project code and documentation are available at: [JanushiyaR/data-warehouse](https://github.com/JanushiyaR/data-warehouse)

Thank You!