# Lesson 06: Tableau Wizardry with Calculated Fields and Table Calculations

## Overview

In this exercise, you will delve into the realm of calculated fields and table calculations within Tableau. You will work with a dataset that includes monthly sales performance across various product categories. Through this exercise, you will learn how to create calculated fields to derive new insights and leverage table calculations to perform dynamic analysis on your data.

## Instructions

- Work through all tasks either individually or within your group
- Allocate your time evenly among the tasks to ensure a comprehensive understanding
- Utilize the provided **Monthly_Sales_Performance** dataset to enhance your problem-solving abilities

## Tasks

As a data analyst you are tasked with analyzing monthly sales performance. You will start by loading the dataset into Tableau and performing initial data exploration. Your tasks will involve creating calculated fields to derive new metrics and leveraging table calculations to perform dynamic analysis.

1. **Dataset loading and initial exploration**

   - Import the **Monthly_Sales_Performance** dataset into Tableau

     o Open Tableau and choose the appropriate data source type (Excel or CSV)
     o Navigate to and select the **Monthly_Sales_Performance** dataset
     o Click **Open** or **Connect** to import the dataset into Tableau

   - Use Tableau's data pane to review the dataset's layout, focusing on dimensions, measures, and time-based fields

2. **Create calculated fields**

- Create calculated fields to derive new metrics such as Profit margin, Year-over-year growth, and Contribution margin

    o Navigate to the **Analysis** menu and select **Create Calculated Field**
    o Name the calculated field for each metric (Profit margin, Year-over-year growth, Contribution margin) and use the provided formulas to create the calculated fields:

    Profit margins: **SUM([Profit ($)]) / SUM([Sales ($)]) * 100**

    Year-over-year growth: **((SUM([Profit ($)]) - LOOKUP(SUM([Profit ($)]), -12)) / LOOKUP(SUM([Profit ($)]), -12)) * 100**

    Contribution margins: **SUM([Profit ($)]) / SUM([Units Sold]) * 100**

3. **Leverage table calculations**

- Drag **Month** to **Columns** and **Profit** to **Rows**. Right-click on the measure or dimension in the visualization and choose **Quick Table Calculation** and select the appropriate table calculation types (Moving Average, Percent Difference, and Rank)

- Utilize table calculations such as **Moving Average**, **Percent Difference**, and **Rank** to gain deeper insights into sales performance trends and patterns

4. **Integrate calculated fields and table calculations**

- Combine calculated fields and table calculations to create interactive visualizations

    o Add a new worksheet, drag the **Month** to **Columns** and **Profit margin** created in Task 2 to the **Rows,** and use the calculated fields as measures or dimensions in your visualizations
    o Right-click on the measure or dimension in the visualization and choose **Add Table Calculation**
    o Select the appropriate table calculation types (Moving Average, Percent Difference, and Rank) and apply **Table Calculation** to the visualizations to add dynamic analysis

- Design a dashboard that showcases the derived metrics and dynamic analysis results effectively

- Navigate to the **Dashboard** tab and click on **New Dashboard**
- Drag **Sheet 1** to the dashboard, click on **Layout**, and select **Floating** to create an intuitive and informative layout. Do the same for **Sheet 2** and change the sheet name by double clicking on it.
- Right-click on the **Rank of Profit** sheet and add interactivity using filter actions
- Preview the dashboard to ensure it effectively communicates the derived metrics and analysis results
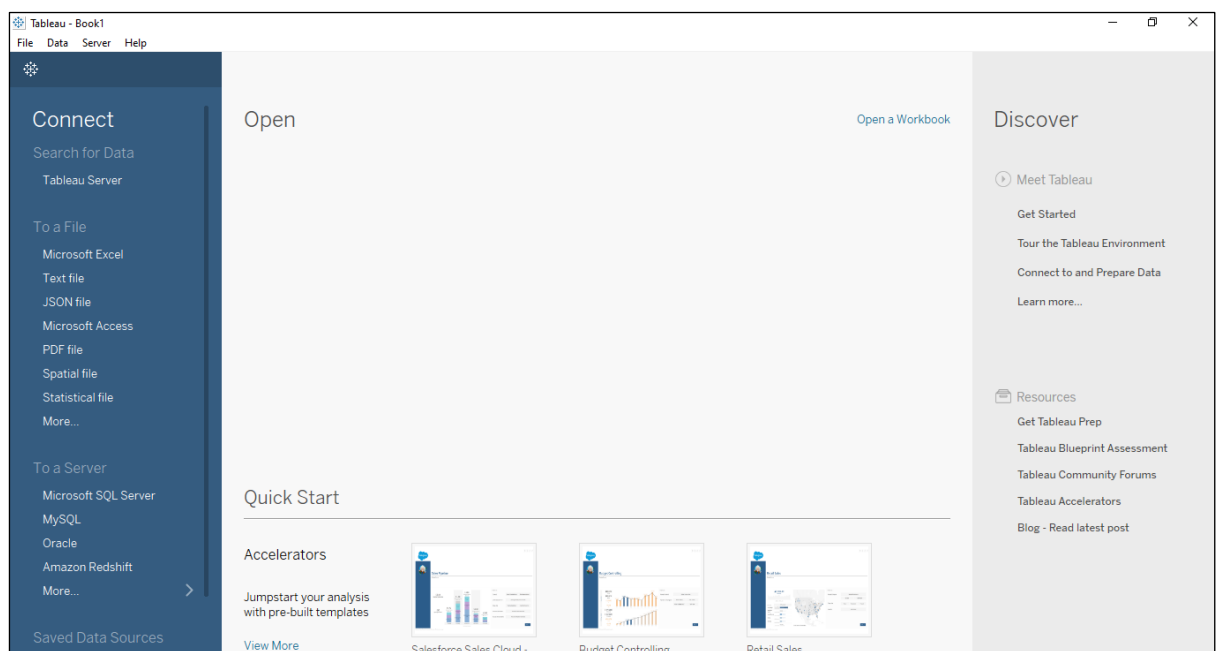
## Discussion Questions (Optional)

If time permits, discuss the following questions:

- How did the calculated fields enhance your analysis process, and what new insights did they reveal?
- In what ways did table calculations help in understanding the trends and patterns in sales performance data?

# Answer Key

1. **Dataset loading and initial exploration**

   - Import the **Monthly_Sales_Performance** dataset into Tableau

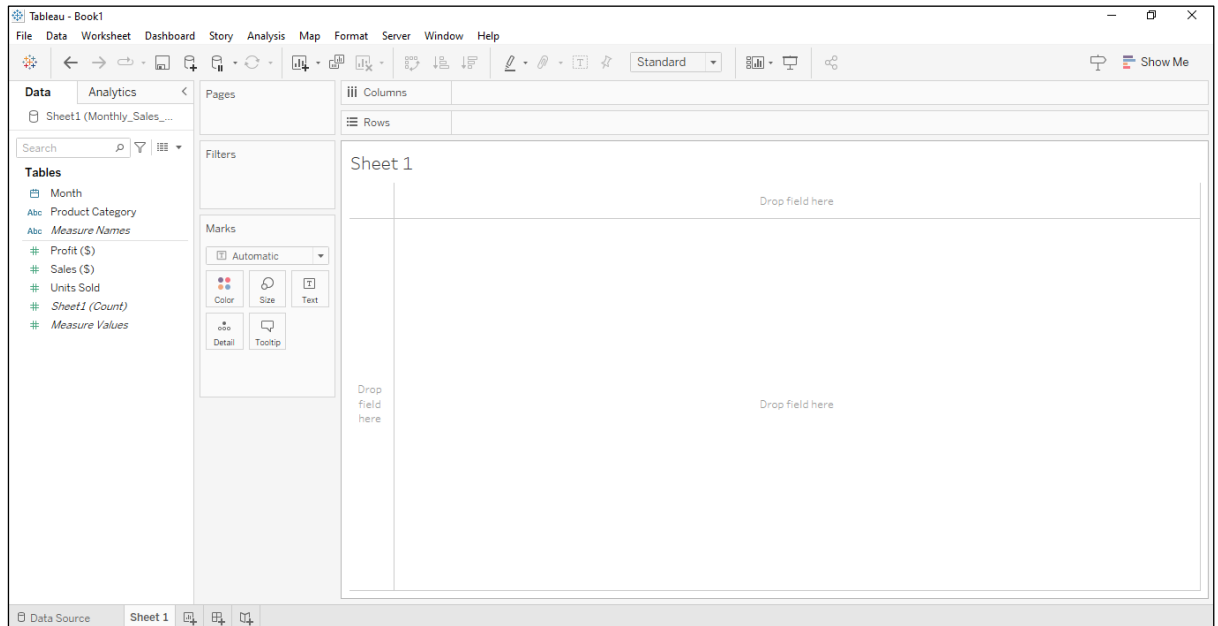     o Open Tableau and choose the appropriate data source type (Excel or CSV)

o   Navigate to and select the **Monthly_Sales_Performance** dataset



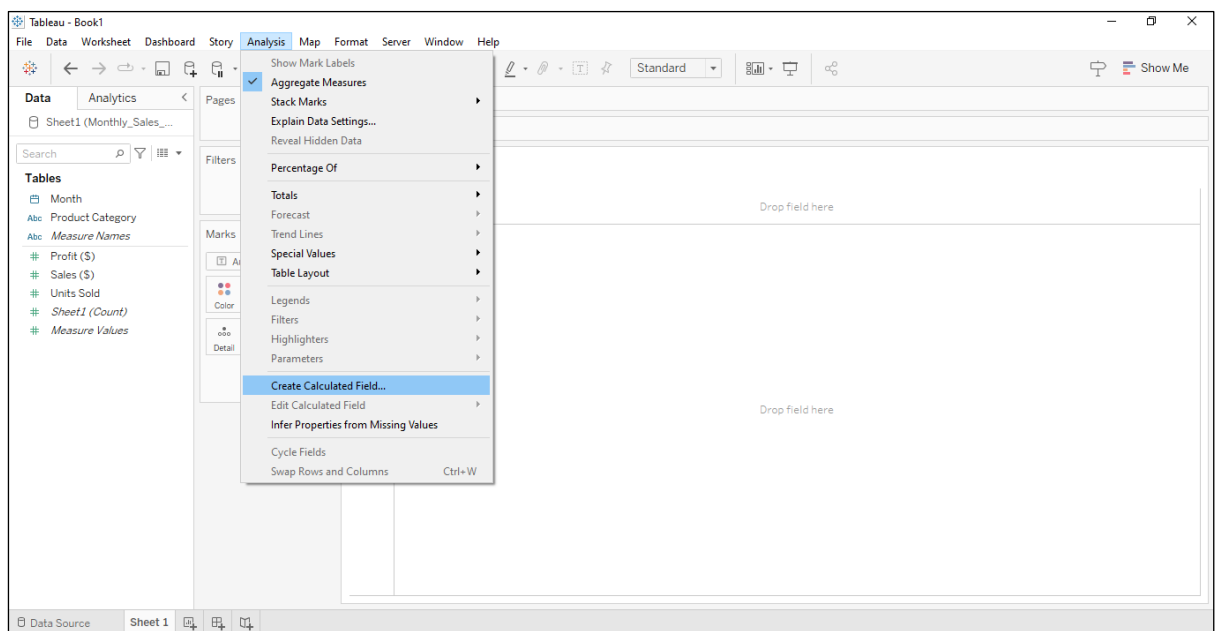o   Click **Open** or **Connect** to import the dataset into Tableau

- Use Tableau's data pane to review the dataset's layout, focusing on dimensions, measures, and time-based fields



2. **Create calculated fields**

- Create calculated fields to derive new metrics such as Profit margin, Year-over-year growth, and Contribution margin

  o Navigate to the **Analysis** menu and select **Create Calculated Field**

- o Name the calculated field for each metric (Profit margin, Year-over-year growth, and Contribution margin) and use the provided formulas to create the calculated fields:

  Profit margin: **SUM([Profit ($)]) / SUM([Sales ($)]) * 100**
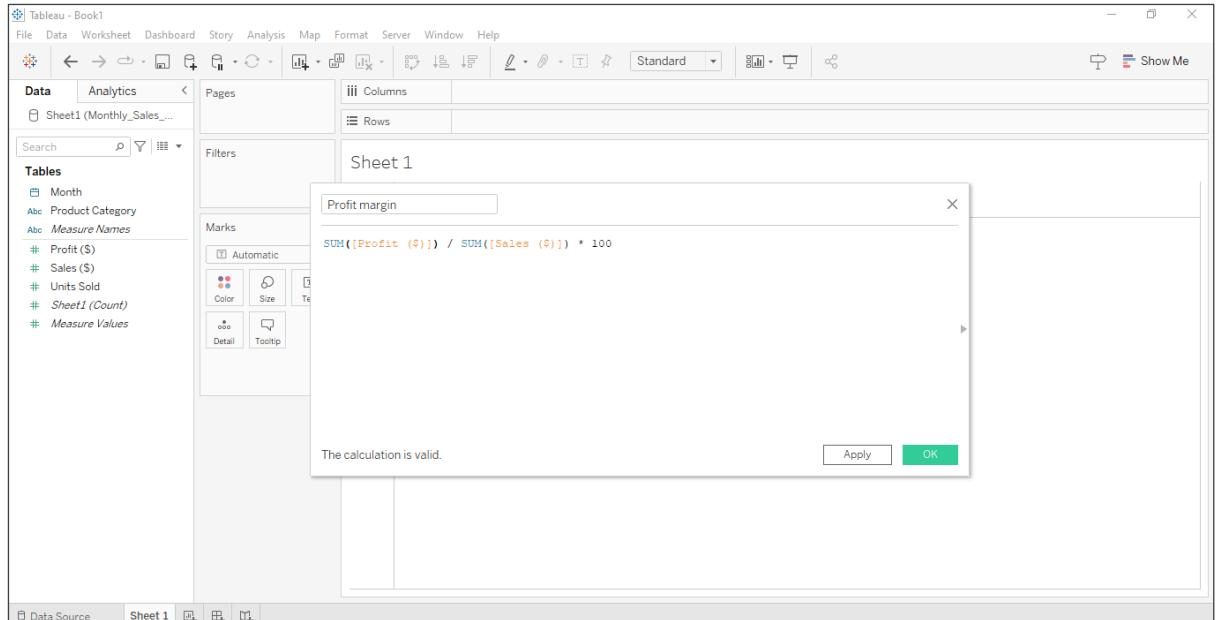


  Year-over-year growth: **((SUM([Profit ($)]) - LOOKUP(SUM([Profit ($)]), -12)) / LOOKUP(SUM([Profit ($)]), -12)) * 100**
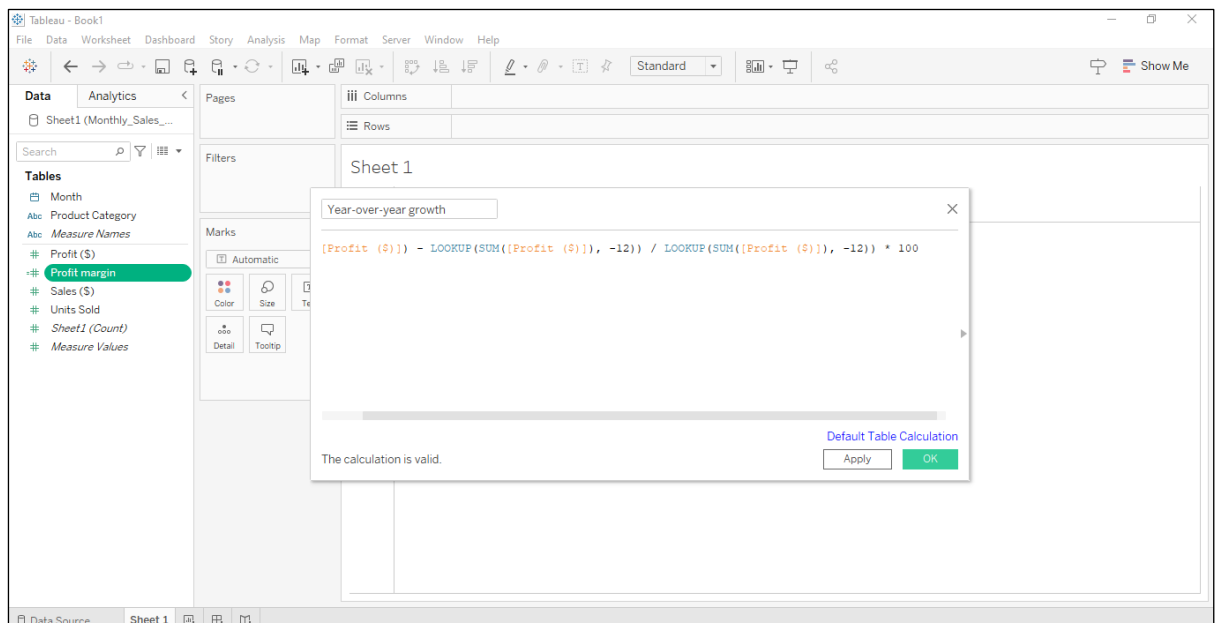
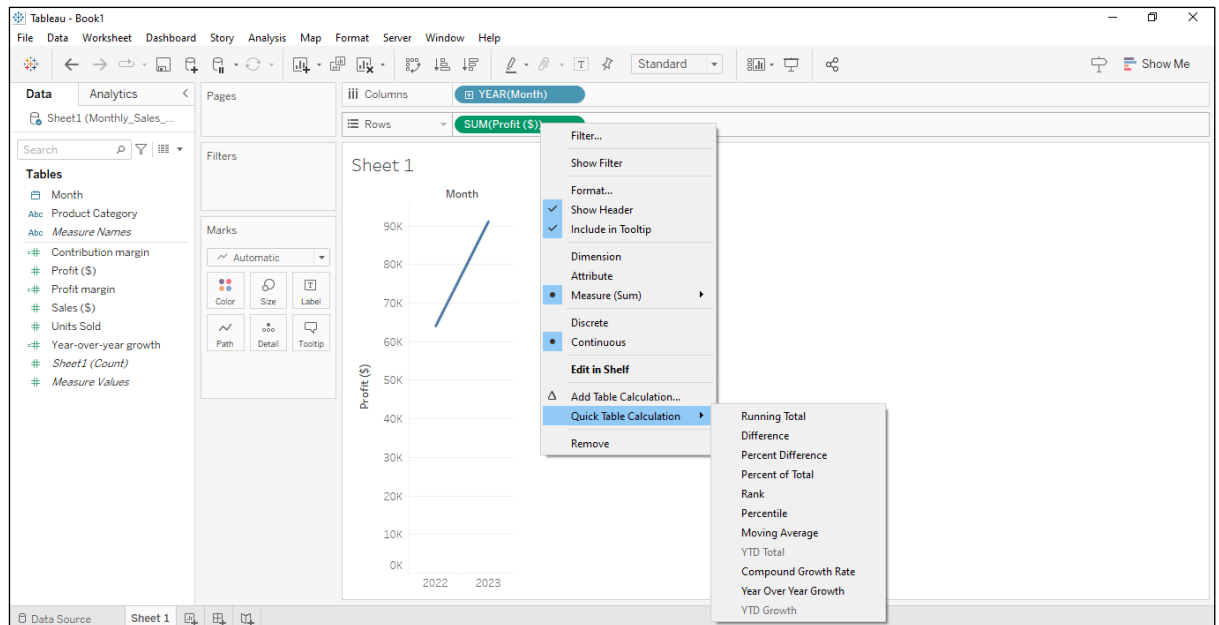Contribution margin: **SUM([Profit ($)]) / SUM([Units Sold]) * 100**
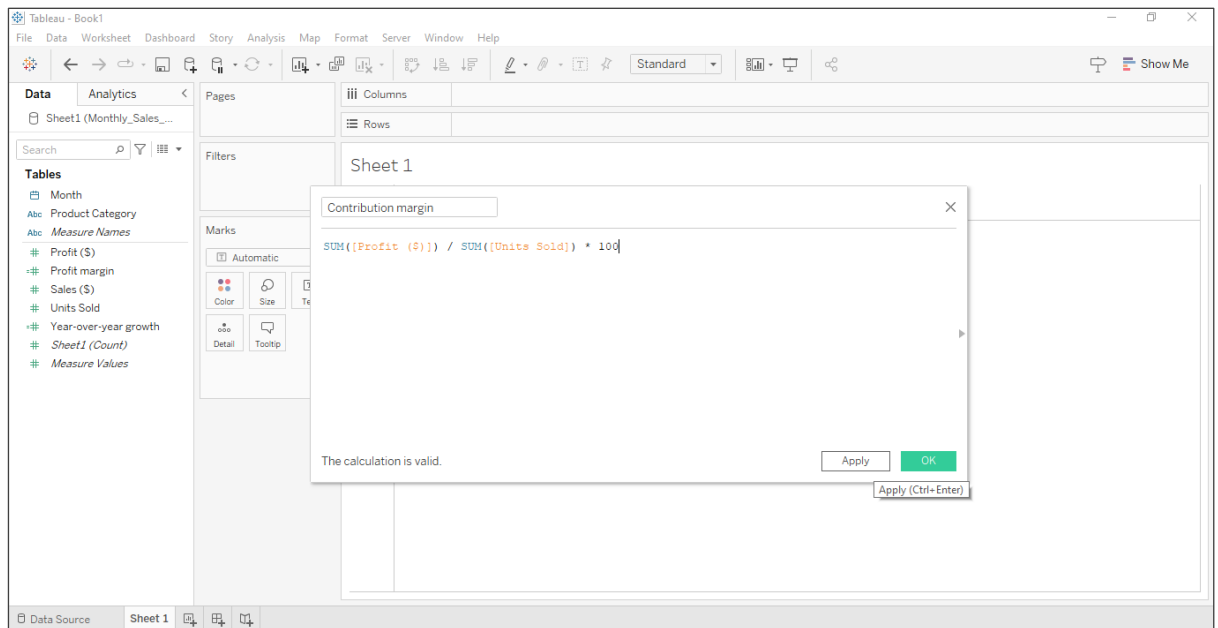


> **Note:** Utilize Tableau's calculation editor to write formulas for the calculated fields based on the requirements

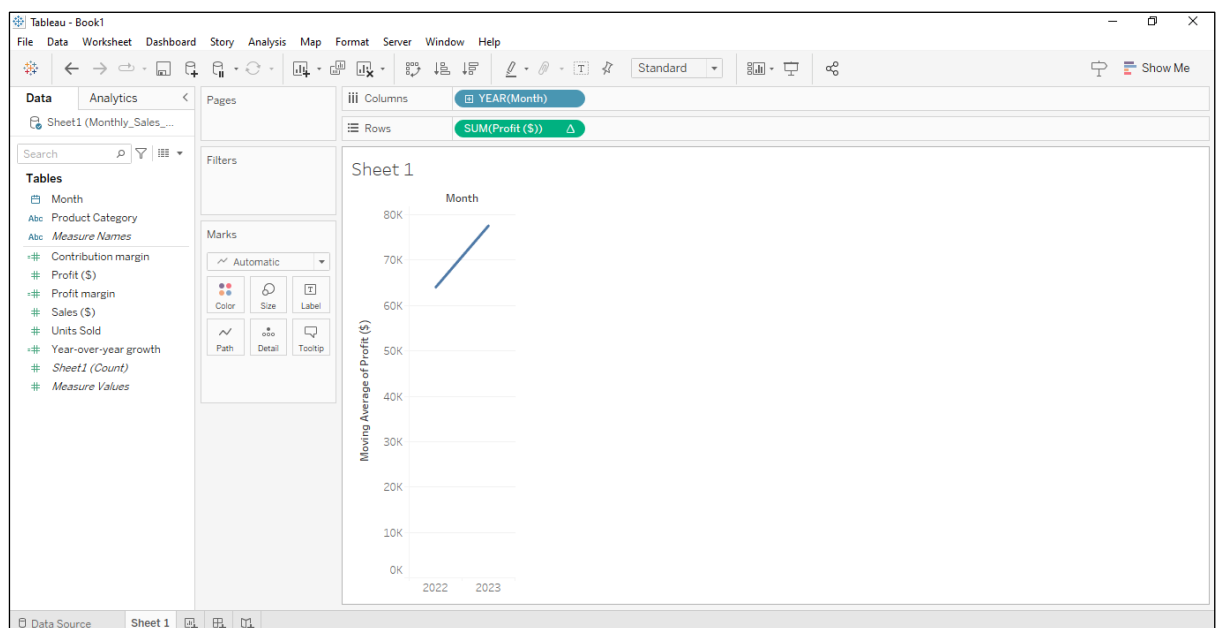3.  **Leverage table calculations**

    - Drag **Month** to **Columns** and **Profit** to **Rows**. Right-click on the measure or dimension in the visualization and choose **Quick Table Calculation** and select the appropriate table calculation types (Moving Average, Percent Difference, and Rank)
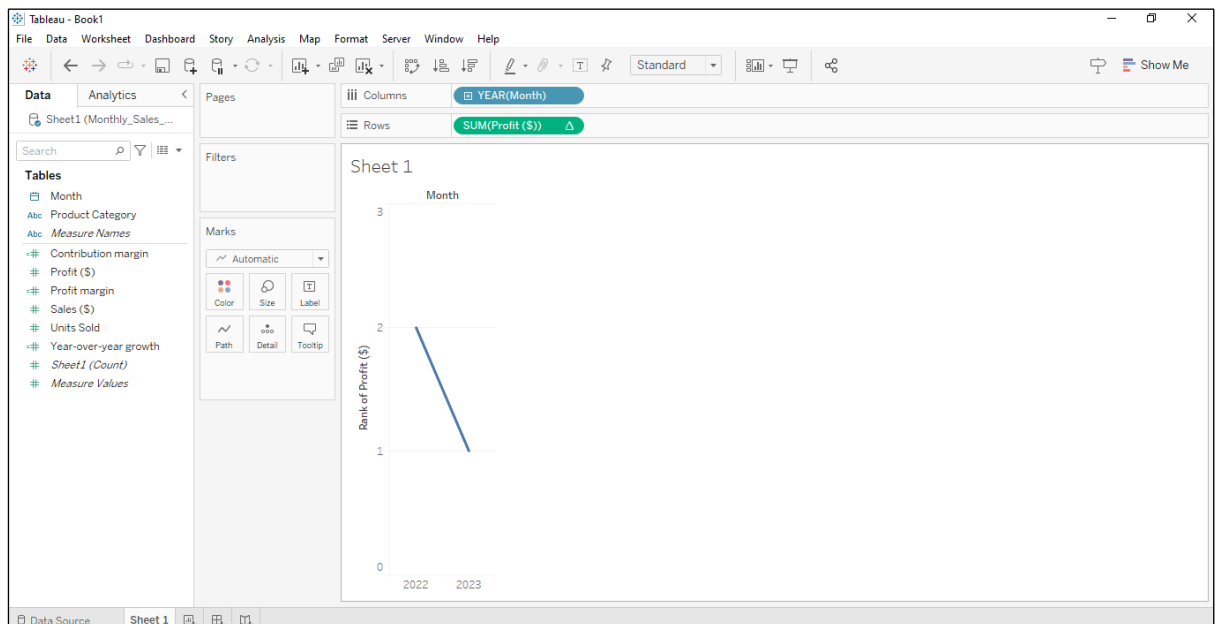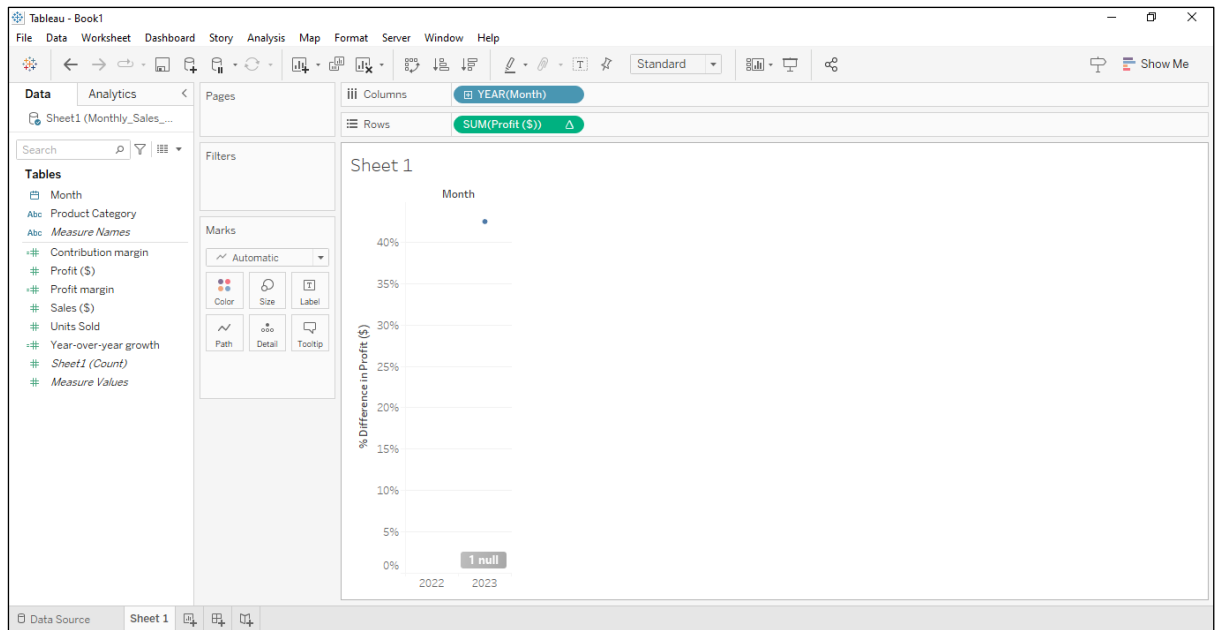
    > **Note:** Perform all the above-mentioned table calculation types (Moving Average, Percent Difference, and Rank)
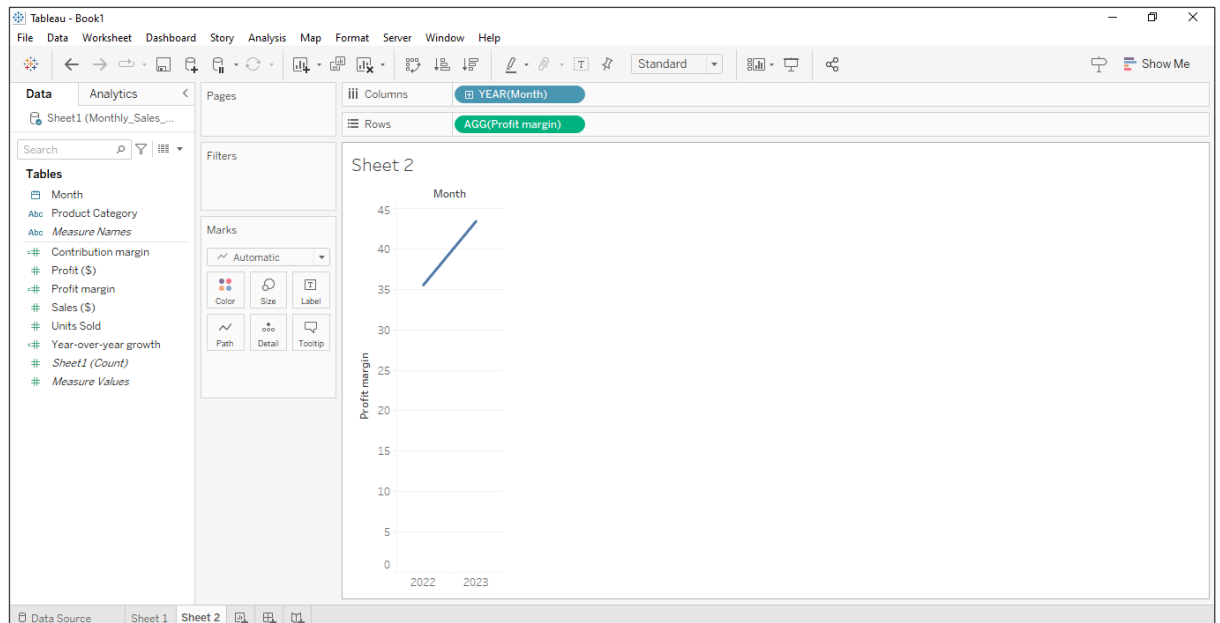
- Utilize table calculations such as **Moving Average**, **Percent Difference**, and **Rank** to gain deeper insights into sales performance trends and patterns
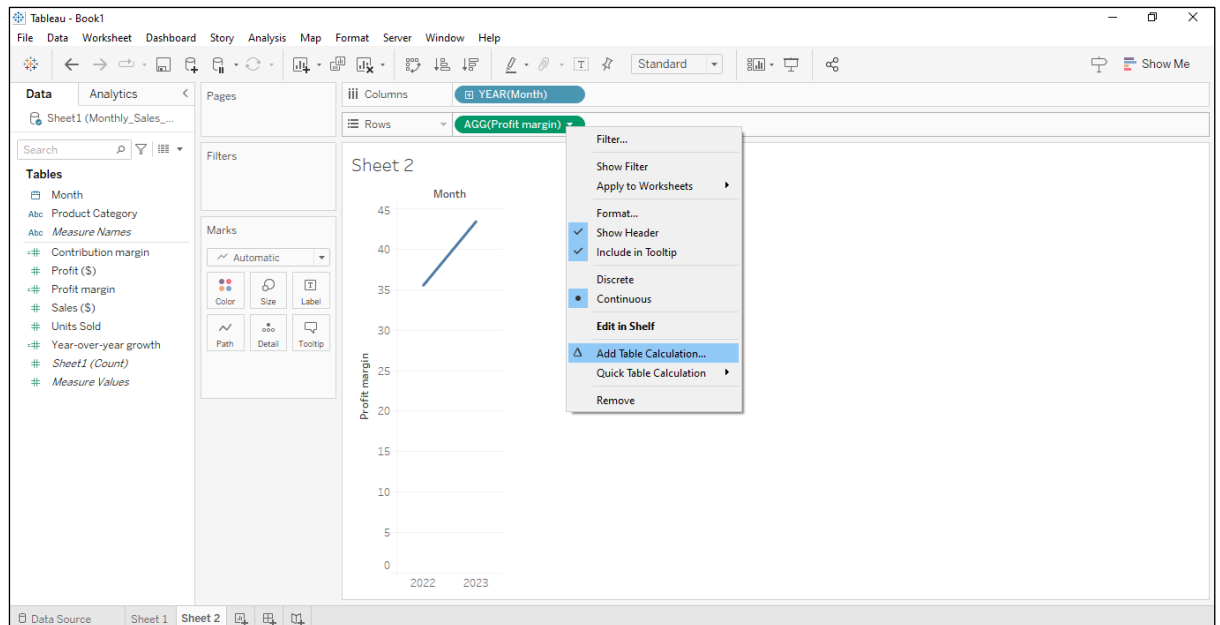
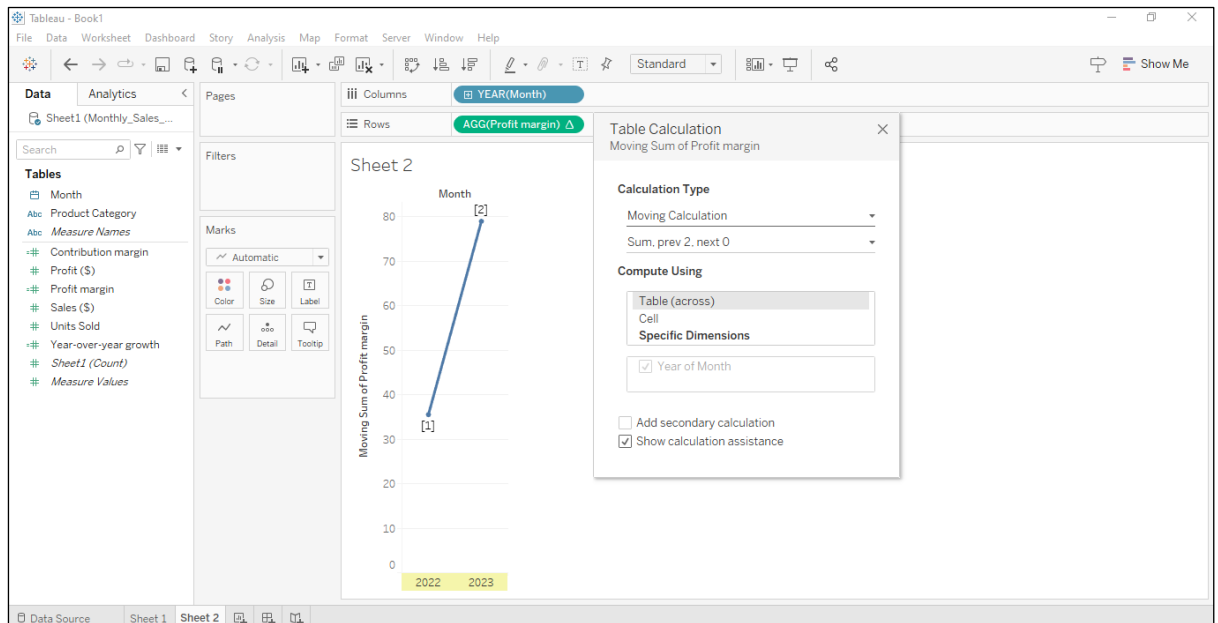4. **Integrate calculated fields and table calculations**

- Combine calculated fields and table calculations to create interactive visualizations

    o Add a new worksheet, drag the **Month** to **Columns** and **Profit margin** created in task 2 to the **Rows,** and use the calculated fields as measures or dimensions in your visualizations
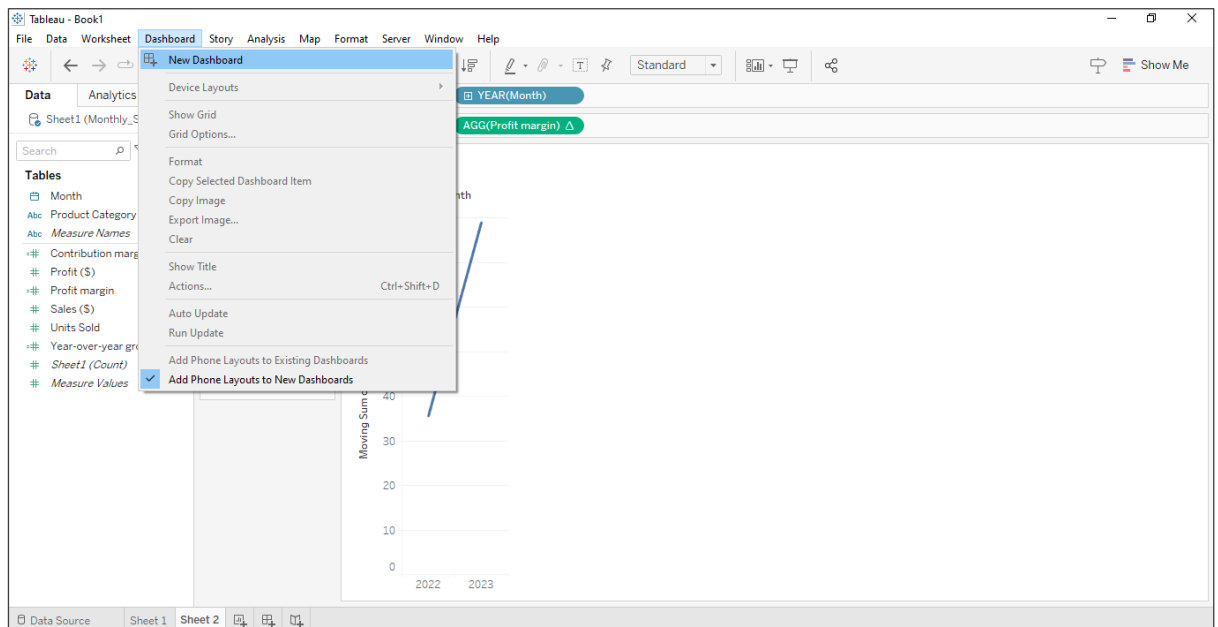
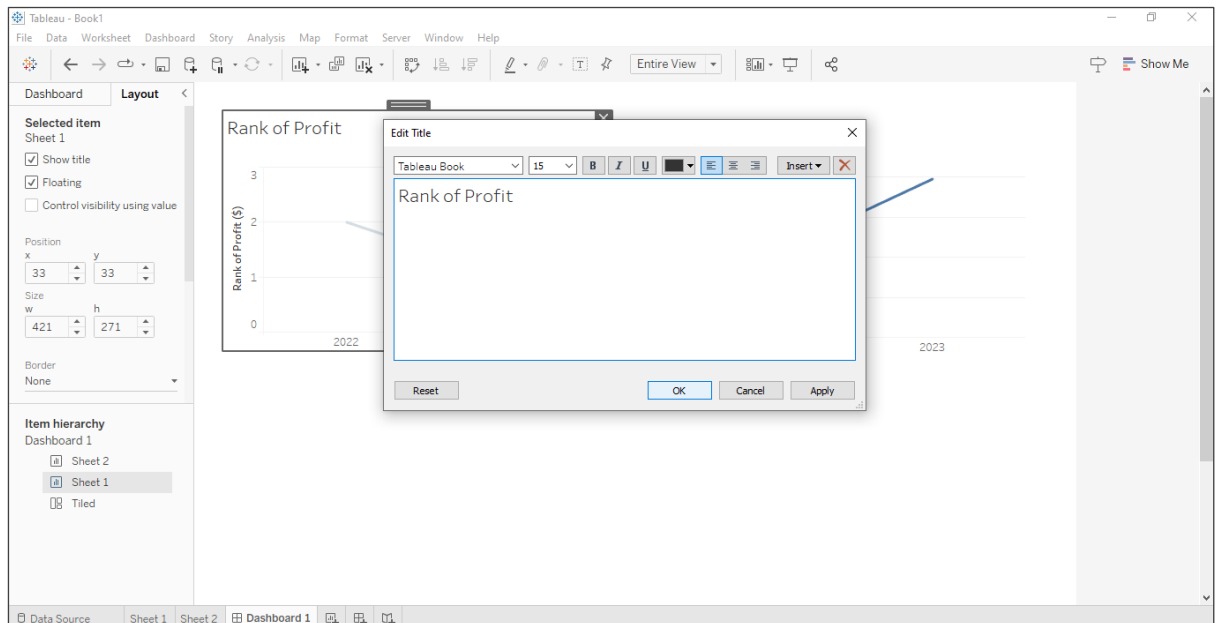o Right-click on the measure or dimension in the visualization and choose **Add Table Calculation**

o Select the appropriate table calculation types (Moving Average, Percent Difference, and Rank) and apply **Table Calculation** to the visualizations to add dynamic analysis
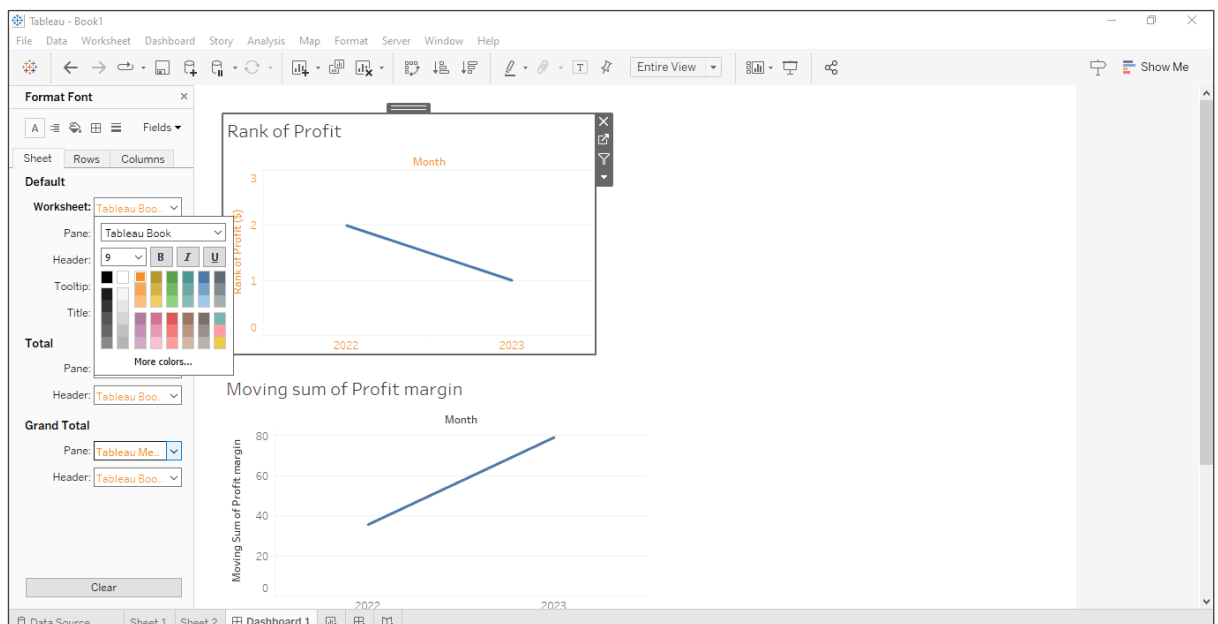


- Design a dashboard that showcases the derived metrics and dynamic analysis results effectively

o Navigate to the **Dashboard** tab and click on **New Dashboard**

○ Drag **Sheet 1** to the dashboard, click on **Layout** and select **Floating** to create an intuitive and informative layout. Do the same for **Sheet 2** and change the sheet name by double-clicking on it.



○ Right-click on the **Rank of Profit** sheet and select **Format** to add interactivity using **Format Font**

o  Preview the dashboard to ensure it effectively communicates the derived metrics and analysis results