

Power BI vs Python

Introduction to Python and Power BI

- Power BI : Business Intelligence and data Visualization Tool
 - Data Connectivity
 - Data Transformation and Modelling
 - Data Visualization
 - Interactive Dashboards
 - Natural Language Queries
 - Report Authoring
 - Cloud Service
 - Integration with Other Microsoft Tools
 - Security and Data Governance
 - Custom Development
 - Mobile Accessibility
 - Community and Marketplace

Introduction to Python and Power BI

- Python : General Purpose Programming Language
 - *Web Development* – Django, flask
 - *Data Analysis* – Pandas, Numpy, Scipy, Matplotlib
 - *Machine Learning and AI* – Sci-kit, TensorFlow & pyTorch
 - *Automation and Scripting*
 - *Scientific Computing* – Simulations, Visualizations, scientific computing
 - *Game Development* – Pygame
 - *Desktop Applications* – PyQt, TKinter
 - *Network Programming*
 - *IoT*

Data Analysis Activities

- Data Preparation & ETL(Extract, Transform & Load)
- Data Visualization
- Data Analysis & Exploration
- Integration with External Data Sources
- Customization & Automation
- Advanced Analytics & machine Learning
- Cost

Data Preparation & ETL(Extract, Transform & Load)

Power BI

Data Transformation:

- Power Query Editor
- Data Merging & joining
- Data Enrichment

Data Modelling

- Data Import
- Relationships
- DAX
- Hierarchies, Row-level security

Python

Pandas Library

- Data Handling – DF, Series etc.
- Data Import – CSV, Excel, SQL, JSON etc
- Data Transformation

ETL flexibility

- Integration with DBs,
- Web scraping – BeautifulSoup, Scrapy
- API Integration

Data Visualization

Power BI

User Friendly Interface
Interactive Dashboards
Variety of Visualization
Custom Visuals
Data Integrations
Data Slicers
Drill-through
Custom Calculations – DAX
Cross-filtering
Mobile responsiveness

Python

Matplotlib

creating static, publication-quality plots & charts.

Seaborn

Creates statistical visualizations

Plotly

Specializes in interactive and web-based visualizations.

Customization Integration

Data Analysis & Exploration

Power BI

DAX

Measures

Data Slicers & Filters

Advanced Aggregations

Custom Hierarchies

Quick Insights

Python

Pandas for Data Analysis

Numpy for Numerical Operations

Integration with statistical libraries - SciPy

Machine learning with Scikit-learn

Integration with External Data Sources

Power BI

Data Source Connectivity

Database

Files

Cloud Services

Web Services

On-premises Gateway

Scheduled Data Refresh

Data Transformation

Custom Connectors

Python

Fetching Data from APIs

Database Connectivity

Web Scraping

Data Processing & Transformation

Integration with Power BI

Automation

Advanced Analytics & machine Learning

Power BI

Power BI Integration with Python for ML

Python script visuals

Advanced Analytics & Predictive modelling

Custom machine Learning models

Python

Scikit-learn –

Wide range of algorithms

Model Evaluation

Pre-processing

Ensemble Methods

Integration

TensorFlow & Keras :

Deep Learning

Custom Modelling

Transfer Learning

Pandas & Numpy

Scipy & StatsModels

Cost

Power BI

Power BI Desktop - Free
Power BI Pro - \$9.99/month
Power BI Premium
Power BI Embedded
Power BI on-Premises

Python

Open-Source
Libraries
IDEs & Tools
Third-party Services

Summary

Power BI

Ease to Learn
Easy transition
Excel Integration
Data Modelling

Python

Programming Language
Libraries & Ecosystem
Advanced Topics

Summary

Power BI

Gentle Learning Curve

Python

Steeper Learning Curve

Power BI + Python