Workbook

For

MicroStrategy

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Lab 5: MicroStrategy Features

Lab 5.1: Filters

Objective: Apply and customize filters.

1. **Step 1**: Add filters to your visualizations (e.g., by date or region).
2. **Step 2**: Enable user interactivity with dynamic filtering options.

- **Enabling Filters:** Users can enable the filtering panel to selectively view data. For instance, regions can be filtered by checking or unchecking specific values.
- **Multi-Dimensional Filtering:** Multiple dimensions, such as sales channels and order priorities, can be selected and filtered simultaneously, allowing users to focus on specific data aspects.
- **Chapter-Level Filtering:** Filtering can be applied to a specific chapter, which includes a set of visualizations. This allows the same filter to affect all visualizations within that chapter. However, separating visualizations into different chapters allows different filters for each.
- **Dynamic Options:** Filters can be adjusted to include or exclude specific data, sorted, and applied to a subset (e.g., top 50% of regions by revenue).
- **Advanced Filtering:** Users can apply advanced filters directly to a specific visualization without affecting others, which is useful for keeping multiple visualizations in the same chapter but with different filter settings.
- **Customization**: Filters can be displayed in different styles (e.g., tick boxes, drop-downs) and set up for dynamic selections.

Additional Info:

Element Value Filters

Filter data by selecting specific elements (values) from attributes or metrics. These filters help narrow down datasets, making it easier to analyze specific segments or criteria within a report or visualization.

How to Apply an Element Value Filter:

1. **Select a Visualization or Report:**
    - Open the report or visualization where you want to apply the filter.
2. **Add a Filter:**
    - Locate the **Filter panel** (usually found on the right side of the interface).
    - Click **Add Filter**.
3. **Choose an Attribute or Metric:**
    - Select the attribute or metric you want to filter by. For example, if you are filtering sales data, you might choose the "Product Category" attribute or "Sales Amount" metric.
4. **Select Elements:**
    - Once the attribute/metric is chosen, a list of values (elements) will be displayed.
    - Select the specific values (elements) you want to include or exclude in your filter. For example, if filtering by "Region," you can select specific regions like "North America" or "Asia-Pacific."
5. **Apply the Filter:**
    - After selecting the desired elements, click **Apply** to see the filtered data in your report or visualization.

Example Use Case:

Let's say you want to filter a sales report to display data only for "Electronics" and "Clothing" product categories. You would:

- Add an **Element Value Filter** on the **Product Category** attribute.
- Select "Electronics" and "Clothing" from the list of available product categories.
- Apply the filter to update the report and show data only for those two categories.

Element Value Filters are very useful for honing in on specific data points, enabling more granular analysis of your reports.

Visualization Filter

Allow users to apply filters that affect only a specific visualization, rather than the entire report or dashboard. This feature is highly useful when you want to focus on different subsets of data within individual visualizations, without altering other charts or grids on the same dashboard.

Steps to Apply a Visualization Filter:

1. **Select a Visualization:**
    - Open the dashboard or dossier containing the visualizations.
    - Click on the visualization you want to filter (e.g., grid, bar chart, pie chart).
2. **Access the Filter Panel:**
    - After selecting the visualization, navigate to the **Filter panel** on the right side of the interface.
3. **Add a New Filter:**
    - In the **Visualization Filter** section, click **Add Filter**.
    - Choose an attribute or metric that you want to filter the visualization by (e.g., Region, Product Category, Sales Amount).
4. **Select Filter Conditions:**
    - After choosing the attribute or metric, you can specify filter conditions. For instance:
        - For attributes: Select one or more elements (e.g., “North America,” “Electronics”).
        - For metrics: Define numerical ranges or criteria (e.g., Sales > $10,000).
5. **Apply the Filter:**
    - Click **Apply** to update the visualization based on the filter settings.
    - Only the selected visualization will reflect the filter, leaving other visualizations unaffected.

Use Case Example:

Imagine you have a dashboard with three visualizations:

- A bar chart showing **Sales by Region**.
- A grid showing **Sales by Product Category**.

- A pie chart showing **Sales by Salesperson**.

If you want to filter the bar chart to display only data for “North America” without affecting the other visualizations, you would:

- Select the bar chart.
- Apply a **Visualization Filter** on the “Region” attribute and select “North America.”
- The bar chart will update to display only North American sales, while the grid and pie chart will remain unchanged.

Benefits of Using Visualization Filters:

- **Focused Analysis:** Allows for focused analysis on specific visualizations without altering the entire dashboard.
- **Multiple Filters:** Different visualizations can have their own filters, enabling more complex, multi-faceted data analysis.
- **Custom Views:** Tailors each chart or grid to answer different questions from the same dataset.

Visualization Filters are powerful when you need to create dashboards with various views of the same data, customized to specific metrics or dimensions.

Attribute Selectors and **Metric Selectors**

Interactive features that allow users to dynamically switch between different attributes or metrics within a report or dashboard, providing flexibility in data analysis.

1. Attribute Selector:

An **Attribute Selector** lets users choose among different attributes in a visualization, allowing for dynamic filtering or changing the data displayed based on the selected attribute values. This is particularly useful when you want to explore the same visualization across different dimensions (e.g., region, product category, time period).

How to Use an Attribute Selector:

1. **Add an Attribute Selector:**
    - In the **Insert Panel**, select **Selectors** and drag the **Attribute Selector** onto the dashboard or report.
2. **Choose the Attribute:**
    - After placing the selector, assign an attribute to it (e.g., "Region," "Year," "Product Category").
3. **Link the Selector to a Visualization:**
    - Link the selector to one or more visualizations by dragging the visualization into the target area for the selector. This step ensures the selected attribute will dynamically change the data displayed in the associated visualizations.
4. **Choose a Display Type:**
    - Choose how the selector will be displayed, either as a dropdown menu, checkboxes, or buttons.
5. **Interact with the Selector:**
    - When users select a value from the Attribute Selector (e.g., selecting "North America" from the "Region" attribute), the visualizations linked to the selector will update to show only data related to the chosen value.

Use Case Example:

You have a bar chart that shows **Sales by Product** and want to allow users to view sales data for different regions. By adding a **Region** Attribute Selector, users can dynamically filter the bar chart to display sales by product for specific regions like "North America," "Europe," or "Asia."

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2. Metric Selector:

A **Metric Selector** works similarly to the Attribute Selector but allows users to switch between different metrics (e.g., sales amount, profit, quantity sold) in the same visualization. It provides flexibility by enabling users to analyze various aspects of the data without needing multiple visualizations.

How to Use a Metric Selector:

1. **Add a Metric Selector:**
    - In the **Insert Panel**, select **Selectors** and drag the **Metric Selector** onto the dashboard or report.
2. **Assign Metrics:**
    - Choose the metrics you want the selector to control (e.g., Sales, Profit, Quantity Sold).
3. **Link the Selector to a Visualization:**
    - Similar to the Attribute Selector, link the Metric Selector to a visualization by dragging the visualization into the target area.
4. **Choose a Display Type:**
    - Set up the Metric Selector as a dropdown, radio button, or buttons, allowing users to switch between different metrics easily.
5. **Interact with the Selector:**
    - Users can now select different metrics (e.g., Sales, Profit) from the Metric Selector, and the linked visualization will update to display the selected metric.

Use Case Example:

You have a line chart that shows **Sales over Time**, but you want users to have the option to view **Profit** or **Units Sold** in the same chart. By adding a **Metric Selector** with the three metrics (Sales, Profit, Units Sold), users can easily switch between them, making the analysis more flexible.

Benefits of Attribute and Metric Selectors:

- **Interactive Dashboards:** Provide an interactive experience by letting users filter or switch metrics and attributes dynamically without reloading or creating multiple visualizations.

- **Streamlined Analysis:** Reduce the need for multiple visualizations by allowing users to switch between views in a single chart or table.
- **User Control:** Enable non-technical users to explore data independently by choosing what dimensions or metrics to analyze in a visualization.

In essence, both Attribute and Metric Selectors enhance user interactivity and efficiency in analyzing different aspects of the same dataset.

Lab 5.2: Interlink Visualizations

Objective: Link multiple visualizations to share filters.

1. **Step 1**: Set up interlinks between charts and grids.
2. **Step 2**: Test the synchronization across visualizations.

Interlinking dashboards in MicroStrategy allows you to sync filters between multiple visualizations, which is a powerful feature for interactive and dynamic dashboard design. Here's a summary of the process:

1. **Setting a Source and Target**: You can link a source visualization (e.g., a chart) to one or more target visualizations (e.g., a heatmap or pie chart) on the same page. When a selection is made on the source, the target visualizations are automatically filtered to reflect that selection.
2. **Selecting Target Visualizations**: To set up interlinking, you choose the source visualization, select "More Options," and then specify the target visualizations by choosing "Select Target Visualizations." This ensures that when data is filtered on the source, it automatically updates the targets.
3. **Page Limitation**: Interlinking works only for visualizations on the same page. If you want multiple visualizations to update based on a single filter, they must all be placed on the same page.
4. **Bi-Directional Linking**: You can also reverse the interlinking by setting a target visualization (e.g., a heatmap) as a source and linking it back to the original chart. This way, both visualizations dynamically update based on the other's filters.
5. **Practical Use**: This feature is essential when designing more advanced, user-interactive dashboards that need to show consistent, linked data across various visualizations, allowing users to dig deeper into specific data subsets.

With this interlinking functionality, you can create dashboards that are intuitive and responsive to user interactions.

Lab 5.3: Create New Metric

Objective: Learn to create new metrics from existing data.

1. **Step 1**: Use the **Metric Editor** to build a calculated field.
2. **Step 2**: Add the metric to your visualizations.

Lab 5.4: Show Underlying Data and Export to Excel

Objective: Learn how to drill down and export data.

1. **Step 1**: Right-click on a data point to view the underlying data.
2. **Step 2**: Export the detailed data to Excel for further analysis.

Steps for Drilling Down and Exporting Data in MicroStrategy:

1. **Navigate to the Heatmap Chart:**
    - Ensure you're on the heatmap chart to begin the process.
2. **Show Data:**
    - Click on **More** (top right corner) and select **Show Data** to display the data in a grid format.
3. **Add Splits:**
    - To split the data further, click the **plus sign** and select an attribute (e.g., Country).
    - Click **OK** to see the expanded data.
4. **Create a Grid Visualization:**
    - Click the option to **Add as Grid Visualization** to create a grid out of the data.
5. **Export Data:**
    - **Show Data** → Export as CSV (Data Format) or Excel.
    - Alternatively, export the visualization by clicking **More** → **Export**, choosing PDF or CSV.
6. **PDF Export Options:**
    - Customize the PDF export with options like size, orientation, headers, and page numbers.
7. **Recommendation:**
    - Use MicroStrategy's **Grid View** for analysis.
    - Export to Excel if needed for sharing with stakeholders.

Lab 5.5: Copy to/Move To/Duplicate Options

Objective: Learn to manage objects efficiently.

1. **Step 1**: Use **Copy**, **Move**, or **Duplicate** to manage your charts and grids.
2. **Step 2**: Organize them into folders for better management.

Steps for Moving, Copying, and Duplicating Visualizations in MicroStrategy:

1. **Copy Visualization:**
    - Right-click on the visualization (e.g., heatmap) in the top-right corner.
    - Select **Copy To** and choose the page (e.g., Chart page) where you want to place a copy.
    - The heatmap will now appear on both the current page and the selected page.
2. **Move Visualization:**
    - Right-click on the visualization.
    - Select **Move To** and choose the destination page (e.g., Bar Chart page).
    - The heatmap will move to the selected page, leaving the original page empty.
3. **Undo Move:**
    - Use the **back button** (or undo) to revert the move if needed.
4. **Duplicate Visualization:**
    - Right-click on the visualization and select **Duplicate**.
    - A duplicate of the chart will appear on the right side.
    - This allows you to create variations of the chart without starting from scratch.

These options make it easy to rearrange, copy, or duplicate visualizations across pages, which is especially useful when building dashboards.

Lab 5.6: Drill Visualizations

Objective: Enable drill-down functionality on visualizations.

1. **Step 1**: Configure drill options on a chart.
2. **Step 2**: Test the drill-down to ensure it displays the correct details.

Steps for Using Drill Down in MicroStrategy:

1. **Navigate to the Visualization:**
    - Go to a chart (e.g., Bar Chart) displaying data at a high level (e.g., Profit by Region).
2. **Drill Down on a Region:**
    - Right-click on a specific region (e.g., Asia).
    - Select **Drill** → **Country** to see a breakdown of profit by country within that region.
3. **Further Drill Down:**
    - Right-click on a country (e.g., India), select **Drill** → **Item Type** to view profits by item types within India.
    - Continue drilling down by selecting **Drill** → **Sales Channel** and then **Order Priority** for more granular insights.
4. **Clear Drill Down Filters:**
    - To revert, remove the items from the drill-down in the editor panel.
    - Alternatively, click **Clear All** to reset filters but retain items in the drill-down hierarchy.

Tips:

- Always remove any attributes manually from the editor to prevent them from persisting in the filters.
- Use the drill-down feature during presentations to provide instant, detailed insights without exporting to Excel.

Lab 6: Build Our First Dashboard

BEST PRACTICE TIPS 1

The best practice for creating effective dashboards around storytelling and purpose-driven visualization. Here's a summary of key points:

1. **Tell a Story**: A good dashboard isn't just a collection of charts; it tells a story. Structure your dashboard like a book, with a clear narrative from start to finish. Begin with an overview, investigate key questions, and end with actionable insights.
2. **Start with the End in Mind**: Before designing visualizations, define the outcome you want to achieve. Think about what actions should be taken based on the data insights, and structure your dashboard to lead users toward that conclusion.
3. **Divide into Sections**:
    - **Start**: Present key metrics and an overview.
    - **Middle**: Investigate the main question or problem (e.g., why certain regions perform better).
    - **End**: Provide actionable recommendations or areas for further investigation.
4. **Focus on Relevance**: Only use data that answers the specific questions you're investigating. Avoid overloading your dashboard with unnecessary data points, and focus on what's relevant to the narrative.
5. **Simplicity in Design**: Ensure clarity by organizing data effectively and avoiding complex blending of data unless necessary. Make sure every visualization serves a purpose aligned with your story.

The key takeaway is to treat dashboards as a narrative tool, using visualizations to guide your audience through a clear, focused analysis that drives action.

BEST PRACTICE TIP 2: What if you cannot answer the question

If you can't fully answer the question or provide a definitive conclusion with the data available, here's how you can still create value:

1. **Acknowledge the Limitations**: Be transparent about what the data shows and where it falls short. It's okay to highlight gaps or areas where further analysis is needed.
2. **Point to Future Investigations**: Even if you can't provide a concrete answer, guide the audience toward what could be explored next. For example, suggest further investigation into specific regions or item types to uncover the root cause of performance differences.
3. **Provide Actionable Steps**: Even without a full answer, you can still suggest actionable steps based on partial insights. For instance, if the data shows Africa and Europe are doing better but doesn't explain why, recommend deeper analysis into sales channels, marketing strategies, or consumer behaviors in those regions.
4. **Iterate**: Dashboards are not final; they are living tools. You can refine and update them as more data becomes available or new questions arise. This encourages ongoing learning and adaptation.
5. Another best practice focuses on filtering in dashboards, specifically within MicroStrategy's chapter structure:
    - **Filter Panel at Chapter Level**: Filters applied within a chapter affect all pages in that chapter. For example, if you filter by a specific region like Europe, the filter will apply across all views in that chapter, such as both revenue and profit pages.

    - **Page-Level Filtering**: Filters can also be applied specifically to individual visualizations within a page, allowing for more granular control.

    - **Inter-Visualization Filtering**: One visualization can filter another, enabling dynamic and interactive exploration of data.

Start with the End in Mind

Here are 10 examples of **"Start with the End in Mind"** for dashboards, where the end result drives the design and structure:

1. **Sales Performance Dashboard**:
    - **Outcome**: Identify which products or regions need targeted sales strategies.
    - **Action**: Use insights to redirect marketing resources or increase sales training in underperforming areas.
2. **Customer Satisfaction Dashboard**:
    - **Outcome**: Understand the root causes of declining customer satisfaction.
    - **Action**: Implement improvements in customer service, product quality, or user experience based on feedback trends.
3. **Financial Health Dashboard**:
    - **Outcome**: Determine areas where cost reduction is necessary.
    - **Action**: Focus on reducing overhead expenses, optimizing supply chain management, or cutting underperforming investments.
4. **Inventory Management Dashboard**:
    - **Outcome**: Highlight products with high holding costs or slow turnover.
    - **Action**: Make decisions about reducing stock or running promotional campaigns to clear excess inventory.
5. **Employee Performance Dashboard**:
    - **Outcome**: Identify departments or employees struggling to meet targets.
    - **Action**: Offer additional training, allocate resources, or adjust workloads to improve performance.
6. **Marketing Campaign Dashboard**:
    - **Outcome**: Pinpoint which campaigns are delivering the best ROI.
    - **Action**: Shift budget to the highest-performing channels and discontinue low-performing efforts.
7. **Supply Chain Efficiency Dashboard**:

- **Outcome**: Find bottlenecks in the supply chain that delay deliveries.
- **Action**: Optimize logistics, negotiate better shipping terms, or switch to faster suppliers.

8. **Website Traffic Dashboard**:
    - **Outcome**: Analyze visitor behavior and conversion rates.
    - **Action**: Improve user experience, create more engaging content, or enhance call-to-action placements.
9. **Risk Management Dashboard**:
    - **Outcome**: Identify top operational or financial risks facing the company.
    - **Action**: Develop mitigation strategies for the most critical risks, such as diversifying suppliers or securing cybersecurity measures.
10. **Project Management Dashboard**:

- **Outcome**: Track project timelines and resource allocation.
- **Action**: Adjust project scope, reallocate resources, or hire additional staff to keep the project on track.

Divide dashboards into sections

1. **Sales Performance Dashboard**
    - **Start**: Display total revenue, profit margin, and sales growth.
    - **Middle**: Investigate regional performance, comparing sales in North America, Europe, and Asia.
    - **End**: Recommend increasing marketing efforts in Europe based on its declining year-over-year growth.
2. **Customer Retention Dashboard**
    - **Start**: Show customer retention rate, churn rate, and net promoter score.
    - **Middle**: Analyze customer segments and which have the highest churn rate.
    - **End**: Suggest targeted campaigns for at-risk customer segments to improve retention.
3. **Inventory Management Dashboard**
    - **Start**: Present current stock levels, turnover rates, and days to replenish.
    - **Middle**: Investigate slow-moving vs. fast-moving items.
    - **End**: Recommend reducing orders for slow-moving products and increasing for high-demand items.
4. **Employee Performance Dashboard**
    - **Start**: Display key metrics like productivity rate, absenteeism, and project completion times.
    - **Middle**: Break down performance by department or role.
    - **End**: Suggest targeted training for underperforming departments to boost overall productivity.
5. **Website Analytics Dashboard**
    - **Start**: Present total visits, bounce rate, and average session duration.
    - **Middle**: Investigate pages with the highest bounce rate and identify potential issues.
    - **End**: Recommend optimizing those pages with high bounce rates by improving content or navigation.

6. **Project Management Dashboard**
    - **Start**: Show project timelines, milestones achieved, and budget spent vs. allocated.
    - **Middle**: Examine the causes of delays or budget overruns in specific project phases.
    - **End**: Recommend reallocating resources or adjusting deadlines for smoother project execution.
7. **Financial Health Dashboard**
    - **Start**: Present total revenue, expenses, and net income.
    - **Middle**: Analyze the major expense categories and their fluctuations over time.
    - **End**: Suggest areas for cost-cutting, such as reducing operational expenses in non-essential departments.
8. **Supply Chain Efficiency Dashboard**
    - **Start**: Show delivery lead times, transportation costs, and supplier performance.
    - **Middle**: Investigate delays and identify which suppliers are causing the most issues.
    - **End**: Recommend switching to more reliable suppliers to reduce delays and improve supply chain efficiency.
9. **Marketing Campaign Performance Dashboard**
    - **Start**: Display overall campaign ROI, conversion rates, and customer acquisition costs.
    - **Middle**: Investigate performance by marketing channel (email, social media, paid ads).
    - **End**: Recommend focusing on the highest-performing channels to maximize ROI for future campaigns.
10. **Product Development Dashboard**

- **Start**: Present the number of new products in development, completion rates, and market feedback.
- **Middle**: Investigate delays in the development pipeline and issues with specific product features.

- **End**: Suggest reallocating development resources to high-priority products to meet market demand faster.

Lab 6.1: Build First Dashboard

Objective: Learn how to build a basic dashboard in MicroStrategy.

1. **Step 1**: Open the Dashboard Creator.
    - Go to the “Create” tab and select **New Dashboard**.
2. **Step 2**: Choose a layout.
    - Select from available layout templates (grid, freeform, etc.).
3. **Step 3**: Add visualizations.
    - Drag and drop visualizations like grid, bar chart, or pie chart from existing datasets.
4. **Step 4**: Save the dashboard.
    - Give it a meaningful name and save for future use.

Lab 6.2: Create Revenue Dashboard by Replicating the First One

Objective: Learn how to copy and modify a dashboard.

1. **Step 1**: Open your first dashboard.
    - Navigate to the saved dashboard from Lab 6.1.
2. **Step 2**: Use the “Save As” option.
    - Save the dashboard with a new name like “Revenue Dashboard.”
3. **Step 3**: Update the visualizations.
    - Replace or update the data metrics to show revenue information.
    - Example: Update bar charts to reflect revenue performance per region.

Lab 6.3: Dashboard on Item Type

Objective: Create a dashboard focusing on performance by item type.

1. **Step 1**: Create a new dashboard.
    - Use item type attributes from your dataset.
2. **Step 2**: Add visualizations.
    - Include a pie chart for item type distribution.
    - Add a table or grid showing detailed performance data for each item type.
3. **Step 3**: Format and save the dashboard.

Lab 6.4: Dashboard of Regional Item Type Performance

Objective: Combine region and item type performance in a single dashboard.

1. **Step 1**: Create a new dashboard.
    - Use both region and item type as attributes.
2. **Step 2**: Add multiple visualizations.
    - Create a stacked bar chart showing performance by region and item type.
    - Include filters to toggle between regions.
3. **Step 3**: Apply conditional formatting.
    - Highlight top-performing regions.
4. **Step 4**: Save the dashboard.

Lab 7: Formatting the Dashboard

Lab 7.1: Structure Base Practice

Objective: Learn the best practices for dashboard structure.

1. **Step 1**: Organize visualizations logically.
    - Group similar charts together.
    - Use a grid layout for consistency.
2. **Step 2**: Add meaningful titles and labels.
    - Clearly indicate the purpose of each visualization.

Lab 7.2: Structure and Filtering

Objective: Add interactivity with filters.

1. **Step 1**: Add filters to your dashboard.
    - Create dropdown filters for regions, dates, or item types.
2. **Step 2**: Test filter interactions.
    - Ensure the dashboard responds dynamically to user inputs.

Lab 7.3: Responsive Design - Edit for Mobile Viewing

Objective: Make your dashboard mobile-friendly.

1. **Step 1**: Switch to mobile layout view.
    - Use the mobile design tools to reorganize visualizations.
2. **Step 2**: Test dashboard responsiveness.
    - Preview how the dashboard looks on different devices.

Steps for Adjusting Dashboard for Mobile Devices in MicroStrategy:

1. **Check Mobile View:**
    - Before publishing, always check how your dashboard will look on mobile devices.
    - MicroStrategy adjusts visualizations for mobile automatically, but manual adjustments can improve the experience.
2. **Switch to Responsive View Editor:**
    - Open the **Responsive View Editor** to preview your dashboard layout on different screen sizes (desktop, mobile, etc.).
3. **Preview Mobile Layout:**
    - Switch to the **responsive preview** mode to see how visualizations will appear on a smaller mobile screen.
    - Typically, visualizations will stack vertically, which may work for some dashboards.
4. **Group Visualizations:**
    - If you prefer to keep two visualizations side by side (to tell a coherent story), return to the **full view** mode.
    - Select two visualizations (e.g., revenue by region and percentage of total revenue).
    - Use the **Group** option to keep them aligned horizontally, even on mobile devices.
5. **Save Adjustments:**
    - After grouping the visualizations, save your changes.

- Return to the **responsive preview** mode to ensure they appear as expected on mobile devices.

6. **Consider User Experience:**
    - If the visualizations don't relate closely, keep them stacked vertically to allow more screen space for each one on mobile.
    - Group visualizations only when necessary for storytelling purposes.

By using the **responsive design** functionality, you ensure that your dashboard works well on both desktop and mobile, improving user experience across devices.

Lab 7.4: Styling Best Practice

Objective: Apply consistent styling to improve the look of your dashboard.

1. **Step 1**: Choose a color palette.
    - Stick to a professional, consistent theme across all visualizations.
2. **Step 2**: Use appropriate fonts and sizes.
    - Ensure text is readable, especially on mobile devices.

Dashboard Styling in MicroStrategy: Best Practices

1. **Choosing a Theme:**
    - Default theme looks professional and is preferred over the classic theme.
    - You can switch between different **color palettes** provided by MicroStrategy, such as **Arctic**, **Harvest**, or **Retro**.
    - **Best Practice:** If your visualization contains many different categories, select the **Categorical** palette. It offers clear distinction between categories due to its diverse color scheme.
2. **Creating a Custom Color Palette:**
    - If your company has specific branding colors, create a custom palette using the exact **color codes**.
    - Go to **Format > Create New Palette > Custom** and input the color codes. This consistency with branding will elevate the visual appeal and professionalism of your dashboard.
3. **Formatting Options:**
    - **Format Object:** You can format individual objects from the panel (often accessed from the left menu). This allows for easy customization of colors and styles.
    - **Dossier Formatting:** This is where you can style the overall page:
        - **Page Style:** Choose between the **Card** view (with space between visualizations) or **Flat** view (visualizations appear without separation). Card style generally looks cleaner and more organized.
        - **Background & Fill Colors:** Customize the background and container body colors.

        - **Borders:** You can add borders to elements, but keep them subtle to avoid distractions. A simple, clean layout is often better.

4. **Adjusting Specific Colors:**
    - You can right-click on specific parts of your dashboard to format and change colors on individual visualizations. For example, you can change the color of a data series or a category bar to match your design preferences.
5. **Final Touches:**
    - After adjusting colors and formatting, ensure the design remains professional and aligned with company branding.
    - Use **default settings** when in doubt, as they tend to be well-balanced and visually pleasing.
    - Group colors intelligently, especially if your dashboard presents multiple categories or complex data.

By following these formatting options, you'll have a dashboard that is visually appealing, clear, and aligned with both professional design standards and user needs.

Lab 8: Presenting Your Dashboard

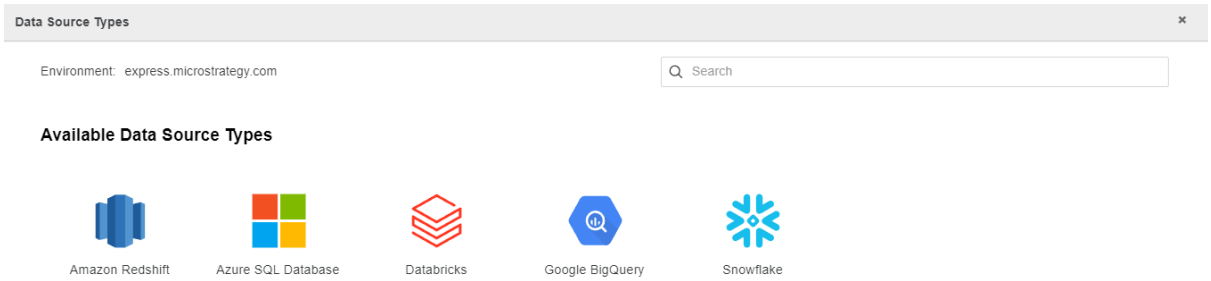
Objective: Learn how to present dashboards effectively.

1. **Step 1**: Use storytelling techniques.
    - Guide your audience through the dashboard logically, explaining key insights.
2. **Step 2**: Prepare interactive presentations.
    - Show how filters and drill-downs can help explore the data.

Lab 9: Connect to Different Data Sources

https://www2.microstrategy.com/producthelp/Current/Readme/en-us/Content/certified_configurations.htm

Free Edition- DataBase Data Source:



Case Study 1: Building a MicroStrategy Dashboard for Flight Cancellations

Objective:
To build a MicroStrategy dashboard that analyzes flight cancellations using a given dataset with the following columns:

- Origin Airport
- Airline Name
- Departure Hour
- Day of Week
- Year
- Month
- On-Time
- Number of Flights
- Flights Delayed
- Flights Cancelled
- Average Delay (min)

1. Defining the Goal (Start with the End in Mind)

The primary goal is to understand the patterns and causes behind flight cancellations. The dashboard should allow users to:

- Identify trends in cancellations based on origin airports, airlines, and time periods.
- Compare performance between airlines in terms of cancellations, delays, and on-time arrivals.
- Investigate the relationship between delays and cancellations.
- Provide actionable insights, such as suggesting which time frames or airlines have the highest risk of cancellations.

2. Dataset Preparation

To prepare the dataset for analysis:

- **Ensure Data Completeness**: Verify that each column has complete and accurate data.
- **Create Key Metrics**: Metrics such as cancellation rate, delay rate, and average delay per airline can provide valuable insights.
    - **Cancellation Rate**: (Flights Cancelled / Number of Flights) * 100
    - **Delay Rate**: (Flights Delayed / Number of Flights) * 100
    - **On-Time Rate**: (On-Time / Number of Flights) * 100
    - **Average Delay (min)**: Pre-calculated from the dataset.

3. Dashboard Structure

Start: Overview Metrics and Key Highlights

This section should give a snapshot of overall flight performance. Key metrics include:

- **Total Flights**: Aggregated from the dataset.
- **Total Flights Cancelled**: Sum of “Flights Cancelled.”
- **Average Delay**: Calculated from “Avg Delay (min).”

- **Top 3 Airports with Highest Cancellations**: Based on the “Flights Cancelled” column.
- **Top 3 Airlines with Most Cancellations**: Based on the “Flights Cancelled” column.

Visualization: Use a summary table with KPIs for total flights, cancellation rates, and average delay across the entire dataset. Include bar charts to highlight the top airports and airlines with the most cancellations.

Middle: In-Depth Analysis of Flight Cancellations

Filters: Allow users to filter by time (Year, Month, Day of Week), airline, and origin airport.

1. **Cancellation Trends Over Time**
    - Show a line graph displaying cancellation rates over the months or years. This can help identify if cancellations increase during specific times (e.g., winter months).
2. **Cancellations by Origin Airport and Airline**
    - Use a heatmap that shows the cancellation rates by airline and origin airport. This helps users identify airports or airlines with more frequent cancellations.
3. **Cancellation by Day of Week and Departure Hour**
    - Visualize the relationship between the time of day or day of the week and cancellations using bar or combo charts. This can reveal if flights in the early morning or specific days (like Mondays or Fridays) have higher cancellation rates.

Visualization:

- **Line Graph**: Cancellation trends by month or year.
- **Heatmap**: Cancellations by origin airport and airline.
- **Combo Chart**: Flights cancelled by day of the week and hour of the day.

End: Actionable Insights and Recommendations

The final section should summarize key findings and offer actionable insights. Examples:

- **Worst-Performing Airports and Airlines**: Recommend avoiding certain airlines or airports during peak times or bad weather.
- **Best Time to Fly**: Provide suggestions for the best time of day or week to minimize the risk of cancellations.

Visualization:

- **Pie Charts**: Show the distribution of cancellations by airline and by airport.
- **Text Box**: Summarize recommendations, such as "Avoid flights from Airport X during winter months due to high cancellation rates."

4. Interactivity and Filtering

To allow dynamic interaction, provide users with filter panels:

- **Date Range**: Filter flights by year and month to compare performance across time periods.
- **Airline Filter**: Select specific airlines to see how they compare in terms of cancellations and delays.
- **Origin Airport Filter**: Choose specific origin airports to view their performance.
- **Time of Day Filter**: Focus on flights at different times of day to see how timing impacts cancellations.

5. Analysis Approach

- **Trend Analysis**: Spot patterns in cancellations over time, comparing year-to-year data.
- **Performance Comparison**: Evaluate how different airlines and airports perform in terms of cancellations.
- **Root Cause Investigation**: Examine if delays are a contributing factor to cancellations by visualizing the relationship between "Avg Delay (min)" and "Flights Cancelled."

6. Actionable Outcome

The dashboard should conclude with key takeaways:

- **When are cancellations most frequent?** (e.g., during holidays or bad weather seasons).
- **Which airlines are more reliable?** Highlight airlines with the best performance in on-time flights.
- **Which airports should passengers be wary of?** Show airports with the highest cancellation rates.

Example Dashboard Layout:

1. **Overview (Start)**:
    - **KPI Cards**: Total Flights, Total Cancellations, Average Delay.
    - **Bar Chart**: Top Airports and Airlines by Cancellations.
2. **Cancellations by Time (Middle)**:
    - **Line Graph**: Cancellations over time (monthly/annual).
    - **Heatmap**: Cancellations by origin airport and airline.
3. **Insights & Recommendations (End)**:
    - **Pie Chart**: Cancellation distribution by airline.
    - **Text Box**: Summary of recommendations.

This structure ensures that users can quickly understand the overall cancellation landscape, investigate problem areas, and take action based on data-driven insights.

Lab 10: AI Bot in MicroStrategy

Objective: Explore the use of AI Bots within MicroStrategy.

1. **Step 1**: Access the AI Bot feature.
    - Navigate to the AI integration tools in MicroStrategy.
2. **Step 2**: Set up AI-driven insights.
    - Train the bot to analyze data and offer automated insights or recommendations.
3. **Step 3**: Implement AI Bot into your dashboard.
    - Integrate the bot's suggestions or visualized insights directly into the dashboard.

Integrating AI Bot in MicroStrategy

MicroStrategy's **AI Bot** is a powerful feature that leverages AI and natural language processing (NLP) to provide users with an intuitive way to interact with their data. Here's how it works and how you can integrate it into your dashboards.

Key Features of AI Bot:

1. **Conversational Interface**:
    - Users can ask questions in natural language, and the AI Bot will retrieve insights from the underlying datasets.
    - It eliminates the need for complex queries and allows even non-technical users to engage with data easily.
2. **Contextual Responses**:
    - The AI Bot is context-aware. It can remember past interactions and adjust its responses based on previous questions, making the conversation feel more natural and coherent.
3. **Access to Dashboards and Reports**:
    - Users can ask the bot to display specific dashboards, reports, or insights directly within MicroStrategy, allowing for quick data retrieval and visualization.
4. **Automation and Alerts**:

- The AI Bot can automate repetitive tasks and set up alerts based on predefined conditions, keeping users informed in real-time about critical data changes.

How to Use the AI Bot in MicroStrategy:

1. **Activate AI Bot**:
   - Make sure the AI Bot feature is enabled in your MicroStrategy environment. This can usually be done by the system administrator or from the settings panel if it's already available.
2. **Ask Questions**:
   - Once enabled, you can start interacting with the AI Bot by typing questions into the chat window. For example, ask:
     - "What was the total revenue last quarter?"
     - "Show me a breakdown of sales by region."
3. **Refining Queries**:
   - The AI Bot helps refine queries if initial answers aren't specific enough. For example, if you ask, "What were the sales figures?" the bot might respond by asking you to specify the time period or region to narrow the data focus.
4. **Customizing the AI Bot**:
   - The AI Bot can be customized to respond to specific datasets or follow rules that align with your organization's specific needs. Developers can also extend the bot's capabilities using API integrations.
5. **Seamless Interaction**:
   - Users can continue drilling down into data through the AI Bot by asking follow-up questions like, "What contributed to the sales increase in North America?" The bot will analyze and respond based on available data.
6. **Voice Assistance**:
   - In some environments, voice commands can be integrated, making it even easier to interact with the AI Bot hands-free.

Practical Use Cases:

- **Executive Reporting**: C-level executives can quickly ask for performance metrics, such as quarterly sales, profit margins, or team KPIs, without needing to dig into reports.

- **Sales Teams**: Sales managers can ask the bot to pull customer data, such as "Which customers bought the most products this year?" or "What is our top-selling product in Q3?"
- **Finance**: Accountants can inquire about the current cash flow, expenses, or profit trends in real time.

Benefits of Using the AI Bot:

- **Simplicity**: No need for technical expertise; anyone can access insights through simple language.
- **Speed**: Immediate responses to queries enhance productivity by cutting down on time spent searching for reports or figures.
- **Automation**: The bot can handle repetitive tasks like scheduling reports or setting up alerts.

By integrating AI Bot into MicroStrategy, you are enhancing user experience and allowing users to gain insights effortlessly, which can drastically improve decision-making efficiency across all departments.

Lab 11: AutoNarrative in MicroStrategy

AutoNarrative is an advanced feature in MicroStrategy that leverages AI-driven narrative analytics to automatically generate text-based explanations for your data. This feature is ideal for summarizing complex data sets and enhancing the storytelling aspect of your dashboards and reports. AutoNarratives are particularly useful for users who may not be well-versed in interpreting raw data but need quick insights.

Key Features of AutoNarrative:

1. **Dynamic Narration**:
    - Automatically generates a human-readable narrative that explains trends, anomalies, and key metrics in your data. For example, instead of showing raw numbers, AutoNarrative can output, "Sales increased by 15% in Q3 compared to the previous quarter due to a spike in product X sales."
2. **Real-Time Updates**:
    - As your data changes, the AutoNarrative updates in real-time to reflect the most current insights. This dynamic aspect ensures that your narrative is always in sync with the latest data.
3. **Customizable Narrative**:
    - You can define the type of insights that the AutoNarrative should focus on, such as year-over-year growth, variance from budget, or top/bottom performers.
4. **Context-Aware**:
    - AutoNarratives can be contextualized to specific visualizations or data slices. For instance, when you drill down into sales by region, the narrative will update to explain the regional performance in that context.

How to Use AutoNarrative in MicroStrategy:

1. **Activate AutoNarrative**:
    - Ensure AutoNarrative is available in your MicroStrategy environment. Go to the **Narrative Editor** within your dashboard or report and enable AutoNarrative for the relevant visualizations or datasets.
2. **Set Up Your Narrative**:

- Choose the visualization or data table you want to link to the AutoNarrative. For instance, if you have a bar chart displaying sales by region, you can set up the AutoNarrative to provide a text summary of the highest and lowest-performing regions.
- Define the metrics and dimensions that the AutoNarrative should focus on. You can prioritize key metrics like revenue, profit margin, growth rate, etc.

3. **Customize the Narrative Style**:
   - Depending on your audience, you may want to adjust the tone of the narrative. MicroStrategy allows you to tweak the level of detail and phrasing, from highly detailed analytical summaries to more concise executive-level reports.
4. **Real-Time Data Integration**:
   - The AutoNarrative updates automatically as your data refreshes. For instance, if there is a spike in sales in a particular region, the narrative might reflect that by saying, "Sales in the North America region have spiked by 20% this quarter due to increased demand for product X."
5. **Embedding the Narrative**:
   - Once set up, the AutoNarrative can be embedded directly into your dashboard alongside visualizations. This allows users to not only see the charts and graphs but also read the context behind the data.
6. **Advanced Customization**:
   - You can extend the capabilities of AutoNarrative by incorporating conditional formatting, adding specific thresholds, or creating rules that trigger different narrative styles based on data behavior. For example, if profit margins fall below a certain percentage, the narrative could be worded in a way that reflects concern, such as, "Profit margins have fallen below 5%, driven by higher operational costs."

Practical Use Cases:

1. **Executive Summaries**:
   - AutoNarrative provides a quick, easy-to-understand summary of financial performance or sales trends, making it ideal for presenting to executives who need insights fast without diving into the data details.
2. **Operational Insights**:

    - Operations managers can use AutoNarrative to automatically summarize operational metrics such as production efficiency, downtime, and cost overruns, reducing the time spent analyzing reports.

3. **Sales Performance Reports**:
    - Sales teams can use AutoNarrative to explain sales trends, top-performing products, and market growth areas without manually writing up explanations.

4. **Customer Insights**:
    - Marketing teams can deploy AutoNarrative to summarize customer behavior, campaign performance, or demographic insights, adding clarity to data-driven decision-making.

Benefits of AutoNarrative:

- **Time-Saving**: Reduces the need for manual data analysis and report writing by automatically generating key insights.
- **Improved Communication**: Helps non-technical users understand complex data through clear, readable text summaries.
- **Real-Time Updates**: Narratives evolve with your data, ensuring that the explanations provided are always relevant and current.
- **Customization**: You can tailor the narrative to match your company's tone, key metrics, and reporting needs.

By integrating AutoNarrative into your dashboards, you provide not just numbers and visualizations but also clear, meaningful insights that can drive better decision-making.