

Module 6: Implementing Business Intelligence Solutions

Using Integration Services, Analysis Services and
Reporting Services

Module 6 Objectives



Understand the role of SQL Server in a BI architecture



Describe the purpose of Integration Services, Analysis Services and Reporting Services



Recognise how Excel and Power Pivot fit into the BI story



See how data is transformed into information for decision makers

Overview of the BI Architecture

- Source systems provide operational data (OLTP databases, files and services)
- Integration processes move and transform data into a warehouse
- Analytical models expose consistent measures and dimensions
- Reports and self-service tools deliver insights to business users

Integration Services (SSIS) in BI

- Extract data from multiple sources on a scheduled basis
- Transform and cleanse data before loading into the warehouse
- Load fact and dimension tables in the data warehouse
- SSIS packages can be automated using SQL Server Agent jobs

Analysis Services (SSAS) in BI

- Builds multidimensional cubes or tabular models on top of warehouse data
- Provides fast aggregation and exploration of large datasets
- Defines measures, hierarchies and KPIs for business analysis
- Models can be consumed by Excel, Power BI and other tools

Reporting Services (SSRS) in BI

- Creates paginated operational and analytical reports
- Supports parameters, drill-down and drill-through
- Delivers reports via web portals, email subscriptions or file shares
- Centralises report management, security and scheduling

Excel and Power Pivot in BI

- Excel connects to SQL Server, SSAS and other data sources
- Power Pivot adds in-memory data modelling and relationships
- Users can build their own PivotTables and charts on BI models
- Ideal for self-service BI scenarios with strong governance

From Data to Decisions

- Operational data is collected in source systems every day
- BI processes consolidate and clean the data into trusted models
- Reports and dashboards communicate trends and exceptions
- Decision makers act on information instead of raw data