

La Guardia Community College

DATA 203 DATA VISUALIZATION USING TABLEAU

Class 3

WHAT IS A DASHBOARD?



Information Management Tools used to **track, analyze and display** key metrics or data points for an organization.



They allow organizations to quickly **monitor the health** of their organization, department, goals, etc.



Corporate Dashboards are usually **connected to a database**. This allows the dashboard to always be automatically updated.

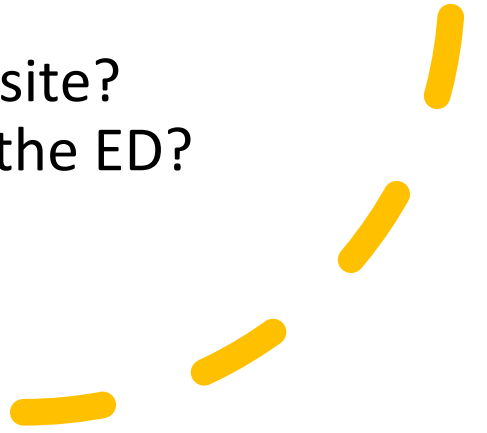


Allows you to **monitor performance** by displaying historical trends, actionable data, and real time information.

HOW DO DASHBOARD'S WORK?

- Dashboards answer **important business questions.**
- Designed for **quick analysis** and information awareness
- Use a **Question – Answer format** to design a dashboard

Example

- How close are we to meeting our sales or budget goal?
 - How many calls has our helpdesk answered this week?
 - How many visitors visited our website?
 - How many patients are waiting in the ED?
- 

WHY DO I NEED A DASHBOARD?



Get more value out of your data

A well-designed dashboard is a powerful tool to inform and enable cross-functional collaboration while providing a lifeline to core business metrics.



Consolidate and automate multiple data points

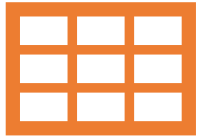
Dashboards bring multiple metrics together on a single reporting interface. It reduces the amount of time and effort required to compile reports and share it across business.



Aligns teams and departments

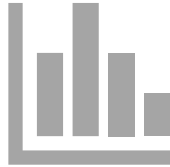
When it comes to cross-functional collaboration, dashboards provide an objective view of current performance and can serve as common ground for further discussion.

TYPES OF A DASHBOARD?



Operational Dashboard

Tells you what is happening now
(transactional)



Analytical Dashboard

Processes large volume of data
to identify trends



Strategic Dashboard

Track performance metrics against
enterprise-wide strategic goals.

TYPES OF A DASHBOARD? OPERATIONAL



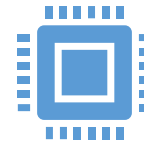
Most **common** dashboards used for monitoring and managing operations.



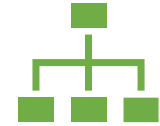
What is happening now?



Usually focused on **alerting about business exceptions** and are based on **real-time data**



Their value in today's digital age lies in the fact that businesses start to realize the importance of fast and correct data between operational teams and departments.



Mostly used by **junior management**

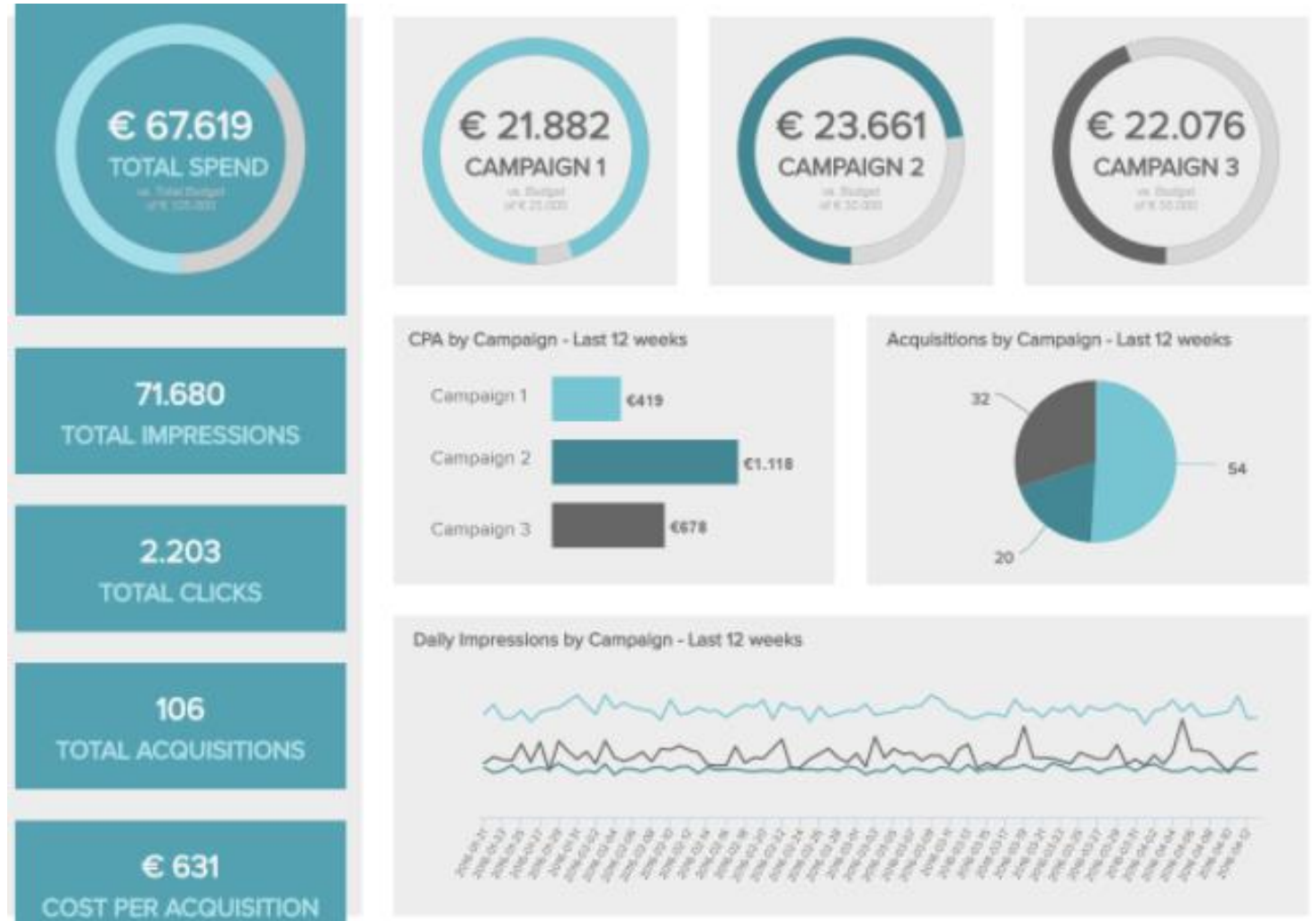
TYPES OF A DASHBOARD?

OPERATIONAL

Marketing Performance Dashboard that provides important Operational Information and KPI for the marketing team.

- Cost per acquisition
- Total number of clicks
- Total Acquisition gained
- Total amount spent per campaign.

Allows a marketing team to adjust their operational activities based on real time data



TYPES OF A DASHBOARD? ANALYTICAL



Contains a vast amount of data created and **used by analysts** to provide support to executives



Are **highly interactive** and enable deeper analysis.



Impact on **historical data usage**, where analysts can identify trends, compare them with multiple variables and create predictions, and targets.



Found at the intersection of the strategic and operational dashboard.



Mostly used by **middle management**.

TYPES OF A DASHBOARD?

ANALYTICAL

Provides Finance Dept with a clear picture of its capital structure

Metrics Tracked are

- Return on Assets
- Return on Equity
- Working Capital
- Overview of the balance sheet

Allows the Finance Dept to set specific operational activities to improve further.

FINANCIAL PERFORMANCE DASHBOARD



TYPES OF A DASHBOARD? STRATEGIC

- A reporting tool for monitoring the **long-term** company strategy with the help of **critical success factors**.
- They're usually **complex** in their creation, provide an enterprise-wide impact to a business, and are mainly used by senior-level management.
- **Summarize performance** over set time frames: past month, quarter, or year.
- Provides clear pictures of **strategic issues**.

TYPES OF A DASHBOARD? STRATEGIC

The dashboard focuses on revenue in total as well as at the customer level plus the cost of acquiring new customers. The dashboard is set to a specific time frame.

- Revenue
- Customer Acquisition Cost
- Customer Lifetime Value
- Sales Target

Addresses what is my customer base and revenue this time last year.

Revenue and Customer Overview - Q1 2016



HOW TO CHOOSE THE RIGHT DASHBOARD

- **Business Requirements**

That question are you looking to answer?	Best fit: Operational	Best fit: Strategic	Best fit: Analytical
What problem are we trying to solve?	Increased data awareness and access to time sensitive data	Line of sight into top-line organizational KPIs	Access to trends or deeper insights
Who will use the dashboards?	Managers and their teams	Directors and executives	Analysts and executives
What gaps exist in our performance?	Daily performance	Monthly, quarterly performance	Performance issues, weekly performance
What are our goals?	Increased employee awareness and tracking against goals	Setting strategic goals, achieving KPI targets	Setting analytics goals and increased visibility into key processes

HOW TO CHOOSE THE RIGHT DASHBOARD

- **Technology Requirements**

What question are you looking to answer?	Best fit: Operational	Best fit: Strategic	Best fit: Analytical
What is the state of our data infrastructure?	Web APIs, databases, spreadsheets	Web APIs, databases, spreadsheets, data warehouse	Data warehouse, database
Who are the data latency requirements?	Low-latency, time-sensitive, real-time	Incremental updates, need for accurate, right time information	High latency, accurate data
How many data sources are we pulling our data from?	Multiple systems and applications to improve visibility	Multiple data sources within a single dashboard or set of visualizations	Multiple data sources within a single dashboard or set of visualizations

DASHBOARD - DO'S & DON'TS

- Do not **Data Puke**
- Make sure your Dashboard includes
 - Insights
 - Recommendations for actions
 - Business impact
 - Deliver context
- Tells a clear data story where interpretation is unnecessary.

Dashboard's primary purpose is to **DRIVE ACTION**

BUILD A DASHBOARD

- Open Office Space workbook on Tableau
- You should have six worksheets
- Click on Create a New Dashboard

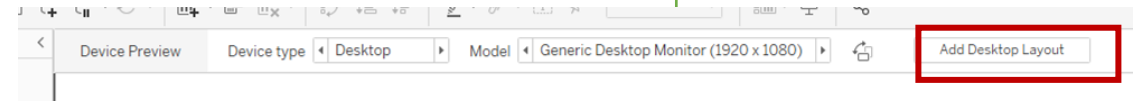


- Name your Dashboard – Office Supply Performance

BUILD A DASHBOARD

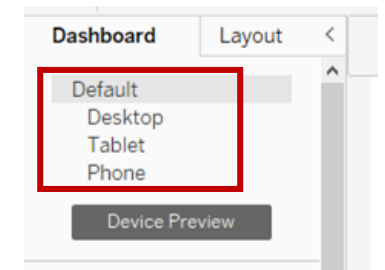
1. Layout of the Dashboard

- Click on Device Preview on the Left Hand Tile
- Add a Layout for Desktop, Phone, and Tablet



1. Select Desktop in Device Type
2. Select Generic/Specific Model.
3. Click Add Desktop Layout.

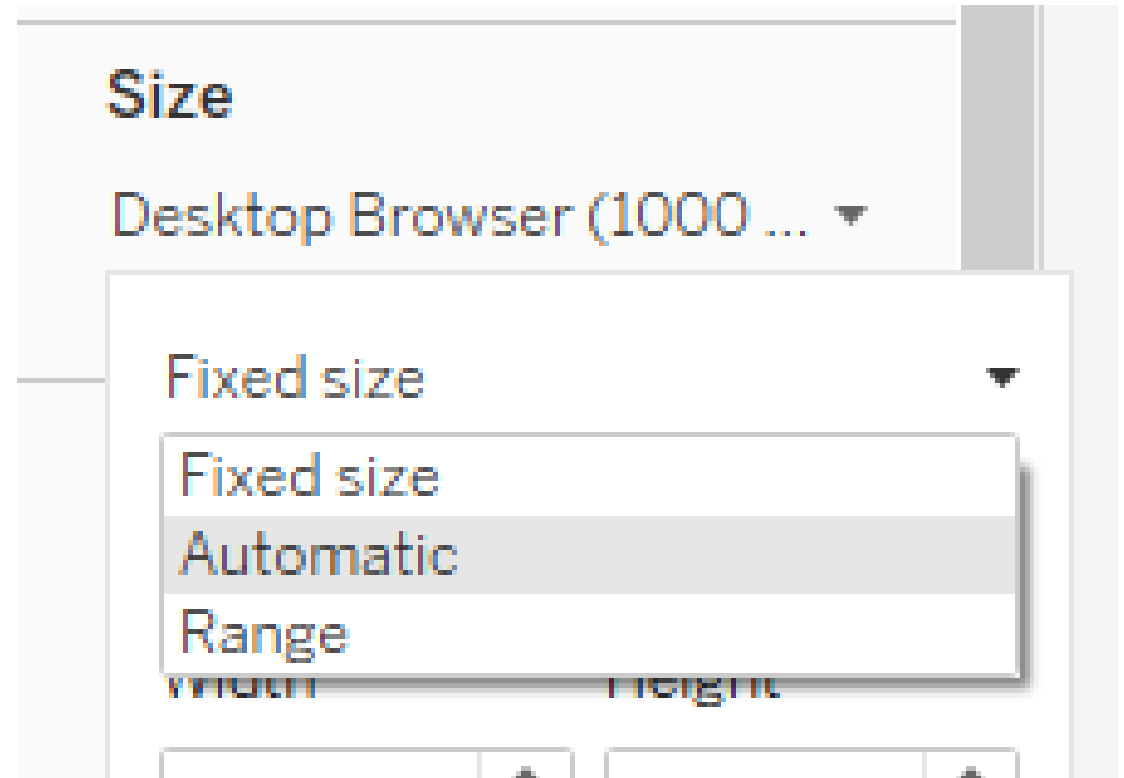
- Repeat for Phone and Tablet Layout



BUILD A DASHBOARD

Size of the Dashboard

- You want a size where you can see the whole area "Drop sheets here" without the scroll bars on the right or the bottom of the screen.
- Click on Size dropdown and select Fixed, Automatic, Range.
- For **Fixed or Range**, choose a size that fits your screen well without having to scroll.
- **Automatic** worked better for my display



BUILD A DASHBOARD

Size of the Dashboard

1. Device Type - Add Phone, Tablet or Desktop
2. Click on Size dropdown and select Fixed, Automatic, Range.
3. You want a size where you can see the whole area "Drop sheets here" without the scroll bars on the right or the bottom of the screen.
4. If you **Select Fixed**, choose a size that fits your screen well without having to scroll.
5. **Automatic** worked better for my display

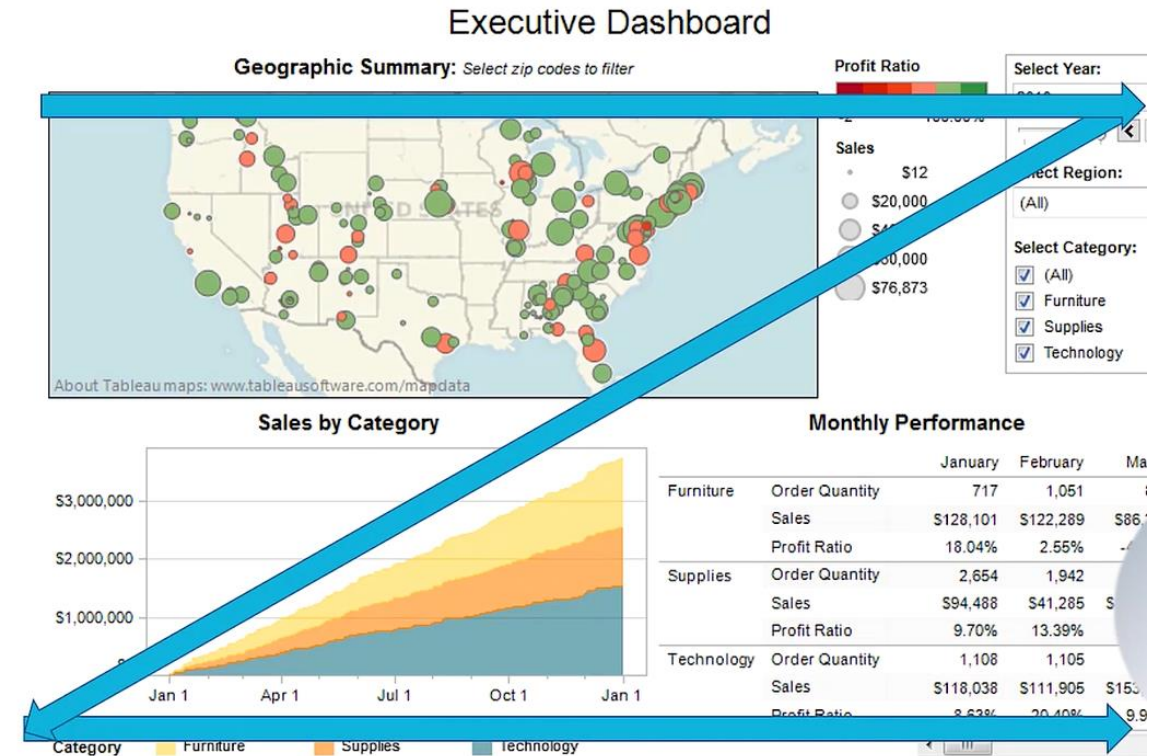
BUILD A DASHBOARD

Dashboard Layout

- Visualization need to follow an organization pattern based on the manner your audience reads.

Z Pattern

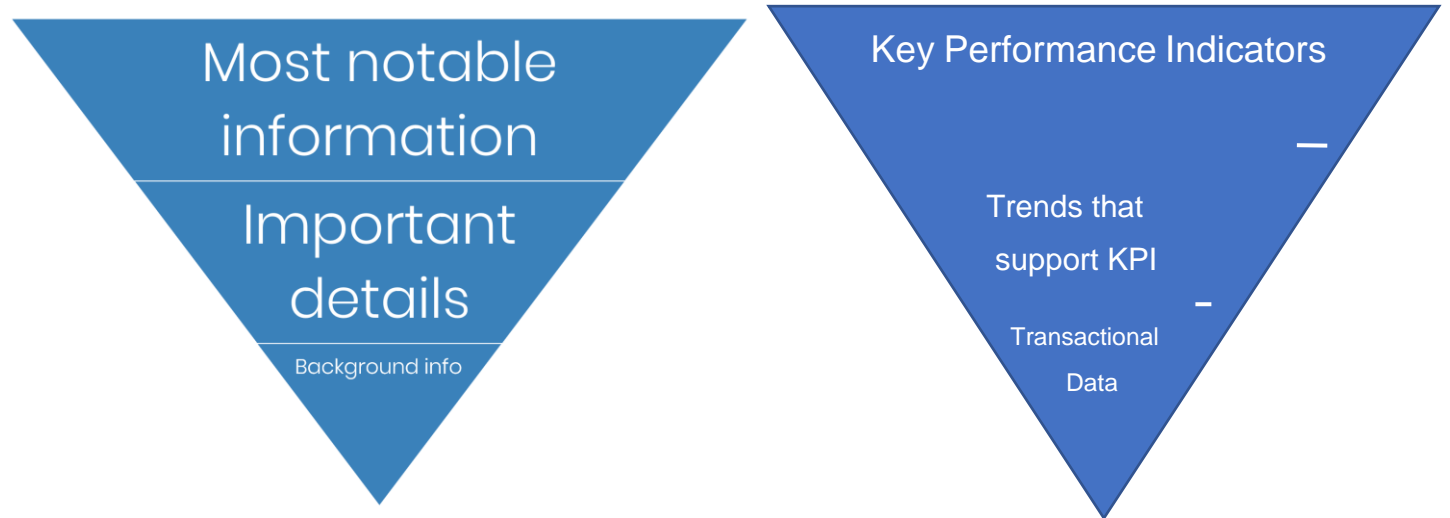
- used for visual and text layouts
- Left to Right
- For audience that read from Right to Left, you invert the Z Pattern.



BUILD A DASHBOARD

Inverted Pyramid

- Provide information in the descending order of importance

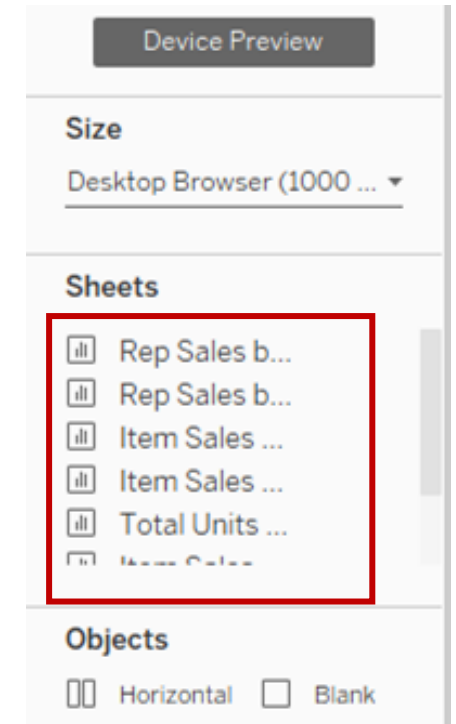


BUILD A DASHBOARD

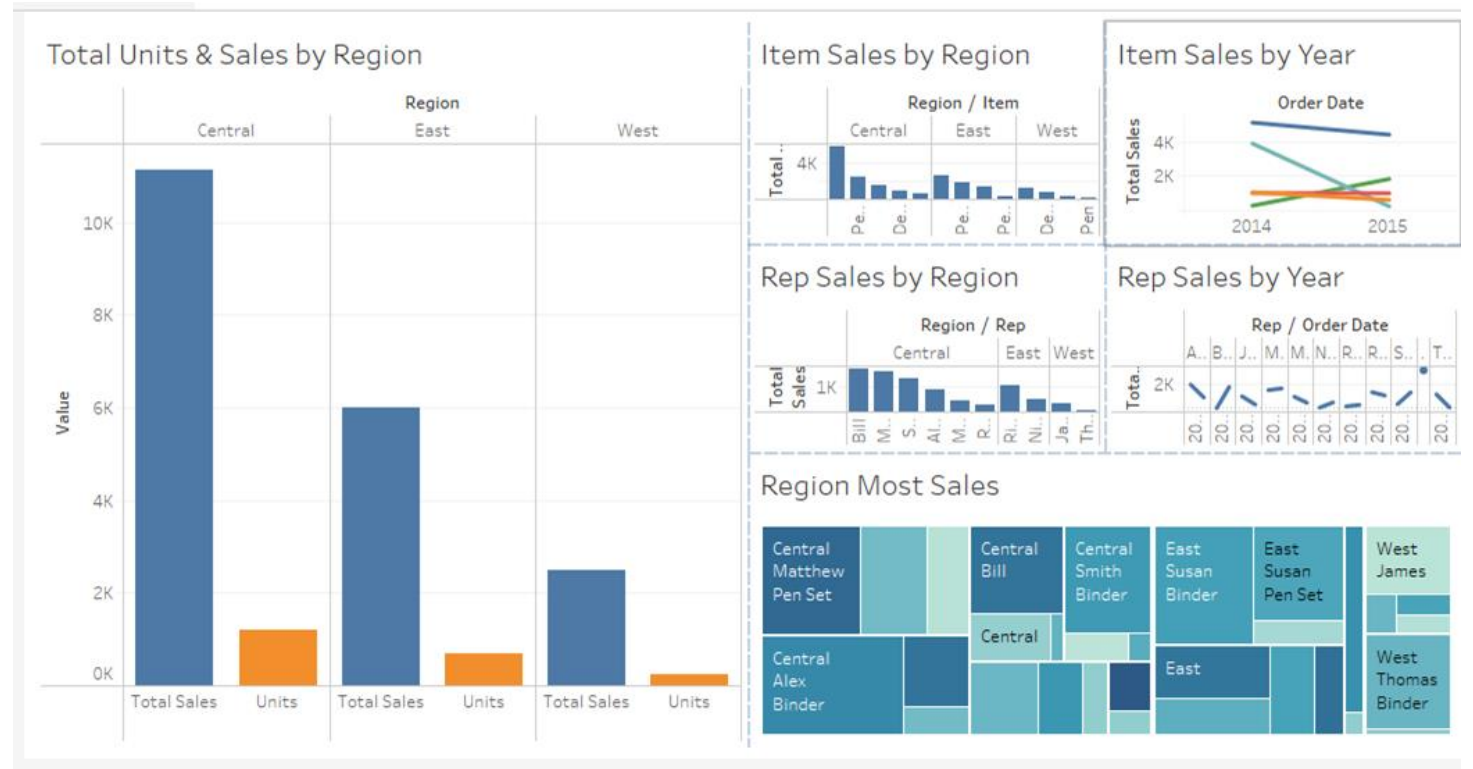
Design the Dashboard

Drop the Worksheets in the following order with the most important on the Upper Left and the least important on Lower Right.

- Region Total Units and Sales
- Item Sales by Region
- Item Sales by Year
- Rep Sales by Region beneath Item Sales by Region
- Rep Sales by Year beneath Item Sales by Year
- Treemap across Rep Sales by Region and Rep Sales by Year



BUILD A DASHBOARD



BUILD A DASHBOARD

Format the Dashboard

Add Title

- Dashboard > Title (Menu)
- Organizational Performance of Office Supplies
- Additionally, you can also use Object > Text to add a Title

Format

- Format > Workbook (Menu)
- Worksheet Title – Regular, 12, Bold, Blue
- Gridlines – Off
- Remove Legend Container if you still have it.
- Remove Axis Titles and Field Labels on X and Y axis

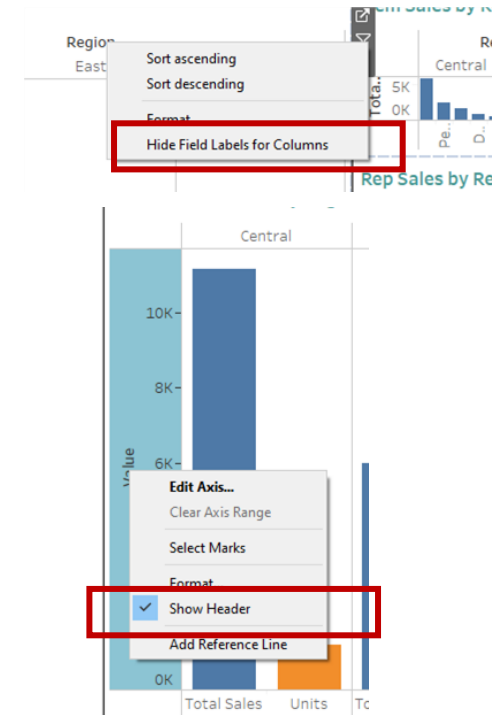
BUILD A DASHBOARD

Remove Field Labels

- Right Click on the Field Label
- Select Hide Field Label

Remove Axis Title

- Right Click on the Axis Title
- Uncheck Show Header.



BUILD A DASHBOARD

Make it Interactive

What is an Interactive Dashboard?

- When you select a category on the dashboard, all related values get filtered.

Make Region Interactive

- When you select a Region, all the related values across the dashboard gets filtered for that Region
- When you select Central Region, then all values on the Dashboard are filtered for Central Region

BUILD A DASHBOARD

Make it Interactive

Actions

- Add **context and interactivity** to your data in dashboards
- Link a webpage, files, and other Tableau worksheets
- Use the data in one view to filter data in another as you **create guided solutions**.
- Call attention to specific results using highlighting.
- Three types of actions: **Filter, Highlight, and URL Actions**.

How Filter Works?

- When you select a Region, all the related values across the dashboard gets filtered for that Region
- When you select Central Region, then all values on the Dashboard are filtered for Central Region

BUILD A DASHBOARD

Make it Interactive

Action = FILTER

From Main Menu, Dashboard > Action
Add Action - Filter

Source Sheet – select value to filter

- Region Total Sales & Units

Target Sheet – where all related values get filtered

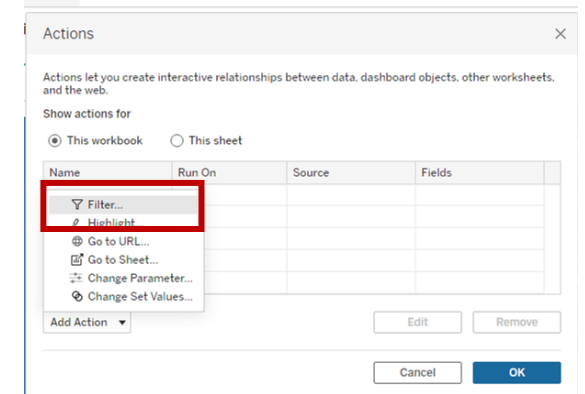
- all except your Source Sheet

Run Action – when values are filtered

- On Select

Clearing the Selection – when you close the dashboard

- Select all Values



BUILD A DASHBOARD

Source Sheets

☒ Office Supply Performance

☐ Rep Sales by Region

☐ Rep Sales by Year

☒ Total Units & Sales by Region

Run action on

- ☐ Hover
- ☒ Select
- ☐ Menu
- ☐ Single-select only

Target Sheets

☒ Office Supply Performance

☒ Rep Sales by Region

☒ Rep Sales by Year

☐ Total Units & Sales by Region

Clearing the selection will

- ☐ Keep filtered values
- ☒ Show all values
- ☐ Exclude all values

BUILD A DASHBOARD

Run Your Interactive Dashboard

1. Select Sales in Central Region
2. Select Units in Central Region
3. Select any other Region

You will see values for that Region get filtered across all Regions

RECAP : CLASS 1 -3

- Basic understanding of what visualization is and why to use it.
- Walked through the Tableau tool to understand how to use it.
- Designed simple Worksheets to address a business question.
- Learned to create calculations, filters and use color to differentiate different categorical data.
- Exploratory data analysis using a Treemap.
- Learned about what a Dashboard is, different types and how to design one.
- Designed a simple Interactive Dashboard to address a business question

CLASS HANDS ON

Use Data File - TFL Bus Safety

- Create an interactive dashboard based on the worksheets that you created in Class HandsOn for 08/24/2023
- Please provide a simple data analysis based on your dashboard.
- Submit your Tableau workbook for review.