UNIT – 3 REPORTS

Introduction to the Reporting Application - Report Studio- Explore the Environment Explorer Bar and Report Templates- Generate the Report-Create List Reports - Group Data-Format List Column- Include List Headers and Footers-Focus Reports using Filters-Create Filters- Filter Your Data with Advanced Detail Filters-Create Crosstab Reports-Create a Crosstab Report

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Introduction to the Reporting Application – Report Studio

In today's data-driven business landscape, organizations depend heavily on timely, accurate, and well-presented reports to guide strategic decisions. IBM Cognos Report Studio is a powerful, web-based professional authoring tool designed to meet the complex reporting requirements of enterprises. It allows report authors to build sophisticated reports from relational and multidimensional data sources, with rich formatting, calculations, and interactive elements.

Report Studio is a component of IBM Cognos Analytics, targeted at professional report developers who require full control over the layout, logic, and data of reports. It supports a wide range of report types—from simple lists and cross-tabs to complex dashboards and financial reports.

What is Report Studio?

IBM Cognos Report Studio is an advanced reporting tool used to design and develop customized reports. It provides a flexible workspace where users can manipulate data sources, define layouts, apply styles, and generate outputs in multiple formats such as HTML, PDF, Excel, or XML.

Key Characteristics:

- Drag-and-drop report authoring.
- Dynamic prompts and filters.
- Integration with relational and OLAP data sources.
- Advanced formatting and styling.
- Drill-through capabilities for data exploration.
- Parameter-driven content generation.

Use Cases and Applications

Report Studio is widely used across industries for the following purposes:

Use Case Description

Financial Reporting - Monthly revenue, balance sheet, budget vs actual reports.

Operational Reports - Inventory tracking, production summaries, logistics dashboards.

Human Resources Reports - Employee performance, attendance, payroll reports. Sales and Marketing Reports - Regional sales, customer segmentation, lead tracking.

Executive Dashboards - Key performance indicators (KPIs), strategic overviews.

Role of a Report Author

A **Report Author** in IBM Cognos is typically responsible for:

- Accessing and analyzing available data packages.
- Designing the report layout and structure.
- Incorporating business logic such as filters, calculations, and prompts.
- Testing and validating the reports for accuracy.
- Publishing and distributing the final output to stakeholders.

Report Studio offers tools not just for building reports but also for integrating security, data validation, and performance tuning.

Architecture Overview

The Report Studio tool operates within the IBM Cognos Analytics framework, which includes: • **Content Store** – The repository where reports, models, and security profiles are stored. • **Report Server** – The engine responsible for generating reports.

- **Model Layer** – Created using Framework Manager, it defines metadata and query subjects used in reports.
- **Web Interface** – Accessible through the browser, providing intuitive controls to build and run reports.

This architecture ensures centralized data governance while offering flexibility in report design and deployment.

Types of Reports You Can Create in Report Studio

Report Studio supports a wide variety of report formats to meet different business needs:

1. List Reports

- A tabular representation of data.
- Useful for viewing detailed transactional data (e.g., customer lists, product catalogs).

2. Crosstab Reports

- Multi-dimensional reports showing aggregated data.
- Ideal for comparison across categories, such as quarterly sales by region and product.

3. Charts and Graphs

- Visual representation of data such as bar charts, pie charts, and line graphs.
- Suitable for dashboard views and executive presentations.

4. Repeater Reports

- Displays data in a repeating block format.
- Often used for labels, invoices, or forms.

5. Drill-through Reports

- Allows users to click on report elements to view more detailed data.
- Supports interactive exploration.

Express Authoring vs. Professional Authoring

Report Studio offers two modes:

✅ **Express Authoring**

- Simplified mode for new users.
- Limited customization and control.
- Ideal for quick reports or dashboards.

✅ **Professional Authoring**

- Full-featured environment for advanced users.
- Supports custom calculations, nested queries, conditional formatting.
- Used for enterprise-level reporting needs.

Benefits of Using Report Studio

Benefit Explanation
Custom Layout Control Precise positioning of charts, data, headers, and visuals.
Powerful Data Filtering Use static or dynamic filters to show only relevant data.
Conditional Formatting Highlight data using rules, colors, icons, and styles.
Interactive Elements Add hyperlinks, drill-throughs, and user prompts.

Benefit Explanation
Multi-format Output Generate reports in HTML, PDF, Excel, XML, or CSV formats.
Scheduling and Distribution Schedule reports to run automatically and send via email or saved locations.

Supported Output Formats

Reports created in Report Studio can be exported to various formats depending on the target audience:

- **HTML** – Web-based interactive reports.
- **PDF** – Print-ready reports with precise formatting.
- **Excel (XLSX)** – For data analysis and further spreadsheet processing.
- **CSV** – For data integration or downstream ETL processes.
- **XML** – Structured data export, useful for system integration.

Explore the Environment – Explorer Bar

The Report Studio workspace provides a structured and flexible interface for developing professional business reports. While the central pane is used to design and format reports, the surrounding toolbars and panels contain a variety of navigation and editing tools. Among these tools, the **Explorer Bar** plays a pivotal role in managing different aspects of a report's design and behaviour. It allows users to **switch between different design layers**, including layout, query logic, and conditional formatting.

What is the Explorer Bar?

The **Explorer Bar** in Report Studio is a vertical panel (typically located on the left side of the interface) that provides access to three major components of a report:

1. **Page Explorer**
2. **Query Explorer**
3. **Condition Explorer**

The Three Main Views of the Explorer Bar

1. Page Explorer

The **Page Explorer** is used to define and navigate through the visual structure of the report. It provides access to:

- Report Pages
- Prompt Pages
- Classes
- Variables

✅ **Key Functions:**

- Create new report pages and prompt pages.
- Organize the sequence of pages.
- Add headers, footers, and layout components.
- Define reusable styles and variables.

Example Use Case: If you're building a multi-page report with different sections (e.g., Overview, Sales Summary, Regional Breakdown), the Page Explorer helps manage these sections cleanly.

2. Query Explorer

The **Query Explorer** allows you to manage the **underlying data queries** that supply data to your report components.

✅ **Key Functions:**

- Create and modify queries independently from the report layout.
- Define query items, filters, and calculations.
- Manage multiple queries used in different parts of the report.
- Create reusable queries for multiple report components.

Example Use Case: You can define a query to fetch only the last three months of sales data, apply a filter for a specific region, and then use this query in multiple charts or tables. **3. Condition Explorer**

The **Condition Explorer** enables **conditional formatting and behavior** in a report. This is used to change the appearance or visibility of elements based on data values or user input. ✅

Key Functions:

- Apply conditional styles (like red fonts for negative values).
- Show or hide sections of a report based on parameters.
- Define complex logic using conditional variables.

Example Use Case: Highlight sales figures below target in red or hide sections of a report

unless the user selects a checkbox.

Using Each Explorer – Step-by-Step Guidance

Using Page Explorer – Step-by-Step

Step 1: Access Page Explorer

Open Report Studio, and look to the left sidebar for the **Explorer Bar**. Click on the **Page Explorer** tab to begin.

Step 2: Add Report Pages

- Right-click on the “Pages” folder.
- Select **Insert Page**.
- Name the page (e.g., "Monthly Overview").

Step 3: Add Prompt Pages (if needed)

Prompt Pages are used to create filters the user can interact with before viewing the report. • Right-click on “Prompt Pages”.

- Choose **Insert Prompt Page**.
- Drag and drop prompt controls like value prompts, text boxes, or date pickers.

Step 4: Manage Classes and Variables

- Define layout classes to maintain consistent formatting.
- Use **report variables** to control conditional formatting and logic.

Using Query Explorer – Step-by-Step

Step 1: Open Query Explorer

Click on the **Query Explorer** tab in the Explorer Bar.

Step 2: Create a New Query

- Right-click the "Queries" folder and select **Create Query**.
- Assign a name (e.g., “Q_Region_Sales”).

Step 3: Define Query Items

- Drag and drop data items (like Region, Product, Revenue) from the **Data Items Pane**. • You can rename or apply data formatting here.

Step 4: Add Filters and Calculations

- Click the **Filters** button to add query-level filters (e.g., Year = 2024).
- Use the **Calculated Item** feature to derive new fields.

Step 5: Reuse Queries Across Components

Apply this query to multiple report components like lists, charts, or prompts.

Using Condition Explorer – Step-by-Step

Step 1: Navigate to Condition Explorer

Click the **Condition Explorer** tab in the Explorer Bar.

Step 2: Create Conditional Variables

- Right-click the "Variables" folder and choose **Create Variable**.
- Define a Boolean or string variable using expression logic (e.g., [Revenue] < 10000).

Step 3: Apply Conditional Formatting

- Select a report object (e.g., text field, list row).
- In the **Properties Pane**, locate the **Style Variable** or **Render Variable**.
- Bind it to the variable created.

Step 4: Test Conditional Behavior

- Run the report with sample data or different parameter values to test the visual behavior.

Common Use Scenarios

✅ **Use Case 1: Monthly Sales Dashboard**
• **Page Explorer**: One main report page + prompt page for month/year input. • **Query Explorer**: Queries for sales totals, trends, and top products. • **Condition Explorer**: Apply red highlighting to low-performing regions.
✅ **Use Case 2: Employee Performance Report**
• **Page Explorer**: Summary page + detailed page per employee. • **Query Explorer**: Main query filtered by employee ID. • **Condition Explorer**: Conditional badge color based on performance rating.

Report Templates – Generate the Report

In Report Studio, a **template** refers to a predefined structure that acts as a starting point for your report. Templates include placeholder elements like tables, charts, crosstabs, and layouts that help users save time and maintain consistency.

Using a template is **not mandatory**, but it provides a foundation for formatting, positioning, and data arrangement—especially useful when building multiple reports for an enterprise with a unified look and feel.

Types of Report Templates

Template Name	Purpose
Blank Report	Starts with a clean slate. No predefined structure.
List	Displays data in a simple tabular format. Ideal for detailed records.
Crosstab	Useful for comparative data across dimensions.
Chart	Provides graphical views like bar, line, or pie charts.
Repeater	Displays data blocks for labels, invoices, or badges.
Dashboard Template	Prearranged layout with multiple sections for KPI display.

Creating a New Report Using a Template

Step 1: Launch Report Studio

- Open IBM Cognos.
- Navigate to **Authoring → Report Studio**.
- Select your package (data model) to work with.

Step 2: Choose a Template

- Once Report Studio opens, it prompts you to choose a **report type/template**. •

Options include: **Blank**, **List**, **Crosstab**, **Chart**, **Repeater**, and more.

Step 3: Add Data Items

- On the left side, expand the **Data Items Pane**.
- Drag and drop fields into the list (e.g., Customer Name, Country, Total Sales).

Step 4: Apply Layout Enhancements

Use the **Toolbox Pane** to:

- Add **Text items** for headings.
- Insert **Images** or **logos**.
- Adjust alignment, padding, and color using the **Properties Pane**.

Step 5: Save and Run the Report

- Click the **Run** icon and choose an output format (HTML, PDF, Excel).

• Save your report with a clear name and folder location for future access.

Advantages of Using Report Templates

Advantage	Explanation
Saves Time	ready-made layout instead of building from scratch. Promotes
	on Ensures consistency in layout, color scheme, and structure.
Reduces Errors	Pre-defined structure reduces design mistakes.
Easier for Collaboration	Teams can work on common templates for joint report authoring. Create and reuse templates across multiple reports or departments.
Reusable Assets	

Customizing Templates and Finalizing the Report

Customizing Layout Components

Once a template is selected, you can:

- **Add objects**: From the Toolbox pane, drag and drop items like text, images, charts, and blocks.
- **Rearrange sections**: Use drag-and-drop to reposition table columns or layout containers.
- **Merge cells**: Right-click on selected cells and choose *Merge* to create headings or grouped sections.
- **Use layout components** like horizontal/vertical boxes for alignment and space management.

Formatting Template Components

Text	Customizable Properties
	, size, color, alignment, borders, background. Tables / Lists Column
Charts	color alternation, borders, header visibility, sorting. Axis labels, color
Images	ata labels, legends, and chart titles. Size, alignment, URL source, alt text.

Using Placeholders and Report Expressions

Templates often include **placeholders** – predefined boxes or containers to insert data or components. You can replace these with:

- **Data items** (like Product Name or Revenue)
- **Calculated fields** using expressions (e.g., [Revenue] * 1.05)
- **Static text** like report titles or notes
- **Visual elements** such as company logos

Previewing and Exporting the Final Report

Run Options

Click **Run Report** and choose an output format:

PDF	t **Use Case**
Excel	For quick preview in
CSV	browser. For formal
	printable reports.
	For users who want to manipulate
	data. For importing into other
	systems/tools.

Create List Reports – Group Data

Introduction to List Reports

A **list report** in IBM Cognos Report Studio is one of the most frequently used report types. It displays **data in tabular form**—rows and columns, where each row represents a record and each column shows a data item.

List reports are ideal when you want to present **detailed transactional data** or **summarized views grouped by dimensions** like region, category, or product type.

Real-World Examples of List Reports:

Use Case	**List Report Content**
Sales Report	mer, Region, Product, Quantity, Revenue Student
	Report Student Name, Course, Grade, Attendance
Inventory Listing	me, Stock Quantity, Location, Supplier Ticket ID,
Customer Support Logs	Date, Issue Type, Resolution Time

Creating a Basic List Report

Step 1: Start Report Studio and Choose a Template

- Open Report Studio.
- Select the **List** template when prompted.
- Connect to your data package.

Step 2: Add Data Items

- From the **Insertable Objects Pane**, drag the **List** object onto the canvas.
- Then drag data items into the list. Example:
    - Country, Product Category, Revenue

The result is a flat list showing each record from the dataset.

Step 3: Run the Report

Click the **Run** icon (HTML) to preview the data. You'll see each row rendered as a distinct record.

Grouping Data in a List Report

Grouping is essential when you want to **organize data hierarchically**. For example, show **sales by country**, with each country's products listed underneath.

How to Group Data

1. Select the **column** you want to group by (e.g., Country).
2. Right-click and select **Create Section** or **Group**.
3. Report Studio creates a grouped structure and adjusts the layout accordingly. The grouped field now appears once per group, with its associated records listed below.

Difference Between "Group" and "Section"

Feature	**Group**
Grouping	Consolidates rows based

Layout Impact	selected column	group
	Keeps group heading inline with list	value Place
Use Case		sepa

	When subtotals and simp grouping are needed

Adding Summaries and Subtotals

Grouping becomes more powerful when combined with **aggregations**.

To Add Subtotals:

1. Select a **numeric column** (e.g., Revenue).
2. From the toolbar, choose **Aggregate Function → Total**.
3. The subtotal will appear at the end of each group.

You can choose functions like **Average**, **Minimum**, **Maximum**, or **Count**.

Example: Group by Country and Subtotal Revenue

Country		**Reven**
Product	Wid 1	**ue**
	Widg 8	**20,000**
Canad a	**Subtot al**	
	Widg 5	**12,500**
	Widg 7	
	Subtot al	

Sorting Grouped Data

You can sort data to improve readability and analysis.

Steps:

- Right-click the column → **Sort** → **Ascending** or **Descending**
- For grouped fields, sorting applies **within each group** unless otherwise specified.

Formatting Grouped List Reports

You can enhance grouped list reports with visual cues:

Feature	Purpose
	ow Colors Improves readability across long
Borders	rts. Visually separates groups or total rows.
Fonts & Styles	mphasize group headers or summary rows.

Feature	Purpose
Conditional Styling	Highlight totals over a certain threshold.

Use the **Properties Pane** or right-click context menu for formatting options.

Practical Example: Create a Sales Grouped List Report

Objective: Display sales revenue by country, grouped by region.

Steps:

1. Start a List Report.
2. Add fields: Region, Country, Product, Revenue.
3. Group by Region and Country.
4. Add a total to Revenue at the country and region level.
5. Format headers and subtotals.
6. Export the report to PDF.

The final report will show hierarchical data in an intuitive layout for decision-making.

Format List Column – Include List Headers and Footers

Formatting plays a vital role in report readability. By carefully formatting **columns, headers, and footers**, you ensure that users can **quickly interpret** and **navigate** large volumes of data. Whether you're preparing internal dashboards or formal business presentations, formatting transforms raw data into an effective story.

Formatting List Columns

Each column in a list report can be individually styled. Let’s explore the key formatting options available.

Selecting a Column

- Click directly on the column header or any cell in the column.

• The **Properties Pane** on the right side of Report Studio displays formatting options.

Common Column Formatting Features

Formatting I	Set typeface, size, bold, italics, underline.
Font	

Formatting Optior	Align text left, right, or center (useful for numeric values). Format dates, currencies, percentages (e.g., $#,###.00). Add or remove cell borders for clarity. Use shading to differentiate columns or highlight fields. Make important data stand out visually. Resize columns manually or set fixed width.
PurposeAlignment	
Data Format	
Borders	
Background	
Color Text	
Color	
Column Width	

To format a **specific column**, select the **Data Item** from the list and then edit its appearance from the Properties pane.

Advanced Styling Options

Conditional Formatting

You can highlight data dynamically based on value conditions.

Example: Highlight sales less than 5000 in red.

Steps:

1. Right-click on a column (e.g., Revenue).
2. Choose **Conditional Styles → New Style**.
3. Set condition: [Revenue] < 5000.
4. Define styling (e.g., red font, bold text).

This helps decision-makers quickly identify outliers or underperformance.

Using Styles from the Style Explorer

Instead of setting properties manually for each column, use **predefined styles**:

• Navigate to the **Style Explorer** tab.

• Apply consistent themes like *Corporate*, *Professional*, or *Bold Table*. • Customize these styles for your organization's branding.

Working with Headers and Footers

Headers and footers enhance the structure of list reports, especially for long or printed documents.

Inserting Headers

• Click on the **List object**.

• From the **Structure menu**, choose **List Header**.

• Add titles like "Product Summary by Region" or data items like Country.

You can insert:

• Static text

• Logos or images

• Report date or dynamic values using expressions

Inserting Footers

• Click the **List object**, then select **List Footer**.

• Add elements like totals, footnotes, report summary, or disclaimers.

Common uses:

• Display grand totals.

• Insert sign-off sections in printed reports.

• Add generated date/time using current_timestamp.

Page Headers and Footers (vs List Headers)

Feature	**Page Header/Footer**	**List Header/Footer**
Scope	Appears on every printed/exported page	Appears once per list or per list grouping
Use	Titles, logos, page numbers	Data-related titles, subheadings, totals
Editing Location	Use **Page Explorer → Page Structure**	Use **List object → Insert Header/Footer**

Combine both types for **complete professional reports**.

Tips for Effective Formatting

Here are some best practices:

Tip	Why It Matters
Use right-alignment for numbers	Improves readability of totals and decimal values.
Avoid excessive color	Use subtle background shading for a clean look.

Tip	Why It Matters
Ensure contrast between text and background	For accessibility and print clarity.
Keep font styles consistent	Prevents visual clutter.
Test layout in PDF/Excel	Ensures exported version is clean and aligned.

Sample Use Case: Sales Report with Formatting

1. Create a **List Report** with:
    - Region, Product, Sales Amount, Profit
2. Group by Region.
3. Format Sales Amount as currency and right-align.
4. Apply conditional formatting: Profit < 0 → red font.
5. Add **list header** with title: "Quarterly Sales by Region".
6. Add **list footer** to show total sales.
7. Preview in PDF format.

This produces a polished and insightful business report.

Focus Reports Using Filters – Create Filters

In real-world scenarios, you often need to **focus your reports on relevant data**—such as

viewing only a specific region's sales, showing transactions above a certain amount, or displaying records from a particular time period.

Filtering enables you to **reduce data clutter** and **highlight what matters**. Report Studio provides flexible tools to filter data at multiple levels of detail.

Types of Filters in Report Studio

There are primarily **three levels** at which filters can be applied:

Filter Type	Scope
Detail Filter	Applied at the row le data
Summary Filter	Applied after data is grouped/summarized

Filter Type	Scope	Use Case
Query Filter	Applied at the query level (entire dataset)	Retrieve only active customers

In this chapter, we focus on **detail filters**—the most commonly used filter type.

Creating a Simple Filter

A **simple detail filter** limits the data shown in your report based on a defined condition.

Example: Show only customers from "New York"

Steps:

1. Open your list or crosstab report.
2. Click on the **Data** item or **Query** in the side panel.
3. Open the **Filters** pane and click + to add a new filter.
4. In the expression editor, write:

Using the Filter Wizard

To simplify filter creation:

1. Right-click on any column (e.g., Order Amount).
2. Select **Create Filter**.
3. Choose a comparison (e.g., greater than).
4. Enter a value (e.g., 5000).
5. Confirm and preview the report.

This method is useful for users unfamiliar with expressions.

Prompted Filters (User-Driven Filtering)

To make reports **interactive**, use **prompted filters**, allowing users to choose the filter value at runtime.

Steps to Create a Prompted Filter:

1. Insert a **Value Prompt** control on the report page.
2. Set it to fetch values from the Region column.
3. Link the prompt to a filter like:

Combining Multiple Filter Conditions

You can combine filters using **logical operators**:

Operator	All conditions must be true
UseAND	Any one condition must be
OR	true Exclude matching data
NOT	

Filter on Aggregated Data (Summary Filters)

Summary filters are applied **after grouping**.

Example: Show only products with total quantity sold > 1000

Steps:

1. Group your data by Product.
2. Summarize Quantity.
3. Apply a filter:

total([Quantity]) > 1000

Testing and Debugging Filters

After adding filters:

• Run the report and **verify row counts**.

• Use **View Tabular Data** option to preview raw data before and after filtering. • Check for **parameter errors** in prompted filters (e.g., missing or invalid values). • Use **default values** in prompts to prevent empty result sets.

Best Practices for Filtering

Best Practice	Why It's Important
Use meaningful filter names Avoid hardcoding values if possible Combine filters logically to reduce data volume performance.Validate data types before filtering Use query filters instead of layout-level filters	Easier to manage multiple filters. Prompts make reports reusable. Prevents expression errors. Better performance and cleaner design.

Real-Time Use Case Example

You're building a report for the HR department to view employees:

- **From the IT department**
- **Hired after 2018**
- **With salary > $75,000**

Filter expression:

[Department] = 'IT'

AND [Hire Year] > 2018

AND [Salary] > 75000

This provides a **targeted dataset** for reviewing high-value IT hires.

Filter Your Data with Advanced Detail Filters

Basic filters are effective for simple conditions. However, real-world business scenarios often demand **sophisticated logic**—like filtering based on **aggregated results**, **dynamic date ranges**, or **multiple variable conditions**.

Advanced detail filters empower developers to build **flexible, reusable**, and **context-aware** reports.

Syntax and Components of an Advanced Filter

An advanced filter is written using:

- **Data items (columns)**
- **Operators** (e.g., =, >, AND, IN)
- **Functions** (e.g., substring, cast, coalesce, current_date)
- **Prompts** (e.g., ?StartDate?)
- **Parameters** (for conditional expressions)

Example 1: Filter by dynamic salary and department

[Department] = ?Department_Parameter?

AND [Salary] > ?MinimumSalary?

Use of Built-in Functions in Filters

IBM Cognos Report Studio includes **powerful built-in functions** that enhance filter logic.

Function	Purpose	Example
substring( )		a string
cast()	Convert data type	substring([Code],1,3) = 'HRD' cast([Year], 'integer') > 2020

Function	Purpose	Example
coalesce()	Replace null values	coalesce([Region],'Unknown') = 'East'
	Use today's date	[Order Date] >= current_date - 30 [Start
_add_d		Date] >= _add_days(current_date, -7)

Creating Filters Based on Calculations

You can filter on **calculated columns** or **expressions**.

Example: Filter by profit margin > 20%

(([Revenue] - [Cost]) / [Revenue]) > 0.2

Cognos allows **inline calculations** directly in filter expressions.

Using Conditional Expressions in Filters

Use **IF-THEN-ELSE** inside filters when logic needs to vary by condition.

Example: Region-specific sales criteria

IF [Region] = 'East' THEN [Sales] > 10000

ELSE [Sales] > 20000

Advanced Prompt Filters with Multiple Selections

You can let users select **multiple values** in a prompt using the **IN** operator.

Steps:

1. Add a **Value Prompt** control.

2. Enable **Multi-select** and **Select All** options.

3. Use filter expression:

[Product Category] in (?ProductCategory_Parameter?)

Null Handling in Filters

Filtering on columns with nulls may lead to **incomplete data** or **expression failures**.

Safe practice:

coalesce([City], 'Unknown') = 'Chennai'

Avoid direct comparisons with null, such as:

[City] = NULL ❌ Not valid

Use is null or is not null for such checks:

[City] is null ✅

Filtering on Query Macros

You can use **report macros** (like _add_months, _first_of_month) to build intelligent date filters.

Example: Filter records for current quarter

[Order Date] >= _first_of_month(_add_months(current_date, -3))

Reusing Filters Across Multiple Queries

If a report contains multiple queries (e.g., multiple visualizations), you can:

- **Create a common parameter filter**
- Apply the same expression in each query
- Ensure consistency in filtered results

This technique ensures **centralized control** of filtering logic.

Debugging Advanced Filters

If a filter doesn't behave as expected:

- Check the **expression syntax**.
- Use **tabular data preview** to verify results.
- Confirm prompt parameters are correctly passed.
- Watch for **nulls**, **type mismatches**, and **incorrect function usage**.

Using expressions like cast helps align data types before filtering.

Practical Use Case Example

Imagine a report showing **sales representatives** with:

- Performance this quarter
- Sales > $25,000
- Belonging to selected regions

Filter expression:

[Region] in (?SelectedRegions?)

AND [Quarter] = 'Q2-2025'

AND [Total Sales] > 25000

Best Practices for Advanced Filtering

Best Practice	Why It Matters
Use prompt macros for reusability	One report fits multiple user needs
Apply coalesce() to handle nulls safely	Prevents runtime errors
Validate filter logic with test data	Ensures accuracy
Use logical operators carefully	Avoid conflicting conditions
Add descriptions to complex expressi n	

Create Crosstab Reports

What is a Crosstab Report?

A **crosstab report** is a matrix-style report that displays data in a **two-dimensional format**, showing values (measures) at the intersection of rows and columns. It is especially useful when you want to:

- Analyze **relationships between two categories** (e.g., Region vs Product).
- Compare **totals and subtotals**.
- Present **aggregated summaries** like sum, count, or average.

Think of it as a **pivot table** in Excel.

Key Components of a Crosstab

Componen	Represent one categorical variable (e.g., Region)
Description	Represent another categorical variable (e.g., Product
Columns	Line) Numeric value to analyze (e.g., Sales, Revenue)
Measure	

A typical crosstab shows data intersections like:

East	**Regio**			4500
West	**Clothi**			0
Total	20000	15000	10000	5500
	25000	10000	20000	0
	45000	25000	30000	1000
				00

Steps to Create a Basic Crosstab Report

Step 1: Open Report Studio

- Choose **Crosstab** as the template from the welcome screen.

Step 2: Insert Data Items

- Drag a **Query item** to the **Rows** area (e.g., Region).
- Drag another item to the **Columns** area (e.g., Product Line).
- Drag a **measure** (e.g., Revenue) to the **Intersection**.

Step 3: Run the Report

- Click the **Run button** to preview.
- Choose **HTML**, **PDF**, or **Excel** as your output format.

List Report vs Crosstab Report

Aspect	**List Report**	**Crosstab Report**
Format	Tabular (rows)	Matrix (rows and columns)
Ideal For		ed records Summary and
Layout		parison One-dimensional
Agg		mensional Automatically
		aggregated

		Customer details Sales comparison oduct

Example:

- Drag Revenue and Profit to the **Measures** section.
- The report will show both at each row-column intersection.

East		**ıct** **fit**	400 0
	Lapto p	20000	

Use **nested crosstabs** or **stacked measures** for advanced layouts.

Adding Totals and Subtotals

Cognos automatically supports **totaling** in crosstabs.

To enable:

- Click the crosstab.
- Use the toolbar or **Right-click > Aggregate > Total**.
- You can add totals for **rows, columns**, or both.

Subtotals:

- Grouping fields like Year > Quarter can display subtotals.
- Use the **hierarchical data structure** to manage levels.

Drill-through and Drill-down in Crosstabs

Drill-through:

- Link a cell to another report using **Drill-Through Definition**.
- E.g., clicking on East > Electronics opens a detailed sales report.

Drill-down:

- Use **dimensional data sources**.
- Allows expanding categories (e.g., Region > State > City).

Drill features help you **explore data progressively**.

Sorting and Filtering in Crosstabs

Though crosstabs are primarily for summaries, you can still:

- **Sort** rows or columns alphabetically or by measure.
- **Filter** rows/columns using expressions.

Example: Show only Product Lines where Revenue > 50,000

Use **Advanced Filters** in the query or right-click > **Edit Filters** on the crosstab.

Crosstab Customizations and Tips

Feature	**How to Apply**
Change cell colors	Use **Conditional Formatting**
Merge cells	Right-click > **Merge Cells**
Show row headers once	**Repeat Every Page = No**
properties > Resize col	Drag or use properties panel
Add title/subtitles	Use **Text Item** objects above or below the crosstab

Designing a visually appealing crosstab improves **user understanding**.

Add Measure to Crosstab Reports

What Are Measures in Crosstab Reports?

In the context of crosstab reports, **measures** are the **numerical values** displayed at the intersection of rows and columns. These values are typically:

- Sales, Profit, Revenue
- Quantity Sold, Cost, Margin
- Percentages or Ratios

The **role of measures** is to summarize data for each row-column combination.

Example: If Region is in rows and Product Line is in columns, Revenue would be the measure shown at their intersection.

Adding a Single Measure to a Crosstab

This is typically done during the initial report creation:

1. **Open Report Studio** and choose a **Crosstab** template.
2. Drag dimension fields into **Rows** (e.g., Region) and **Columns** (e.g., Product Line).
3. Drag a measure, such as Revenue, into the **intersection** area.

Cognos will automatically aggregate the data, displaying summaries such as total revenue for each combination.

Adding Multiple Measures

You can add more than one measure to your Crosstab in two main ways:

A. Stacked Measures

In this layout:

- Measures appear **stacked vertically** under each row-column intersection.
- Useful for comparing **multiple KPIs** for the same category.

How to Create:

- Drag additional measures (e.g., Profit, Quantity Sold) below the first one inside the same intersection cell.

Result:

| Electronics

Region | Revenue | Profit

---|---|---

East | 15000 | 3000

B. Nested Measures

In a nested layout:

- The measures are shown as **individual column headers**.

- This creates a matrix where each measure has its **own cell** across columns.

How to Create:

1. Add a new **Nested Query Item** to the column edge (e.g., drag Measure item again).
2. Drop multiple measures under that header.

Result:

| Electronics

| Revenue | Profit

Region |---

East | 15000 | 3000

Measure Aggregation and Summarization

Cognos automatically applies default **aggregation functions** to measures like:

- **Sum** (default for Revenue, Sales)
- **Average** (for Rating, Satisfaction)
- **Count** (for IDs or occurrences)
- **Minimum / Maximum**

You can change aggregation by:

- Right-clicking the measure → **Data Format > Aggregation**
- Choosing from Sum, Count, Avg, Min, Max

This is useful when you want **custom rollups** in the totals.

Creating Calculated Measures

You may create **new calculated measures** directly within Report Studio.

Example:

To calculate **Profit Margin**:

1. Go to the **Query Explorer** tab.
2. Create a new **Query Calculation**:

[Profit Margin] = ([Profit] / [Revenue]) * 100

3. Add this new measure into the crosstab intersection area.

You can format it as a **percentage**, apply **decimal precision**, and include it along with other core measures.

Formatting Multiple Measures

To distinguish multiple measures visually, apply formatting:

Formatting Option	**Purpose**
Font Colors	Make each measure stand out
Bold / Italic Text	Highlight key KPIs
Background Colors	Color-code revenue vs. cost
Conditional Formatting	Highlight performance thresholds

Steps:

- Select the measure column → Right-click → **Data Format**
- Use the Format pane to set display type, precision, symbols, or custom styles.

Tips for Displaying Measures Clearly

Tip	Why It Matters
Use **short labels**	Avoid clutter in intersection cells
Place **key measures first**	Help readers focus on priority metrics Keeps the report readable
Avoid more than **3–4 measures per Crosstab** Use **legends or footnotes** for units	Clarifies the meaning of numbers

If your report gets too complex, consider **splitting measures** across multiple tabs or dashboards.

Format Crosstab Reports

Formatting plays a vital role in transforming a raw report into a **professional, easy-to understand presentation**. With Crosstab reports, formatting is especially crucial because: • Data is shown at intersections, requiring precise visual alignment.

• Multiple rows, columns, and measures can overwhelm users without styling. • Consistent formatting ensures better **readability**, **insights**, and **user experience**.

Elements of a Crosstab to Format

A Crosstab contains several formatting zones:

Component	Purpose
Row Headers	Group data vertically (e.g., Regions)
Column Headers	Group data horizontally (e.g., Product Types)
Intersections	Show the values (e.g., Revenue, Profit)
Total/Grand Total Rows	Summarize grouped values

Component	Purpose
Titles and Subtitles	Describe the report for readers
Cells	Contain the actual numerical or text data

Each component can be **individually styled** in Cognos Report Studio.

Basic Formatting Options

A. Fonts and Styles

You can change:

- **Font family, size, and color**
- **Bold/Italic/Underline**
- **Text alignment (left, center, right)**
- **Text wrapping for long labels**

B. Background and Borders

You can apply:

- **Background colors** to headers or cells
- **Borders** with customizable line types (solid, dotted, double)
- **Padding and spacing** for cleaner layouts

These visual cues help to differentiate between:

- Categories vs. totals
- Measures vs. dimensions

C. Column Widths and Row Heights

Sometimes, auto-sizing may not suit your report's readability. You can:

- Set fixed **column widths**
- Adjust **row heights** manually
- Apply **dynamic sizing** based on data or screen size

This ensures that the Crosstab does not overflow or look unbalanced.

Conditional Formatting

Conditional formatting applies styles **based on data values**.

Example Use Cases:

- Highlight revenue **> 1 million** in green
- Show profit **< 0** in red
- Add icons to mark performance

Steps to Apply:

1. Select the data cell (e.g., [Revenue]).
2. Go to **Conditional Explorer**.
3. Choose **New Style Variable**.
4. Define the condition (e.g., [Revenue] > 1000000).
5. Assign format styles (e.g., background green, text white).

This is extremely useful for dashboards and interactive reports.

Using Styles and Themes

Cognos offers:

- **Built-in styles** like Corporate, Classic, Minimal, etc.
- **Custom style sheets** for brand compliance

To apply a theme:

- Go to the **Page Explorer**
- Select the report page → **Properties**
- Choose **Style Sheet** from the drop-down

Themes can include pre-defined formatting for headers, cells, and text.

Formatting Totals and Subtotals

To improve visibility:

- Use **bold or colored text** for total rows
- Add **gridlines or background shades**
- Right-align numerical values for readability
- Apply **custom labels** such as “Grand Total” or “Summary”

Enhancing Headers and Footers

To add polish to the report:

- Customize **report title** with larger fonts
- Insert **page headers/footers** for printed reports
- Add **logos**, timestamps, or author information

Use **Text Item** components and align them properly within the report structure.

Export and Print Formatting

Reports may be viewed on screen or exported to:

- **PDF** (formal presentations)
- **Excel** (data manipulation)
- **HTML** (interactive dashboards)

Ensure formatting is preserved across outputs by:

- Testing the layout in **Page Preview**
- Using **Page Setup** for print boundaries
- Avoiding fixed width styles when exporting to Excel

Tips for Professional Report Layout

Tip	Benefit
Use **white space** wisely	Improves readability and avoids clutter
Maintain **consistent color usage** Apply **header formatting** Test with **sample data**	Prevents confusion and highlights categories Guides readers through complex data Ensures formatting adjusts to different inputs Prioritizes most important values visually
Stick to a **visual hierarchy**	

Focus Reports Using Filters

What Are Filters in Reporting?

Filters are **conditions** or **rules** that limit the data retrieved from a data source or displayed in the report. They help users focus only on:

- Relevant subsets of data
- Specific time periods or product categories
- Key regions, departments, or performance ranges

Without filters, reports may become **overwhelming**, **slow**, or **unfocused**.

Why Use Filters?

Filters serve multiple purposes:

Purpose	Benefit
Eliminate unnecessary data	Improve readability and focus
Reduce report execution t	

Purpose	Benefit
Tailor views for specific users	
business insightsPrepare for d	
reports Enable interactivity	

Types of Filters in Report Studio

Cognos supports several types of filters depending on the data structure and reporting goal: **Filter Type Usage**

Detail Filter Filters data **before aggregation**

Summary Filter Filters **after aggregation**, e.g., totals > 10000

Prompted Filter Allows **user input** at run-time

Embedded Filter Defined **within a data container** (List, Crosstab)

Standalone Filter Reused across reports or multiple queries

Applying Basic Filters

Steps:

1. Select a report object (e.g., List, Crosstab).
2. Open the **Query Explorer**.
3. Click on the corresponding query.
4. From the toolbar, choose **Filters → Create Filter**.
5. Define the expression.

✅ Example: [Region] = 'East'

This filter will now limit all data in the report to the "East" region.

Filtering Using Expressions

Cognos allows the use of **expression builders** to define filters:

Example 1: Filter by Date

[Order Date] >= _add_days(current_date, -30)

→ Returns only the records from the last 30 days.

Example 2: Filter by Revenue Threshold

[Revenue] > 50000

→ Shows only transactions with revenue greater than 50,000.

You can also use logical operators:

- AND
- OR
- NOT
- BETWEEN

Using Filter Conditions

Cognos provides an **easy-to-use dialog box** to build filters without writing full expressions.

This includes:

- Drop-down list of fields
- Comparison operators (=, >, <, etc.)
- Input boxes or parameter prompts

For example:

[Country] IN ('India', 'USA')

This allows for **multi-value** filters that are flexible and dynamic.

Filtering at the Query vs. Report Level

Query-Level Filtering Applied in **Query Explorer** Affects all data processing	**l Filtering** Applied in **Report s only what's displayed** More erformance More control over presentation

Choose **query-level filters** for heavy data trimming and **report-level filters** for visual refinement.

Practices for Using Filters

Practice	**Rationale**
Always name filters clearly	Helps identify and reuse them later
Avoid over-filtering	May exclude valuable insights
Combine filters logically (AND/OR)	Increases report flexibility
Test filters with sample data	Prevents runtime errors or empty results
Use prompts when end-user control is nee repor	

Common Scenarios for Filtering

Scenario	**Sample Filter Expression**
Sales in current quarter	Quarter([Order Date]) = Quarter(current_date)
Top-performing stores	[Store Revenue] > 100000
Active customers only	[Customer Status] = 'Active'

Items out of stock [Inventory Level] = 0

Employees in specific departments [Department] IN ('IT', 'Finance')

Create Filters

What Are Filters?

In reporting, **filters** are logical conditions applied to limit the amount of data shown in your report. Instead of displaying all available data, filters help **refine the output** based on business requirements.

Example: “Show only customers who spent more than $10,000 last year.”

Methods to Create Filters in Report Studio

There are several ways to create filters depending on what you are filtering and your reporting style.

A. Using the Filter Button (Toolbar)

1. Select the data container (List, Crosstab).
2. Click the **Filters** icon from the toolbar.
3. Choose **Create Filter**.
4. Use the Filter condition builder or Expression editor.

B. Using the Query Explorer

1. Open **Query Explorer**.
2. Select the relevant query (e.g., Query1).
3. In the **Detail Filters** or **Summary Filters** pane, right-click → Add.
4. Define a condition using the expression builder.

C. Using Context Menu

1. Right-click on a field (e.g., [Region]).
2. Choose **Filter → Create Custom Filter**.

3. Enter values or expressions.

This is a quick-access shortcut from the layout view.

Detail vs. Summary Filters

Filter Type	Applied When	Use Case
Detail Filter		;ation Filter individual data rows Filter
Summary Filter	After aggregation	totals or summaries (e.g., total > 5000)

Example:

- Detail filter: [Revenue] > 10000 → filters row-level sales.
- Summary filter: total([Revenue] for [Region]) > 50000 → filters only regions with high total revenue.

Creating Filters with Expressions

IBM Cognos allows you to use **Expression Language** to create more powerful filters.

Syntax Example 1:

[Country] = 'USA'

Syntax Example 2:

[Sales] > 10000 AND [Region] = 'East'

Syntax Example 3: Filtering with Dates

[Order Date] >= _add_days(current_date, -30)

Prompted Filters

These filters are created using **parameterized values** that the **user inputs at runtime**.

Steps to Create Prompted Filter:

1. Use a filter expression like:

[Country] = ?SelectedCountry?

2. Cognos automatically creates a prompt page at run-time.
3. User selects a value, and the report reflects that choice.

Using the Conditional Explorer for Filters

The **Conditional Explorer** is used to apply **dynamic formatting and filtering** based on values or expressions.

1. Open **Conditional Explorer** from the toolbar.
2. Create a new variable (e.g., Sales Segment).

3. Define conditions:
    - [Sales] > 100000 → High
    - [Sales] BETWEEN 50000 AND 100000 → Medium
    - [Sales] < 50000 → Low
4. Use these variables in filters or formatting.

This helps **categorize** data dynamically within the report.

Multi-Condition Filters

You can create filters that evaluate multiple conditions:

([Country] = 'India' OR [Country] = 'USA') AND [Year] = 2024

Or use IN:

[Country] IN ('India', 'USA', 'UK')

And BETWEEN:

[Sales] BETWEEN 20000 AND 100000

This flexibility helps in meeting complex reporting needs.

Validating and Testing Filters

- Always click **Validate** in the Expression Editor.
- Use **Run Report** with sample data to test filter results.
- Check the SQL generated in **Query Viewer** for accuracy.

Incorrect filters may return zero results or irrelevant data.

Best Practices for Filter Creation

Tip	**Why It's Useful**
Use **meaningful names** for filters Apply filters at **query level**	Helps identify and manage filters easily Improves performance and reusability
Avoid hardcoding values if prompts needed	Adds visual insights to filtered data
flexibility for future changesCombine with **formatting** Test with **multiple scenarios**	Ensures filters work across edge cases

Filter Your Data with Advanced Detail Filters

Overview of Advanced Detail Filters

Advanced detail filters go beyond simple comparisons. They allow you to construct **complex logic**, use **built-in functions**, and combine conditions using **Boolean operators**. These filters give you **fine-grained control** over what data is retrieved and presented in your report.

Example: Show customers who spent more than average in the last quarter **AND** belong to loyalty tier **Gold**.

Filtering Using Built-in Functions

Cognos provides several functions you can incorporate into filters:

Function	Purpose	Example Usage
_add_days()	Adds/subtracts days from a date	[Order Date] >= _add_days(current_date, - 30)
_year()	Extracts year from a date	_year([Transaction Date]) = 2024
upper() / lower()	Converts string to upper/lower case	upper([Region]) = 'SOUTH'
length()	Checks string length	length([Customer ID]) = 10
nullif()	Handles null values	nullif([Discount], 0)

Use these to create **dynamic filters** that adjust based on current data.

Filtering Based on Aggregated Values

Advanced filters can also apply logic to **aggregated** data inside a detail filter, although this requires care.

[Revenue] > average([Revenue] for [Product Line])

Workaround:

Create a **calculated column** for average and use it in a separate step for comparison.

Parameterized Advanced Filters

You can also prompt users for input within complex expressions.

([Region] = ?SelectedRegion? AND [Sales] > ?MinimumSales?)

This lets users define both **filter value** and **threshold** dynamically, adding flexibility.

Using Case Expressions for Filtering

You can define filters with CASE logic, helping tailor logic based on conditions.

```
case
 when [Category] = 'Electronics' then [Revenue] > 50000
 when [Category] = 'Furniture' then [Revenue] > 20000
 else [Revenue] > 10000
end
```

Nested Filters

Advanced filtering often includes **nesting**—applying a filter inside another.

([Region] IN ('North', 'East')) AND ([Sales] BETWEEN 10000 AND 50000)

Or even:

([Region] = ?SelectedRegion?) AND
(
[Sales] > 10000 OR
([Customer Segment] = 'Premium' AND [Sales] > 5000)
)

Nesting helps you target very specific slices of data.

Static vs. Dynamic Filters

Static Filter	**Dynamic Filter**
Uses hardcoded values	untime input or calculated expressions Less for frequent changes Highly interactive and
Faster to implement	Takes more time but worth it for flexibility

Using Filters in Queries vs. Objects

Filters can be added:

- **Directly in the query** – affects all components using it.
- **At the object level** (e.g., list, crosstab) – more localized effect.
- **On a prompt control** – dynamic input affecting report behavior.

Choose scope wisely based on how much of the report is affected.

Combining Filters with Calculated Fields

You can create calculated fields and use them in filters:

[Profit Margin] = ([Revenue] - [Cost]) / [Revenue]

Filter using this calculated metric:

[Profit Margin] > 0.25

This is useful when performance metrics drive decision-making.

Tips for Effective Advanced Filters

- Break large expressions into smaller testable parts.
- Use comments in Expression Editor for clarity.
- Use **Query Explorer** to organize and isolate logic.
- Combine with **Conditional Explorer** to apply formatting based on filter outcome.

Create Crosstab Reports

Crosstab Reports are a compact way of displaying data that compares **two dimensions (row and column)** with one or more **measures (facts)**. They are similar to pivot tables in Excel and help identify trends, patterns, and relationships in data.

Use Cases

- Monthly sales by region and product category.
- Employee count by department and job role.
- Revenue analysis by year and customer segment.

Crosstab Reports are ideal for summarizing numerical data by two or more related dimensions.

14.3 Structure of a Crosstab Report

A standard crosstab report in Cognos has:

- **Rows**: Categorical dimension (e.g., *Region*, *Product Line*).
- **Columns**: Categorical dimension (e.g., *Year*, *Quarter*).
- **Measure**: A summarized numerical value (e.g., *Revenue*, *Quantity Sold*).

Example Layout:

Product Line		
2023 Electron		15
Apparel	90 K	0 K
		10 0 K

Creating a Simple Crosstab Report

Steps:

1. **Open Report Studio** → Select *Crosstab* template.
2. In the **Insertable Objects** pane:
    - Drag a **dimension** (e.g., *Region*) into the **Rows** area.
    - Drag another **dimension** (e.g., *Year*) into the **Columns** area.
    - Drag a **measure** (e.g., *Sales*) into the **Intersection** area.

3. **Run the report** → Choose *HTML* or *PDF* output.

Example:

plaintext

Rows: [Product Line]

Columns: [Year]

Measure: [Revenue]

Comparing List vs. Crosstab Reports

Structure	**List Report**	**Crosstab Report**
Best for	Flat table	Matrix-style (row × column)
	Detailed records	Summary & comparison
		Drill-through only Drill-up,
	Tabular format	drill-down, nested comparisons
		Pivoted data across two dimensions

Adding Multiple Measures

You can include **multiple measures** by placing them in the intersection area side-by-side.

Steps:

- Drag and drop another measure field into the intersection section.
- Optional: Apply **custom headers** for clarity.

Example:

Product 2022 Revenue 2022 Profit 2023 Revenue 2023 Profit

Drill-up and Drill-down in Crosstabs

Crosstab reports support **dimensional drill-downs**:

- **Drill-down**: From Year → Quarter → Month.
- **Drill-up**: Return from Quarter to Year level.

Steps:

1. Use a **dimensionally-modeled package**.
2. Add hierarchical dimensions (like *Time*).
3. Cognos will enable drill icons automatically.

Nested Crosstab Layout

You can **nest** one row or column within another to build multi-level comparisons.

Example Layout:

East	**Region Pro**		100 K
West	Electronics	1 1	
	Apparel	80 K	
	Electronics	1 1	

Steps:

- Drag **Product Line** below **Region** in the Row area.
- Result: Data grouped and sub-grouped.

Custom Sorting and Grouping

Crosstab data can be **sorted** or **grouped** to highlight priority records.

- **Sort by Measure**: Show highest to lowest revenue.
- **Group by Region** and sort within group by Product Line.

Crosstab Filters

Apply filters **before or after aggregation**:

- **Before aggregation** (Detail Filter): Revenue > 10000
- **After aggregation** (Summary Filter): Total Revenue > 50000 by Region

Use **query explorer** to apply filter at the correct query level.

Working with Empty Cells

Empty cells occur when a combination has no data. Cognos allows you to:

- Leave them blank (default).
- Display custom text ("No Data", "0", etc.).
- Apply **conditional formatting** (e.g., red fill for missing data).

Exporting Crosstab Reports

Like other reports, Crosstab Reports can be exported to:

- PDF
- Excel (recommended for pivot-style structure)

- CSV
- XML

What Are Measures in Crosstabs?

Measures represent numerical facts in your dataset—such as *sales amount*, *profit margin*, *quantity sold*, or *number of customers*. In a crosstab report, measures occupy the **intersection** between rows and columns, summarizing data across the specified dimensions.

Examples of Measures:

- Total Sales
- Revenue
- Gross Profit
- Quantity Sold
- Average Order Value

In IBM Cognos, you can also add **custom measures** using calculations or data items created from queries.

Adding a Basic Measure to a Crosstab

To add a measure:

1. Open an existing crosstab report in Report Studio.
2. From the **Insertable Objects** pane, drag a **measure** from the model into the intersection cell of your crosstab.
3. The measure is automatically **aggregated** (e.g., *sum*, *average*, *count*).

Adding Multiple Measures

IBM Cognos allows you to insert **more than one measure** in a crosstab for comparative analysis.

Steps:

1. Drag the first measure (e.g., Revenue) to the intersection.
2. Drag the second measure (e.g., Profit) next to the first measure in the same intersection area.
3. Cognos creates separate cells for each measure within each row/column combination.

Example Layout:

East	**Region 202**	$20,000
West		$15,000
	$100,000	

	$90,000	

Organizing and Labeling Measures

Multiple measures can clutter a crosstab. Cognos lets you manage this with:

- **Measure Labels**: Rename fields for clarity (e.g., "Q1 Sales" instead of "Revenue").
- **Custom Headers**: Use header cells to group multiple measures under one category.
- **Data Formatting**: Apply currency, percentage, or number formatting.

Steps to Rename:

- Right-click on the measure heading → *Edit Label Text* → Type custom label.

Steps to Format:

- Select the measure cell → Open *Properties Pane* → Choose *Data Format* → Set currency, decimal, or percent.

Creating Calculated Measures

You can create **new measures** using existing data through **calculated data items**.

Example:

To calculate **Profit Margin**:

([Revenue] - [Cost]) / [Revenue]

Steps:

1. Open *Query Explorer* → Select your Query.
2. Click on **Data Items** → New → *Calculated Data Item*.
3. Name it (e.g., *Profit Margin*) and enter the expression.
4. Drag this new data item into the crosstab's intersection area.

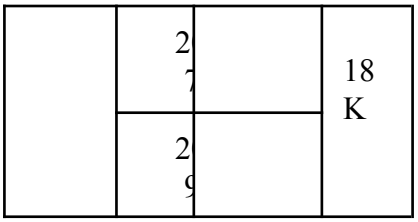
Using Nested Measures

Nested measures allow you to show breakdowns under each column or row header.

Example Layout:

		ofit	
East	2 8		15 K
		100K	20K

West		**ofit**	10 K



Steps:

1. Drag *Year* as a nested column under *Region*.
2. Add multiple measures side-by-side in the intersection area.

Applying Conditional Formatting to Measures

Make your data pop by applying conditional formatting based on measure values.

Example:

Highlight profits below $10,000 in red.

Steps:

1. Click on the measure column → *Style* → *Conditional Formatting*.
2. Create a new condition → *If [Profit] < 10000* → Set background color to red.

Changing Aggregation Type

By default, Cognos uses **Sum** for measures, but you can change it to:

- Average
- Maximum
- Minimum
- Count
- Custom expressions

Steps:

1. Click on the measure.
2. Go to *Properties Pane* → Aggregation → Select desired method.

Dealing with Null or Missing Values

Crosstabs may display **empty** or **null** values when data is unavailable.

Handling Techniques:

- Replace with default value (e.g., "0").
- Use conditional logic:

IF ([Value] IS NULL) THEN ('No Data') ELSE ([Value])

- Apply filters to exclude null data combinations.

Format Crosstab Reports

Formatting a Crosstab Report makes data **easier to interpret** and gives it a **professional appearance**. Report Studio provides a robust set of styling tools that allow you to customize:

- **Text styles**
- **Background colors**
- **Borders and padding**
- **Number and date formats**
- **Row and column spacing**

Using the Properties Pane

The **Properties pane** in Report Studio is your main tool for formatting crosstab elements.

Accessing the Properties Pane:

- Click on any element in the crosstab (header, cell, measure, label).
- Open the **Properties pane** (usually on the right side).
- Modify relevant properties (font, background color, alignment, etc.).

Formatting Fonts and Text

Text elements in a crosstab can be styled just like a word processor.

Font Properties Include:

- **Font family** (e.g., Arial, Verdana)
- **Font size**
- **Font style** (Bold, Italic, Underline)
- **Text color**

Steps:

1. Select the desired text or label.
2. In the Properties pane, scroll to **Style**.
3. Change font and style options as needed.

Background and Border Styling

Use **background colors** and **borders** to define sections of your report and improve visual hierarchy.

Common Use Cases:

- Shade header rows with a light grey or blue.

• Apply borders between rows or columns to separate data.

• Use red backgrounds for negative values or alerts.

Steps to Apply Background:

1. Select the cell/section.
2. Go to **Style** → Background Color → Choose color.

Steps to Apply Border:

1. Select cell(s) or entire crosstab.
2. In **Borders**, set **top/bottom/left/right** width and color.

Applying Alternate Row Colors

Alternate shading helps users track data across rows more easily.

Steps:

1. Select the row container (not individual cells).
2. Right-click → *Conditional Formatting* → Add new condition.
3. Create an expression such as:

mod(rowNumber(),2) = 0

4. Set the background color for even-numbered rows.

Aligning Text and Numbers

Proper **alignment** of text and numbers ensures the report looks clean and readable.

• **Text**: Align to **left** or **center**.

• **Numbers**: Align to **right** for consistent decimal formatting.

• **Headers**: Center alignment works well for balance.

Steps:

1. Select the cell.
2. In **Properties** → Alignment → Choose *Left*, *Center*, or *Right*.

Merging and Spanning Cells

Sometimes, you may want a label to span multiple columns or rows (e.g., a title). **Steps:**

1. Select the cells to merge.
2. Right-click → *Merge Cells*.

Formatting Numbers and Measures

Crosstab cells often contain **numeric data** that should be formatted appropriately.

Types of Formats:

• **Currency**: ₹, $, €, etc.

• **Percentage**: 23.5%

• **Decimal Precision**: Round to 1 or 2 decimal places.

• **Custom formats**: e.g., 1,000K instead of 1,000,000

Steps:

1. Select a measure cell.
2. Go to Properties → **Data Format**.
3. Choose type (Currency, Number, Percentage).
4. Set decimal places, symbol, and separators.

Using Conditional Formatting for Emphasis

Highlight cells dynamically based on data value.

Example: If Revenue < ₹10,000, highlight the cell in red.

Steps:

1. Right-click cell → *Conditional Formatting*.
2. Create new condition:

[Revenue] < 10000

3. Choose formatting: text color = red, background = light pink.

Adjusting Padding and Spacing

Padding adds space **within** a cell, improving aesthetics.

• **Horizontal padding**: adds space to left/right.

• **Vertical padding**: adds space above/below text.

Steps:

1. Select a cell.
2. In **Properties**, locate **Padding**.
3. Set value in points (e.g., 5 pt or 10 pt).

Hiding/Showing Elements

You may choose to **hide columns/rows** temporarily for better focus.

Steps:

1. Select element → Go to Properties.
2. Use **Render Variable** or **Box Type = None**.

3. Can be made conditional based on user role or data values.

Saving and Reusing Formatting Styles

To maintain consistency across multiple reports, you can **save styles as templates**.

Steps:

1. Format one crosstab fully.
2. Use **Copy and Paste Style** from one report to another.
3. Or, save as a **Report Template** for future use.