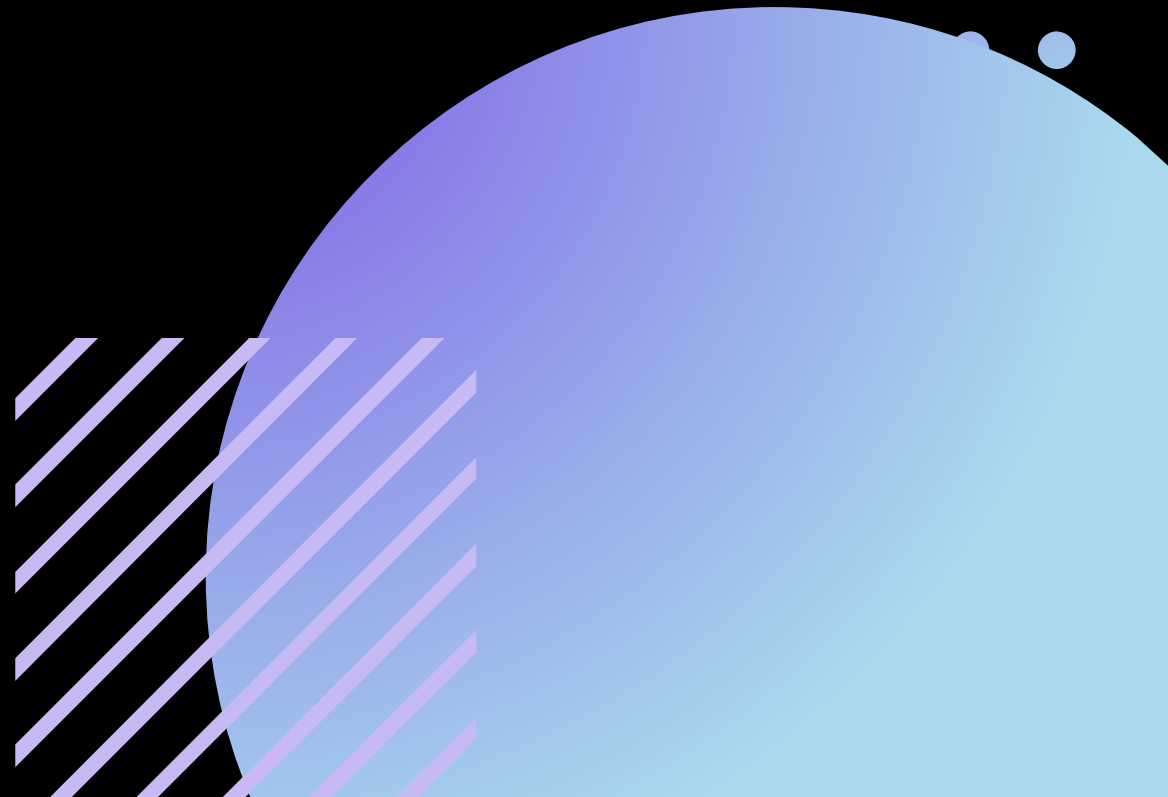
TECHNOLOGY

Power BI Paginated Reports



01

Introduction & Overview

Course Goals

Define Course Objectives

Mechanics & usage of Power BI Paginated Reports to create detailed reports providing business insights and user interactivity in a printable format

Expected Outcomes

Through hands-on, report creation proficiency, including data integration, report design, and consumable delivery

Paginated vs. Interactive vs. Analytical Reports

01

Paginated Reports

Power BI-based reports designed for printing or PDF generation using a fixed layout

- Fixed layout, deterministic pagination
- Best for operational documents, pixel-perfect exports, long tables

02

Interactive Reports

Reports that allow user engagement and real-time data manipulation within Power BI

- Visual exploration, cross-filtering, drill-downs
- Best for dashboards and ad-hoc analysis

03

Analytical Reports

Reports used for data exploration and for identifying business trends and gaining intelligence about operations, products, customers, etc.

- Semantic models, DAX/SQL workloads, data science outputs
- Best for curated datasets, metrics, and advanced analytics

02

Paginated Report Architecture

Report Definition Language (RDL) Builder Basics

01

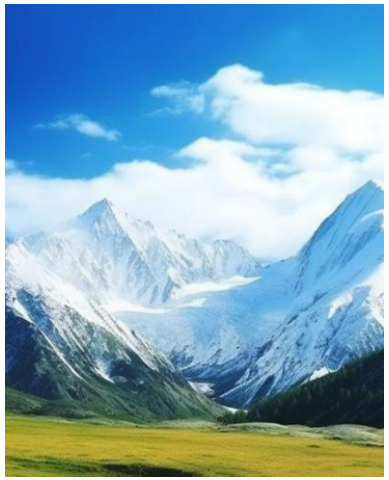
RDL Structure

- RDL provides an XML-based structure built out through graphical interaction with report builder
- Includes <Report> root with <DataSources>, <DataSets>, <ReportParameters>, <Body>, etc. elements in hierarchy

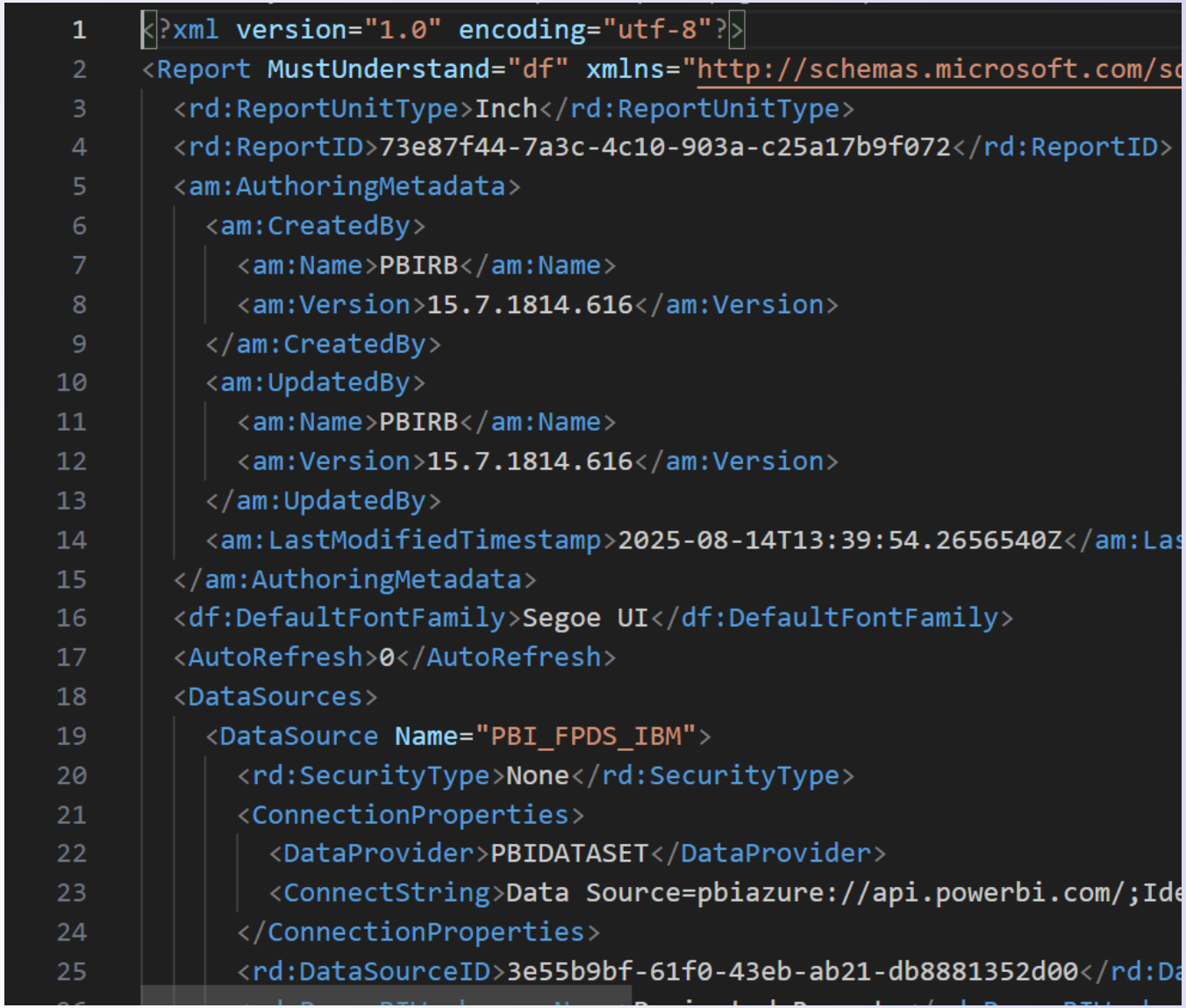
02

Building Reports

- Supports templating
- Various ways to display data for interaction and print: Tablix (tables), Charts, Subreports, Images, Matrices, Lists, etc.
- Supports coding (on different levels) for intelligent population, formatting, etc.



Report Definition Language (RDL) Builder Basics



Architecture Considerations

Infrastructure Requirements

Selected approach depends on operational environment and usage patterns for the reports – balance cost vs. ease of use/management and sophistication

Scalability

Depending on selected route (on-prem vs. in the Cloud), approach to scaling the system to meet spikes in demand (balanced against optimized cost) will be critical

Power BI Report Server vs. Service

Report Server

On-premises solution for managing and deploying reports, including paginated reports

Report Service

Cloud-based solution for distributing and accessing reports, including richer mechanism for sharing and collaboration through workspaces

Power BI Report Server vs. Service (Deployment)

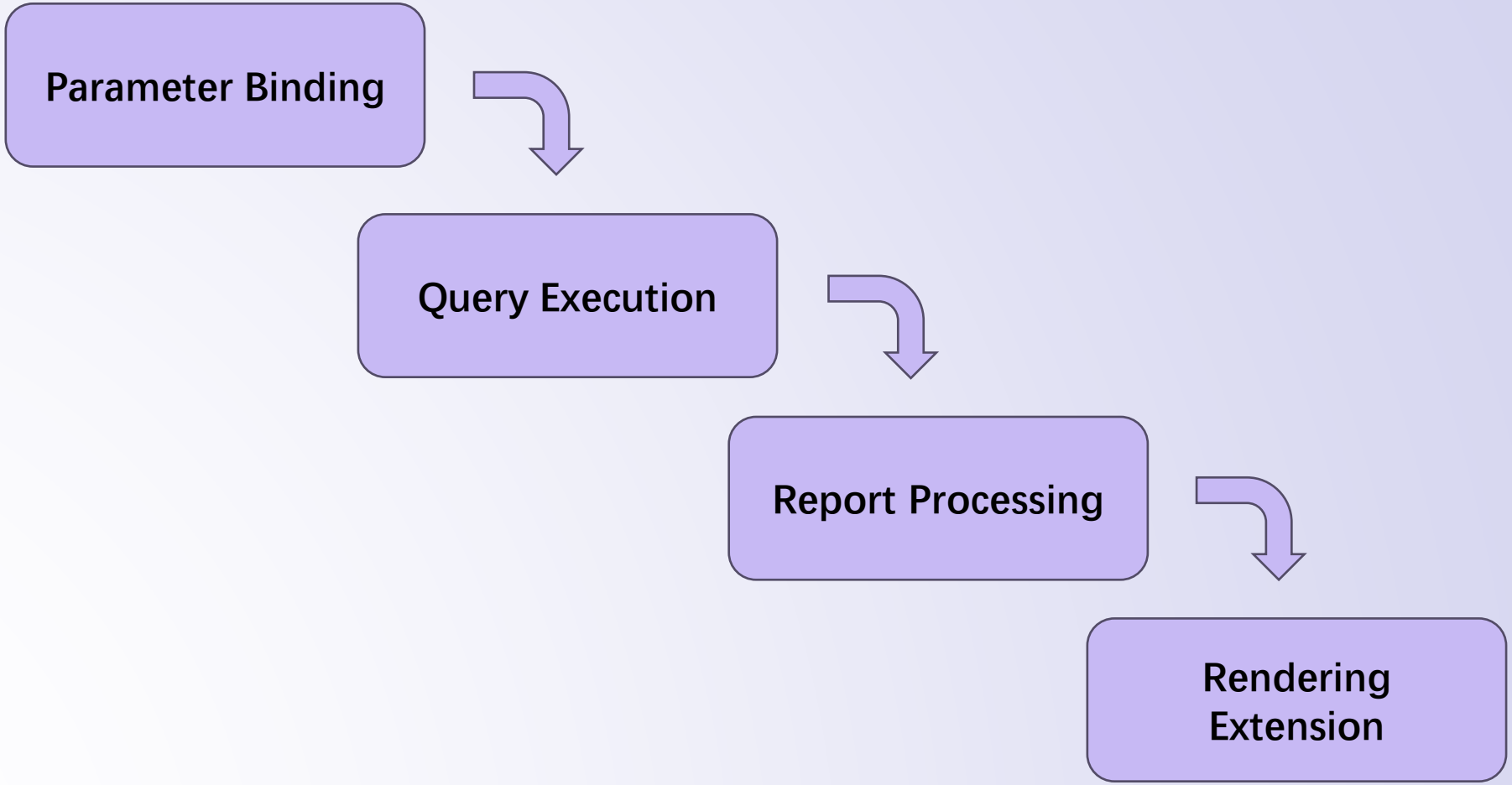
Report Server

- Native mode, data-driven subscriptions, and custom branding
- Windows/AD AuthN and role-based security

Report Service

- Cloud distribution, email subscriptions, embedding
- Connect to Power BI semantic models via DAX queries
- Capacity considerations for concurrency and rendering

Processing Pipeline



03

Data Connections and Datasets in a Paginated Report

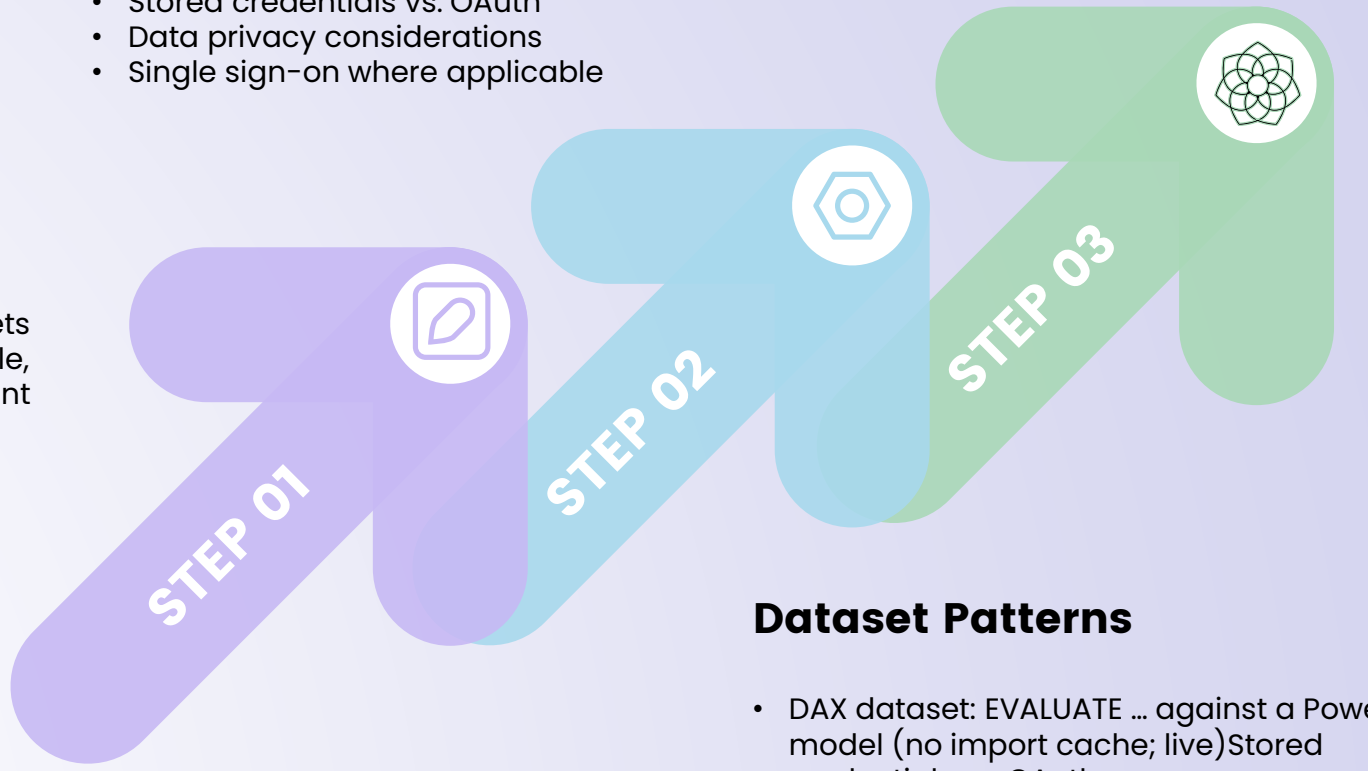
Overview, Considerations, and Mechanics

Connection Methods

- Can include on-prem gateways and cloud connections
- Stored credentials vs. OAuth
- Data privacy considerations
- Single sign-on where applicable

Data Sources

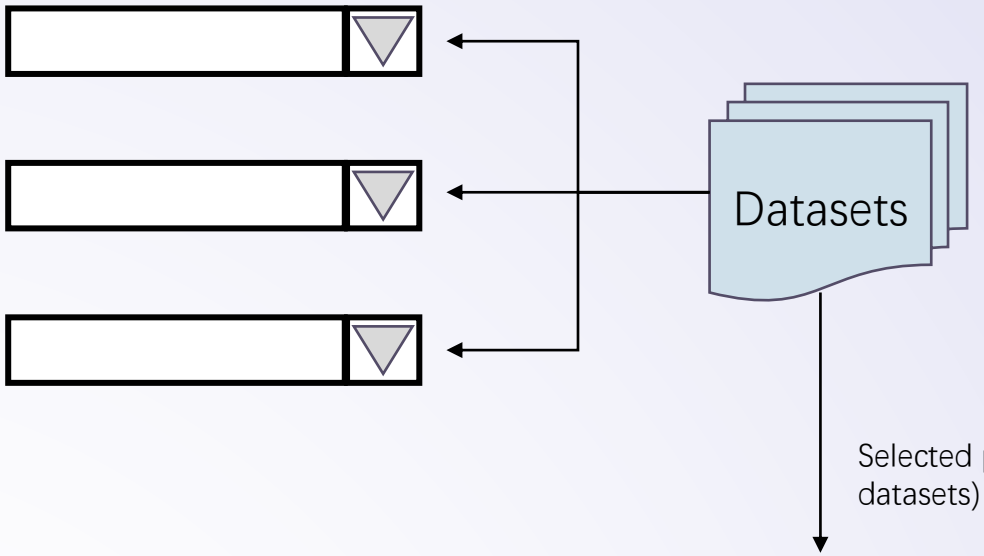
Common sources include Power BI datasets (DAX), SQL Server/Azure SQL (T-SQL), Oracle, SAP, OData, REST (via JSON/XML), SharePoint lists, etc.



Dataset Patterns

- DAX dataset: EVALUATE … against a Power BI model (no import cache; live)Stored credentials vs. OAuth
- Relational dataset: parameterized T-SQL
- Can use stored procedures for reuse and performance

Datasets as Parameters



Reference datasets can be used to source parameter options dynamically

Selected parameter values (sourced from datasets) can be used to filter displays

04

Designing Paginated Reports

Layout Design

Template Selection

Choose from a variety of templates to design the layout of paginated reports, ensuring consistency and professionalism

01

02

Custom Layouts

Can create custom layouts tailored to specific business needs and reporting requirements

Report Items and Properties

Adding Report Items

Add various report items such as tables, matrices, and charts to summarize and visualize data

01

Configuring Properties

Configure properties of report items (including dynamically via “code”) to enhance data representation and user experience

02

Formatting and Styling

01

Styling Techniques

Apply styling techniques to improve the visual appeal and readability of reports through colors, fonts, and borders

02

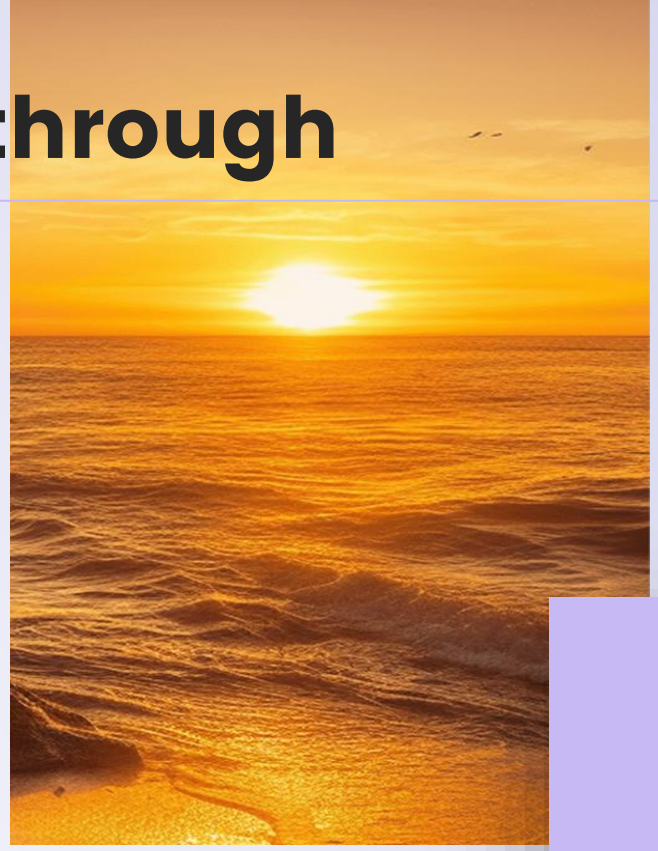
Conditional Formatting

Implement conditional formatting to highlight critical data points automatically based on specified criteria

05

Building for Interactivity

Understanding Drill-through



01.

Definition of Drill-through

Drill-through reports allow users to navigate from a summarized view to detailed data - this enhances data exploration and analysis

02.

Use Cases

Common use cases include sales reports where clicking on a region drills down to city-level data, or detailed financial reporting from aggregated figures

Implementing Drill-through

01

Steps for Setup

Setting up drill-through involves configuring filters and linking the summarized data to related details

02

Best Practices

Ensure clear call-to-action and intuitive navigation paths to improve user experience when using drill-through functionality

Document Maps

01

What Are Document Maps?

Document maps provide a navigable structure in paginated reports, making it easier for users to locate sections and understand report flow

02

Benefits

They enhance report usability by allowing quick access to different report sections, especially in large and complex reports

Bookmarks

Purpose of Bookmarks

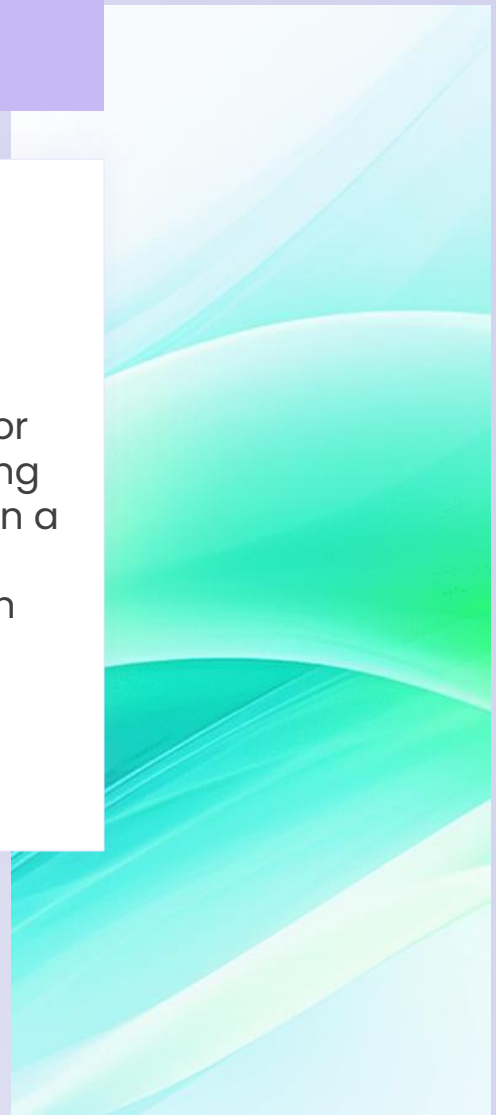
Bookmarks save report states or views, enabling users to jump back to specific parts of the report seamlessly

Creating Bookmarks

Creating bookmarks in the report involves selecting the desired report view and saving it, which can be accessed via a click (or action) later

Use Cases

Bookmarks are useful for presentations or revisiting specific analysis stages in a report, providing a streamlined navigation experience



Basics of Toggle Visibility

What is Toggle Visibility?

This feature allows users to show or hide report elements dynamically, improving user control over the report content's visibility

Benefits for Users

Toggle visibility enhances user interactivity by reducing clutter and focusing attention on relevant data sections

Configuring Toggle Visibility

01

Steps to Implement

Configuration involves setting up condition-based visibility rules for report items within the report, allowing for dynamic content display

02

Best Practices

Use toggle visibility judiciously to avoid overwhelming users; maintain a balance between visible and hidden elements based on user needs

Introduction to Parameters

01

What are Parameters?

Parameters allow users to input values that dynamically control report data, enhancing the customization of report views and insights

02

Benefits of Using Parameters

Parameters enable personalized data exploration, allowing for filtering, sorting, and viewing data based on specific user selections

Setting Up Parameters

Steps for Configuration

Configuring parameters involves defining parameter fields, setting default values, and linking them with report datasets for dynamic interactions

Use Cases

Common use cases include generating reports based on date ranges, geographical filters, or specific product selections to tailor insights

Designing User-Friendly Reports

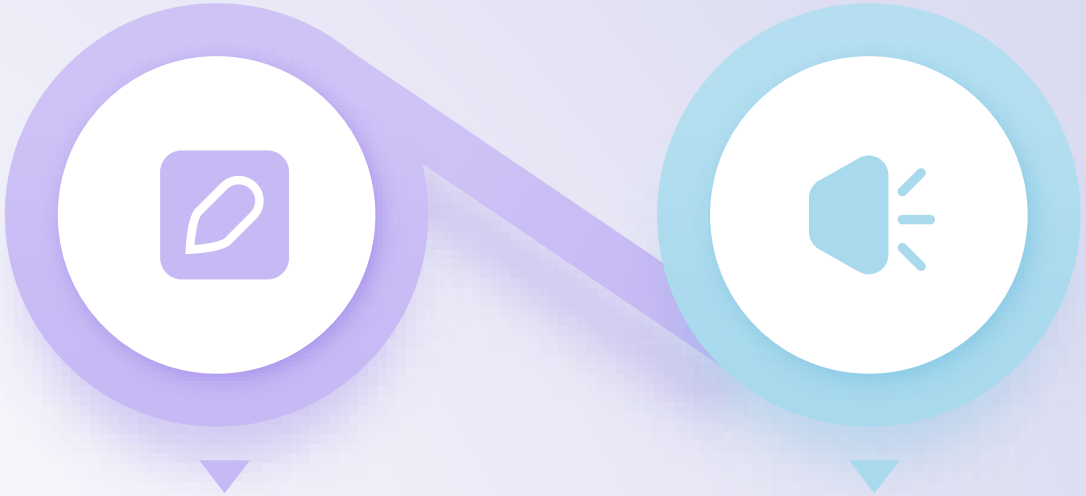
Importance of User-Friendly Design

Effective design enhances report navigation and comprehension, facilitating better decision-making and user experience

Tips for Design

Use consistent layouts, clear labels, and logical data groupings to improve readability and accessibility of reports

Utilizing Interactive Features



Interactive Elements

Incorporate features such as tooltips, interactivity links, and visual cues to make reports more engaging and informational for users

Ensuring Performance

Regularly test interactive features to ensure they do not negatively impact report performance, maintaining a smooth user experience

Ensuring Data Accuracy

Importance of Accuracy

Accurate data is crucial for reliable insights and decision-making, ensuring that interactive features deliver meaningful and trustworthy information

Data Validation Techniques

Implement robust validation procedures, regular audits, and clear data entry protocols to maintain data integrity in reports

User Testing and Feedback

01

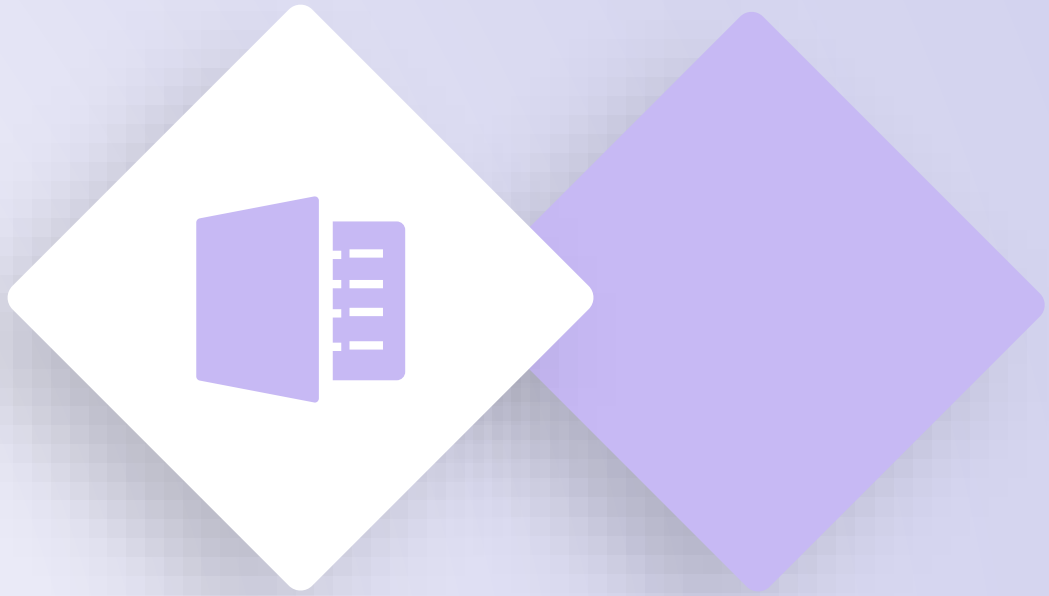
Conducting User Testing

Regular user testing helps identify usability issues and gather feedback, enabling iterative improvements to report design and functionality

02

Incorporating Feedback

Actively seek and incorporate user feedback to refine report features, ensuring that they meet user needs and preferences effectively



06

Exporting and Sharing Reports

Export Options (Among Others)

PDF Export

Export paginated reports to PDF format for easy distribution and printing

Excel Export

Export reports to Excel for further data analysis and manipulation – allows a report to expose data that can be manipulated and then used as a follow-up reporting source

Report Sharing Methods

01

Email Distribution

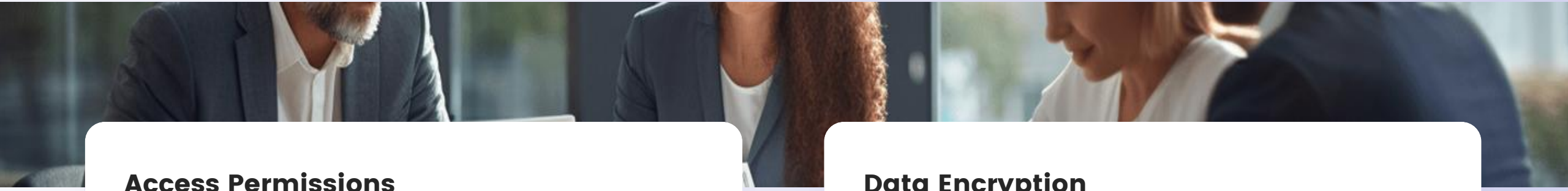
Reports can be distributed email directly from the Power BI Report Server or Service

02

Embedding Reports

Paginated reports can be embedded in applications or websites for wider accessibility – there's even a Paginated Report visualization in Power BI

Security Considerations



Access Permissions

Set access permissions to control who can view and interact with reports, ensuring data security

Data Encryption

Implement data encryption practices to protect sensitive information within paginated reports

07

Performance Optimization

Report Rendering

01

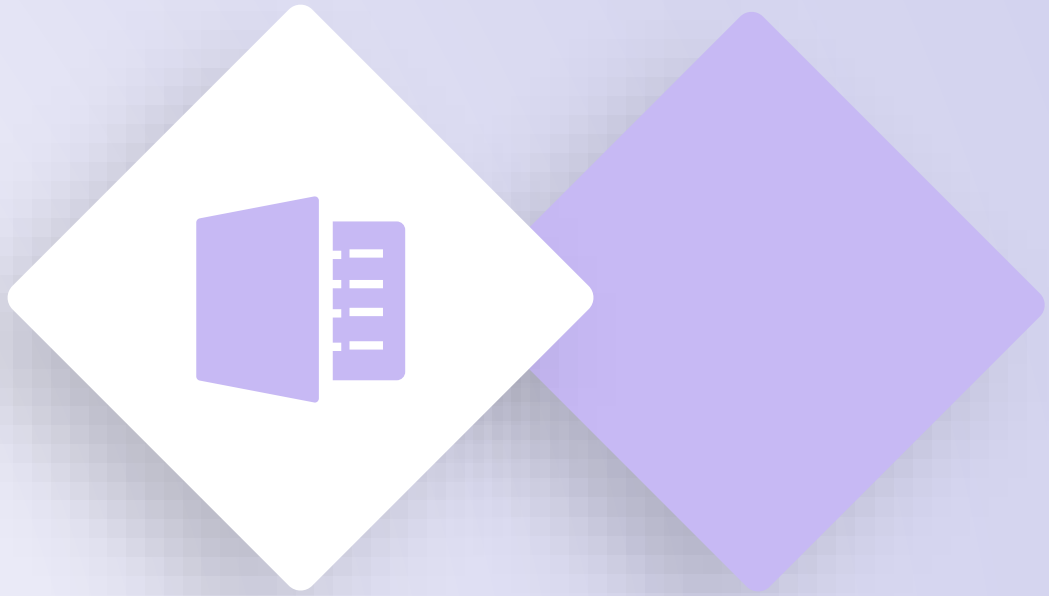
Rendering Time

Analyze factors affecting the rendering time of reports and techniques to optimize performance

02

Resource Utilization

Optimize resource utilization to balance load and improve the efficiency of report generation



Query Performance

Efficient Queries

Write efficient queries to minimize data retrieval time and enhance overall report performance

Query Optimization

Employ query optimization strategies to ensure quick and accurate data retrieval from various sources

Caching Strategies

Data Caching

Implement data caching techniques to reduce query load and improve report responsiveness

Caching Best Practices

Follow best practices in caching to maintain data accuracy while enhancing performance

08

Demo

Thanks

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