

Data Reporting using Microsoft Power BI and Azure Synapse Analytics

Introduction:

This technical documentation provides a step-by-step guide on how to use Microsoft Power BI to create interactive dashboards and visuals for data reporting. The data source used in this example is Azure Synapse Analytics, a serverless SQL database. The document also covers setting up relationships in Power BI and briefly touches on Azure Active Directory for security and governance.

Step 1: Connect to Azure Synapse Analytics

Launch Microsoft Power BI Desktop.

Navigate to the "Home" tab.

Click on "Get Data."

Choose "Azure" from the available data sources.

Select "Azure Synapse Analytics" from the options.

Enter the server endpoint from your Synapse workspace properties.

Specify the database name (e.g., "gold_DB").

Choose the "Import" data connectivity mode.

Select the authentication method (e.g., Microsoft account).

Sign in with your Microsoft account credentials.

Verify your identity using two-factor authentication if required.

Click "Connect" to establish a connection to the database.

Step 2: Data Modeling and Relationships

After connecting to the database, go to the "Model" tab.

Review the automatically established relationships between tables, but ensure they are accurate.

To create a new relationship, click "Manage Relationships."

Use the "New" button to define a new relationship between tables.

Select the tables, columns, and cardinality for the relationship.

Set the cross-filter direction to "Both" for interactive filtering between visuals.

Click "OK" to establish the relationship.

Step 3: Creating Visuals and Reports

Navigate to the "Report" tab.

Choose the desired visualization type (e.g., card, chart, table) from the top right options.

Drag and drop relevant columns from the data tables to create visuals.

Apply necessary aggregations (e.g., counting, summing) to visualize data accurately.

Customize visuals, titles, and formatting as needed.

Create multiple visuals to build a comprehensive report.

Utilize the "Filter" visual to allow interactive filtering by selecting data points.

Step 4: Azure Active Directory (Optional)

Azure Active Directory (Azure AD) can be used for security and governance.

Create security groups in Azure AD to manage access to Power BI reports and data.

Assign appropriate permissions to security groups to control who can view or edit reports.

Ensure that data security and access control are configured according to your organization's requirements.

Conclusion:

This technical documentation has outlined the process of connecting Microsoft Power BI to Azure Synapse Analytics, creating interactive reports and visuals, establishing relationships, and optionally using Azure Active Directory for security and governance. With this knowledge, you can effectively create data reports and dashboards for your organization using Power BI and Azure services.