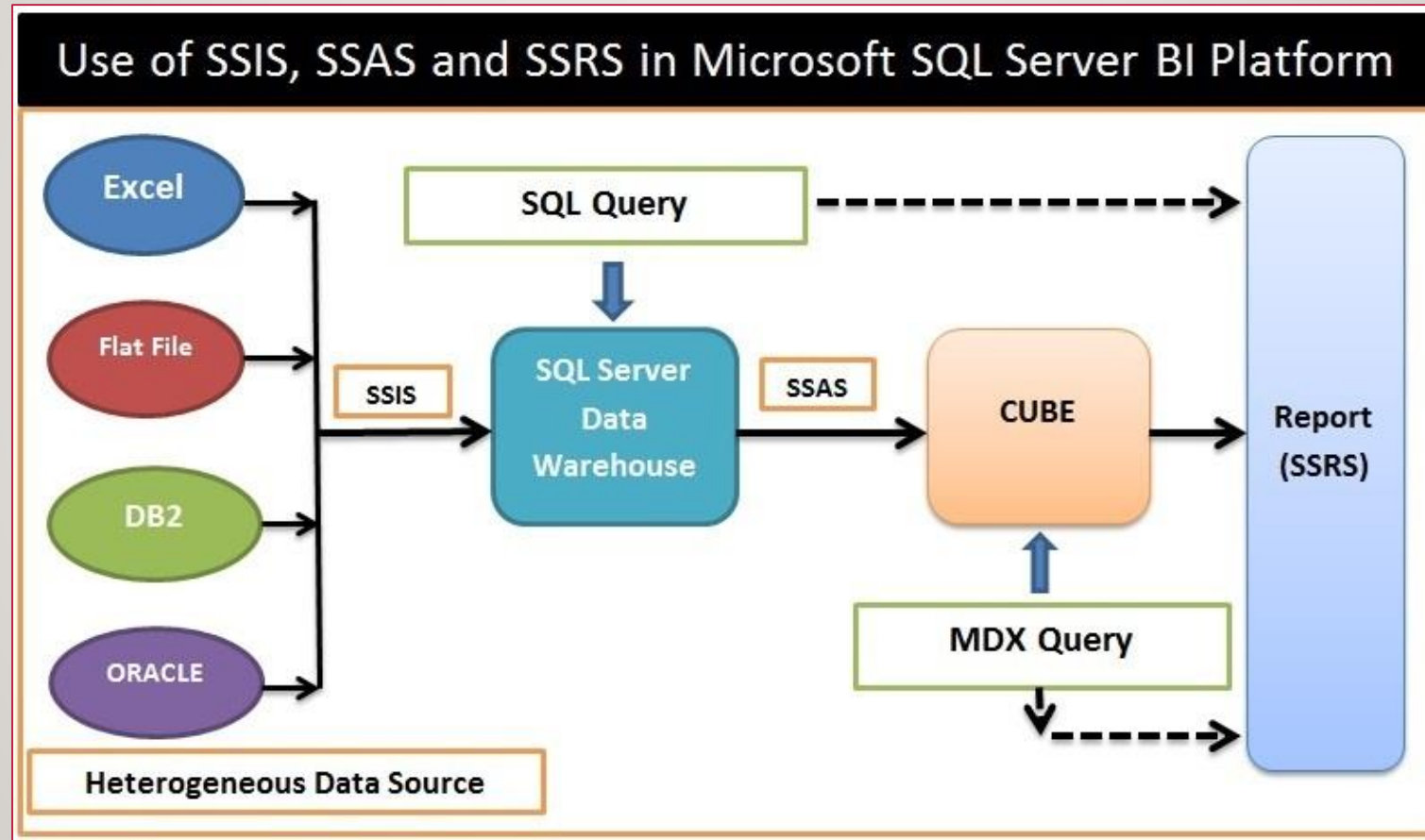


DM LAB 4

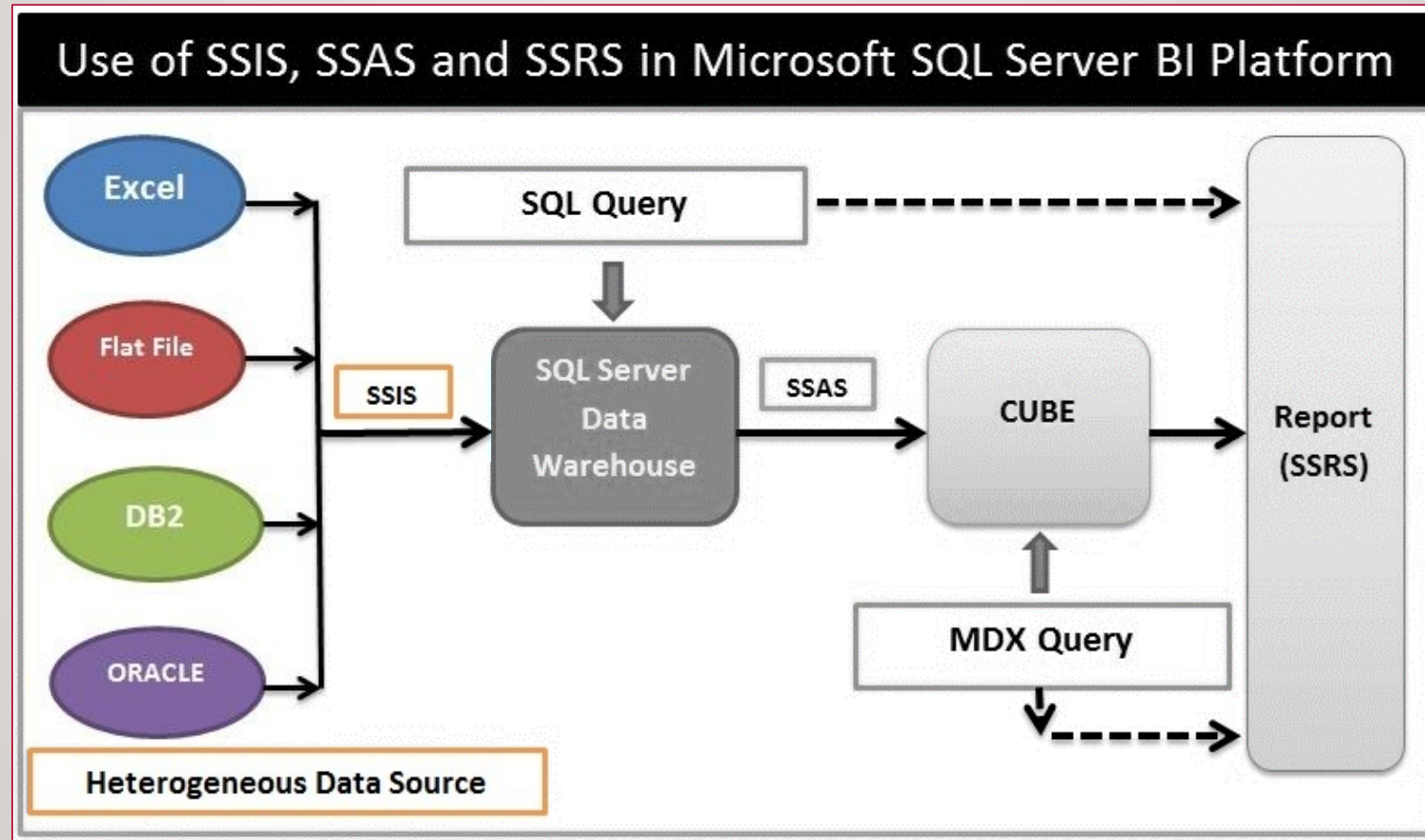
BY

ENG. JOUD KHATTAB

VISUAL STUDIO BUSINESS INTELLIGENCE SQL SERVER INTEGRATION SERVICES (SSIS)



3 VISUAL STUDIO BUSINESS INTELLIGENCE SQL SERVER INTEGRATION SERVICES (SSIS)



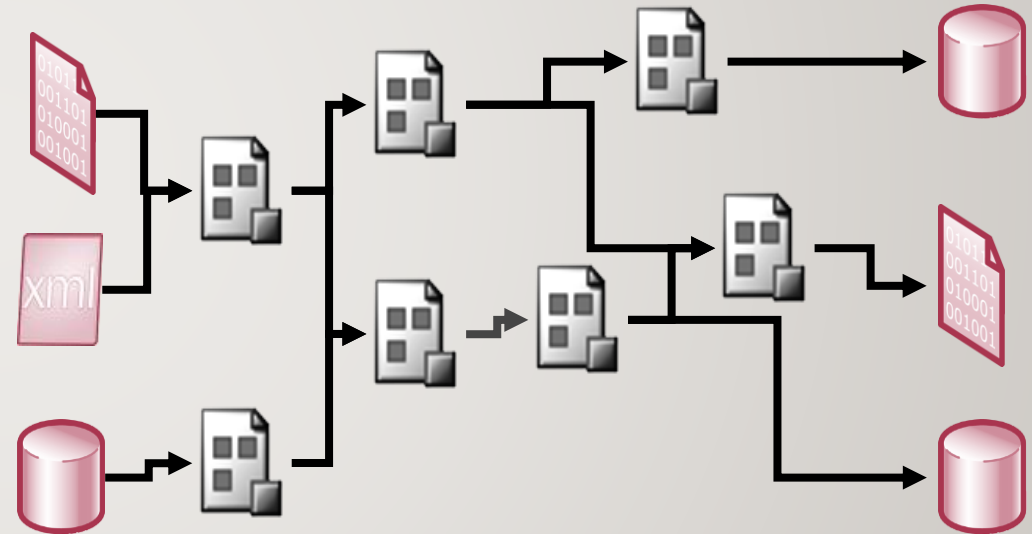
An excellent tool for performing data cleaning and transformation tasks

4 VISUAL STUDIO BUSINESS INTELLIGENCE SQL SERVER INTEGRATION SERVICES (SSIS)

- SQL Server Integration Services (SSIS) is a component of the Microsoft SQL Server database software.
- Tools to extract, transform, and load (ETL) data
 - Extract data from source databases or flat files
 - Transform data using SSIS components
 - Load data into destination tables or flat files

5 HOW SSIS OPERATES

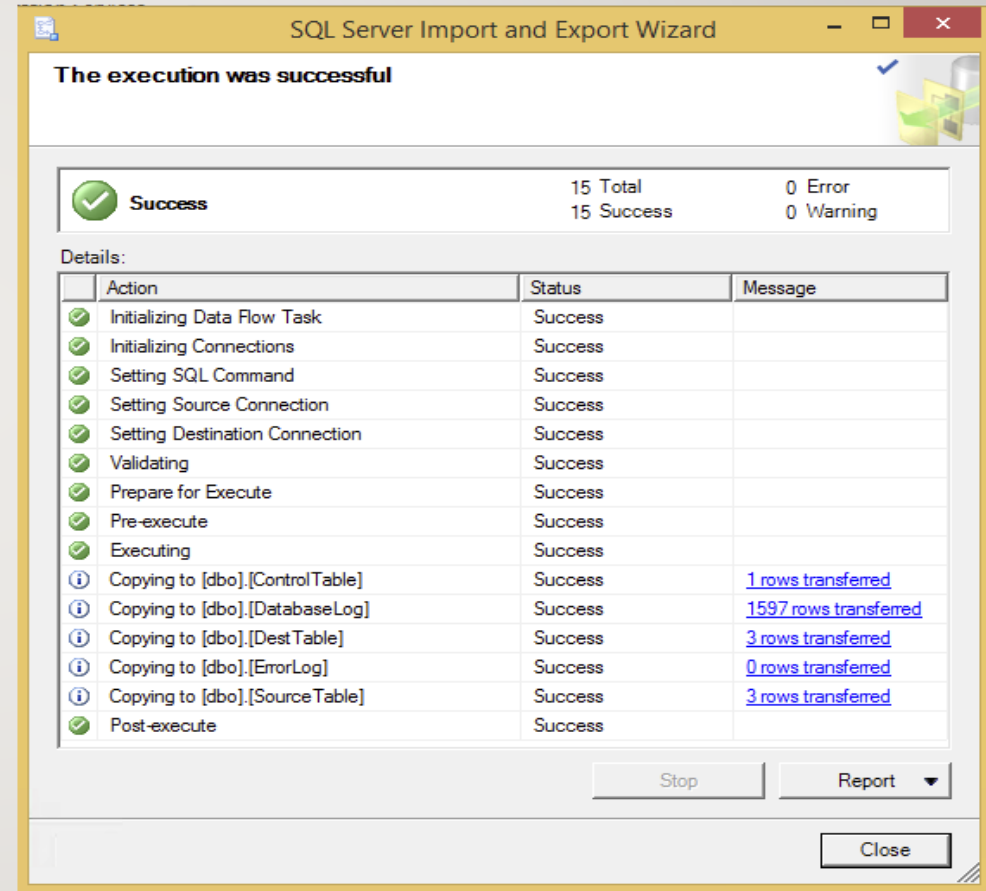
- Data sources can be diverse, including custom or scripted adapters
- Transformation components shape and modify data in many ways.
- Data is routed by rules or error conditions for cleansing and conforming.
- Flows can be as complex as your business rules, but highly concurrent.
- And finally data can be loaded in parallel to many varied destinations.



BUILDING YOUR FIRST PROJECT

7 IMPORT AND EXPORT WIZARD

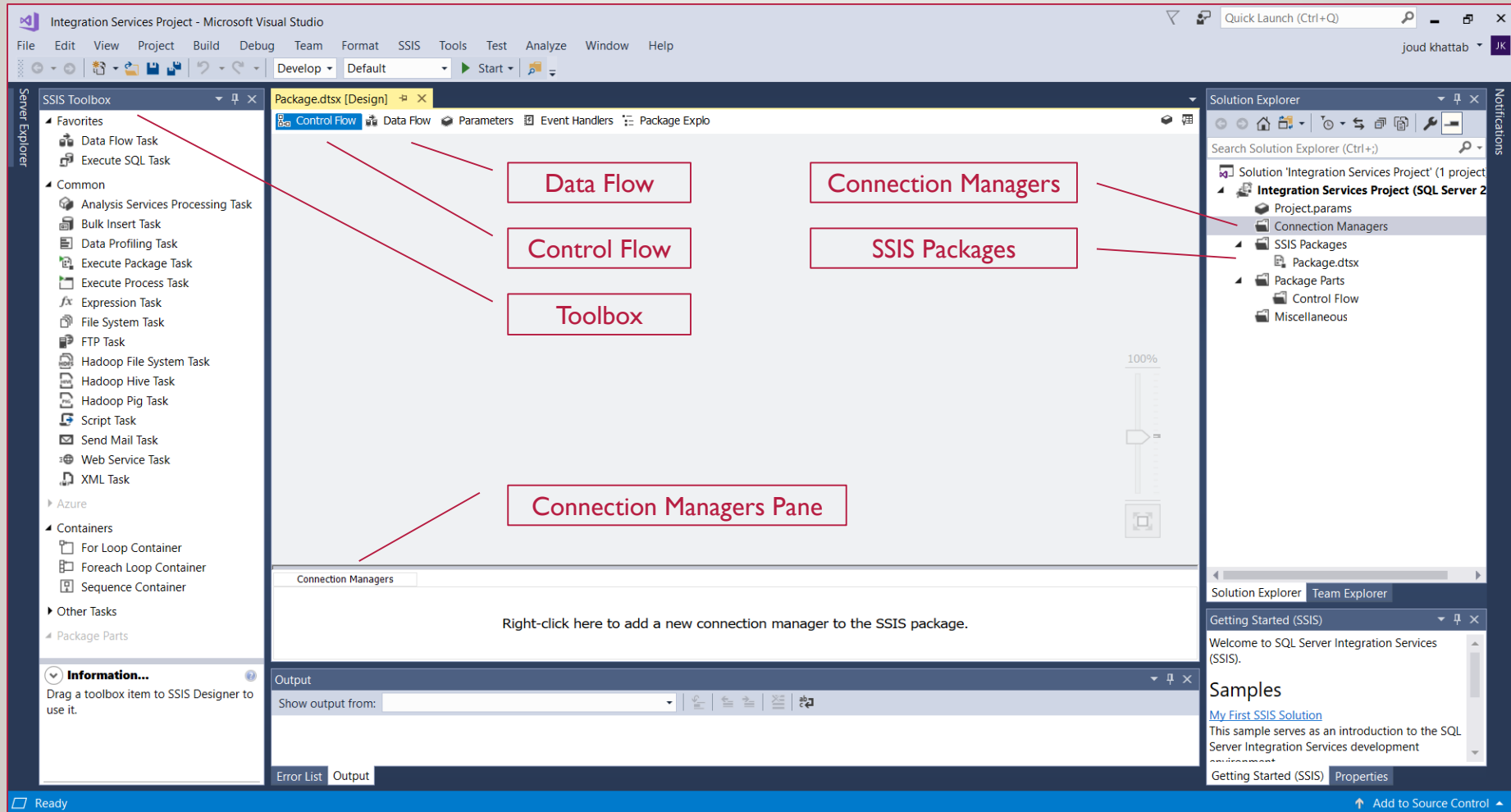
- If you need to move data quickly from almost any OLE DB-compliant data source or flat file to a
- destination, you can use the SSIS Import and Export Wizard.
- The wizard provides a quick way to move data and perform very light transformations of data but does not create packages that use best practices.
- You can find the wizard:
 - If you just need to perform a quick import or export, access the wizard directly from the Start menu by navigating to Start ⇨ Microsoft SQL Server → Import and Export Data.
 - The other option is to open a project in the SSIS and select Project → SSIS Import and Export Wizard.



8 SSIS PROJECT

- Open Visual Studio.
- File → new → project.
- Choose Business Intelligence Project type.
- Choose Integration Services → name the project → choose its location
- Press ok.

9 SSIS ARCHITECTURE



10 SSIS ARCHITECTURE

- SSIS Project
 - A versioned container for parameters and packages
 - A unit of deployment to an SSIS Catalog
- SSIS Package
 - A unit of task flow execution
 - A unit of deployment (package deployment model)

|| SSIS ARCHITECTURE

- Connection Manager

12 SSIS ARCHITECTURE

- Control Flow
 - It is the brain of package
 - Orchestrates the order of execution for all its components
 - Tasks
 - Individual units of work
 - Precedence constraints
 - Directs tasks to execute in a give order
 - Defines the workflow of SSIS package
 - Containers
 - Core units for grouping tasks together logically into units of work
 - Give us the ability to define variables and events within container scope

I3 SSIS ARCHITECTURE

- Data Flow
 - It is the heart of package
 - Provides the capability to implements ETL
 - Sources
 - A component which specify the location of the source data
 - Ex: OLE DB, Excel, Flat File, XML, ...
 - Transformation
 - Allow changes to the data within the data pipeline
 - Destinations
 - A component which specify the destination of the transformed data
 - Ex: OLE DB, Excel, Flat File, XML, ...

I 4 SSIS CONTROL FLOW TASKS



15 SSIS CONTROL FLOW TASKS

1. Script Task

- This task enables you to perform .NET-based scripting in the Visual Studio Tools for Applications programming environment.

2. Execute SQL Task

- Executes a SQL statement or stored procedure.

3. Data Flow Task

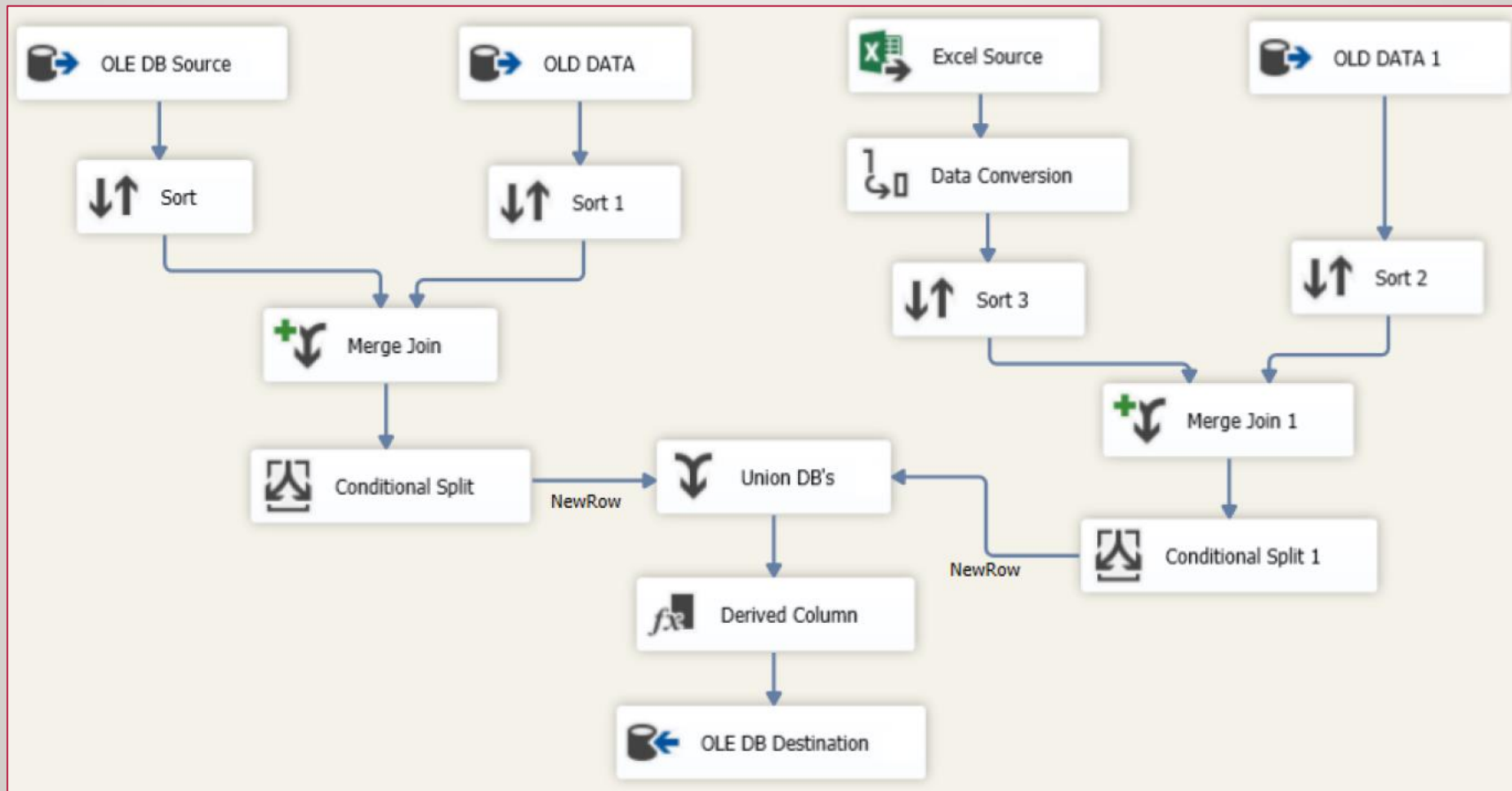
- This very specialized task loads and transforms data into an OLE DB and ADO.NET destination.

4. Containers

- Sequence Container: Allows you to group tasks into logical subject areas.
- For Loop Container: Loops through a series of tasks until a condition is met.

And many others ...

16 SSIS DATA FLOW TASKS



17 SSIS DATA FLOW TASKS

1. Aggregate

- Aggregates data from transformation or source.

2. Conditional Split

- Splits the data based on certain conditions being met.
- For example, this transformation could be instructed to send data down a different path if the State column is NULL.

3. Data Conversion

- Converts a column's data type to another data type.

18 SSIS DATA FLOW TASKS

4. Derived Column

- Creates a new derived column calculated from an expression.

5. Merge Join

- Merges two data sets into a single data set using a join function

6. Sort

- Sorts the data in the Data Flow by a given column.

7. Union All

- Merges multiple data sets into a single data set.

And many others ...

THE END
