**Get started with Microsoft data analytics**

Businesses need data analysis. In this learning path, I will learn about the life and journey of a data analyst, the skills, tasks, and processes they go through in order to tell a story with data so trusted business decisions can be made. I will learn how the suite of Power BI tools and services are used by a data analyst to tell a compelling story through reports and dashboards, and the need for true BI in the enterprise.

# Roles in data

* Business analyst
* Data analyst
* Data engineer
* Data scientist
* Database administrator

# Tasks of a data analyst

* Prepare
* Model
* Visualize
* Analyze
* Manage

# Get started building with Power BI

In this module, I will:

* Learn how Power BI services and applications work together.
* Explore how Power BI can make your business more efficient.
* Learn how to create compelling visuals and reports.

**Microsoft Power BI** is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Whether your data is a simple Microsoft Excel workbook, or a collection of cloud-based and on-premises hybrid data warehouses, **Power BI** lets you easily connect to your data sources, visualize (or discover) what's important, and share that with anyone or everyone you want.

# Use Power BI

* Bring data into Power BI Desktop, and create a report.
* Publish to the Power BI service, where you can create new visualizations or build dashboards.
* Share dashboards with others, especially people who are on the go.
* View and interact with shared dashboards and reports in Power BI Mobile apps.

# Get data with Power BI Desktop

In this module, I will:

* Explore the data-centric features and tools of Power BI.
* Explore ways to find data.

# Explore Power BI Desktop

In this unit, I will:

* Launch the Power BI Desktop.
* Explore the UI.
* Create a visual.
* Publish a report.
* Pin a visual to a dashboard.

# Connect to data sources

# Power BI Desktop connects to many types of data sources, including local databases, worksheets, and data on cloud services.

In this unit, you will:

* Connect to data.
* Import data into Power BI Desktop.

# Transform data to include in a report with Power Query Editor tool.

# Combine data from multiple sources with Power Query Editor tool.

# Clean data to include in a report with Power Query Editor tool.

# Get data from relational data sources

# Use the **Get data** feature in Power BI Desktop and select the applicable option for your relational database. For this example, we select the **SQL Server** option.

# Next step is to enter our database server name and a database name in the **SQL Server database** window.

# After the database has been connected to Power BI Desktop, the **Navigator** window displays the data that is available in our data source (the SQL database in this example).

### **Import data by writing an SQL query :**

We can import data by writing an SQL query to specify only the tables and columns that we need.

### **Write an SQL statement :**

As previously mentioned, we can import data into our Power BI model by using an SQL query.

The SQL query starts with a **Select** statement, which allows you to choose the specific fields that you want to pull from the database. FROM specifies the name of the table that you want to pull the data from.

# Create dynamic reports with parameters

**Dynamic** reports are reports in which the data can be changed by a developer according to user specifications.

## **Create dynamic reports for individual values :**

To create a dynamic report, we first need to write our SQL query. Then use the **Get data** feature in Power BI Desktop to connect to the database.

## **Create dynamic reports for multiple values :**

To accommodate multiple values at a time, we first need to create a Microsoft Excel worksheet that has a table consisting of one column that contains the list of values. Next, use the **Get data** feature in Power BI Desktop to connect to the data in that Excel worksheet, and then follow the steps on the lesson.

# Get data from a NoSQL database

# Some organizations don't use a relational database but instead use a NoSQL database. A NoSQL database is a flexible type of database that doesn't use tables to store data.

### **Connect to a NoSQL database :**

In this scenario, we use the **Get data** feature in Power BI Desktop. However, this time we select the **More** option to connect to the type of database that we use.

### **Import a JSON file :**

If our data is stored in JSON format, it's often necessary to extract and normalize the data first. This is because JSON data is often stored in an unstructured format, which makes it difficult to analyze or report on directly.

# Fix performance issues

# Power BI provides the Performance Analyzer tool to help fix problems and streamline the process.

## **Optimize performance in Power Query**

The performance in Power Query depends on the performance at the data source level. The variety of data sources that Power Query offers is wide, and the performance tuning techniques for each source are equally wide.