

# **Introduction to Tableau**

## **Data visualization(DV) and Visual Analytics(VA)**

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## ***Difference between DV and VA***

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### ➤ Data visualization:

- a graphical depiction of data, such as dashboard or report
  - present views of data that answer “what,”
  - Provide answers to finite set of questions
  - Provide interactivity to investigate “what” questions.
  - It helps to tell a story about your data, and to identify problems and issues.

### ➤ Visual analytics

- a method for exploring data visually, in real-time
  - The power of asking why
  - Dynamic, iterative process
  - Find answers, and build stories in your data.

## Difference between DV and VA

Capabilities	Data Visualization	Visual Analytics
Answers and shows “what.”	✓	✓
Shows data points, problems, issues, or key indicators.	✓	✓
Presents a specific view of a data set. Gives you and users a snapshot of data to answer a specific set of questions.	✓	✓
A visual presentation of data, such as a dashboard or a report. Great device for communicating insights and telling stories about data.	✓	✓
Supports interactivity (filter dimensions, highlight values of interest, change view based on categories)	✓	✓
Supports deeper analysis and exploration for asking “why” questions.		✓
Offers advanced analytics.		✓
A journey through your data that doesn’t require you to know what chart type or template you need, or where you are going.		✓
Unifies the steps of querying, exploring and visualization data into a single process.		✓
Fast, intuitive, free form exploration of data that lets you quickly create many different views of your data.		✓
Helps you think visually to explore problems, issues, and questions. Leads to unexpected insights and finding outliers in your data.		✓
Helps you share key insights and collaborate with colleagues on the data.		✓

# Getting Started

The screenshot displays the Tableau Desktop application window titled 'Tableau - Book1'. The interface includes a menu bar (File, Data, Server, Help) and a left-hand 'Connect' pane. The 'Connect' pane is divided into sections: 'Search for Data' (with 'Tableau Server' selected), 'To a File' (listing Microsoft Excel, Text file, JSON file, Microsoft Access, PDF file, Spatial file, Statistical file, and More...), 'To a Server' (listing Microsoft SQL Server, MySQL, Oracle, Amazon Redshift, and More...), and 'Saved Data Sources' (listing Sample - Superstore and World Indicators). An orange arrow points from 'Tableau Server' to the 'Open' section, and a green arrow points from the 'To a File' section to the 'Data Files' label. The 'Open' section shows two thumbnails: 'Introductio\_SalesData' and 'World Indicators'. The 'Data Files' label is positioned between the 'To a File' section and the 'Open' section. A 'Tableau Server Sign In' dialog box is open, showing a 'Server' field with 'http://', a 'Connect' button, and a 'Cancel' button. The dialog box also includes a 'Quick Connect' section with a link to 'Tableau Online' and a note about sharing work on Tableau Server or Tableau Online. The right-hand side of the interface features a 'Discover' section with links to 'Training' (Getting Started, Connecting to Data, Visual Analytics, Understanding Tableau, More training videos...) and 'Resources' (Get Tableau Prep, Blog - Now available in Tableau: Write to database in Tableau Prep, grant license on s..., The NEW Community Forums, Sample data for Relationships). Below the 'Discover' section is a 'Check out the Forums' section with a link to 'Make connections and get inspired with the Tableau Community'. At the bottom right, there is a button labeled 'Update to 2020.3 Now'. The 'More Samples' label is positioned near the 'Sample Workbooks' section, which includes thumbnails for 'Superstore', 'Regional', and 'World Indicators'.

Tableau - Book1

File Data Server Help

Connect

Search for Data

Tableau Server

To a File

Microsoft Excel

Text file

JSON file

Microsoft Access

PDF file

Spatial file

Statistical file

More...

To a Server

Microsoft SQL Server

MySQL

Oracle

Amazon Redshift

More...

Saved Data Sources

Sample - Superstore

World Indicators

Open

Introductio\_SalesData

World Indicators

Data Files

Sample Workbooks

Superstore

Regional

World Indicators

Tableau Server Sign In

Server: http://

Connect Cancel

Quick Connect

Tableau Online

Share your work on Tableau Server or Tableau Online. [Learn more.](#)

Discover

Training

Getting Started

Connecting to Data

Visual Analytics

Understanding Tableau

More training videos...

Resources

Get Tableau Prep

Blog - Now available in Tableau: Write to database in Tableau Prep, grant license on s...

The NEW Community Forums

Sample data for Relationships

Check out the Forums

Make connections and get inspired with the Tableau Community →

Update to 2020.3 Now

Open a Workbook

More Samples



## Connect

### Search for Data

Tableau Server

### To a File

Microsoft Excel

Text file

JSON file

Microsoft Access

PDF file

Spatial file

Statistical file

More...

### To a Server

Microsoft SQL Server

MySQL

Oracle

Amazon Redshift

More... >

### Saved Data Sources

Sample - Superstore

World Indicators

Action Matrix

Action Vector

Alibaba AnalyticDB for MySQL

Alibaba Data Lake Analytics

Alibaba MaxCompute

Amazon Athena

Amazon Aurora for MySQL

Amazon EMR Hadoop Hive

Amazon Redshift

Anaplan

Apache Drill

Aster Database

Azure Synapse Analytics

Box

Cloudera Hadoop

Databricks

Denodo

Dropbox

Esri ArcGIS Server

Exasol

Firebird 3

Google Ads

Google Analytics

Google BigQuery

Google Cloud SQL

Google Drive

Google Sheets

Hortonworks Hadoop Hive

IBM BigInsights

IBM DB2

IBM PDA (Netezza)

Impala

Intuit QuickBooks Online

Kognitio

Kyvos

LinkedIn Sales Navigator

MapR Hadoop Hive

MariaDB

Marketo

MarkLogic

MemSQL

Microsoft Analysis Services

Microsoft PowerPivot

Microsoft SQL Server

MonetDB

MongoDB BI Connector

MySQL

OData

OneDrive

Oracle

Oracle Eloqua

Oracle Essbase

Pivotal Greenplum Database

PostgreSQL

Presto

Progress OpenEdge

Qubole Presto

Salesforce

SAP HANA

SAP NetWeaver Business Warehouse

SAP Sybase ASE

SAP Sybase IQ

ServiceNow ITSM

SharePoint Lists

Snowflake

Spark SQL

Splunk

Teradata

Teradata OLAP Connector

TIBCO Data Virtualization

Vertica

Web Data Connector

Other Databases (JDBC)

Other Databases (ODBC)

# Joining Data

Tableau - Book1

FileDataServerWindowHelp

Connections

Global Supers...e Orders 2016  
Microsoft Excel

Global Supers... Returns 2016  
Text file

Files

Use Data Interpreter

Data Interpreter might be able to clean your Text file workbook.

Global Supers...urns 2016.csv

New Union

Orders+ (Multiple Connections)

Connection  
☒ Live ☐ Extract

Filters  
0 | Add

Orders is made of 2 tables. ⓘ

Orders

Global Superstore Returns 2016.csv

Join

Inner

Left

Right

Full Outer

Data Source

Global Superstore Retur...

Order ID

=

Order ID (Global Supe...

Add new join clause

Sort fields

D

Show aliases

Show hidden fields

1,000

rows

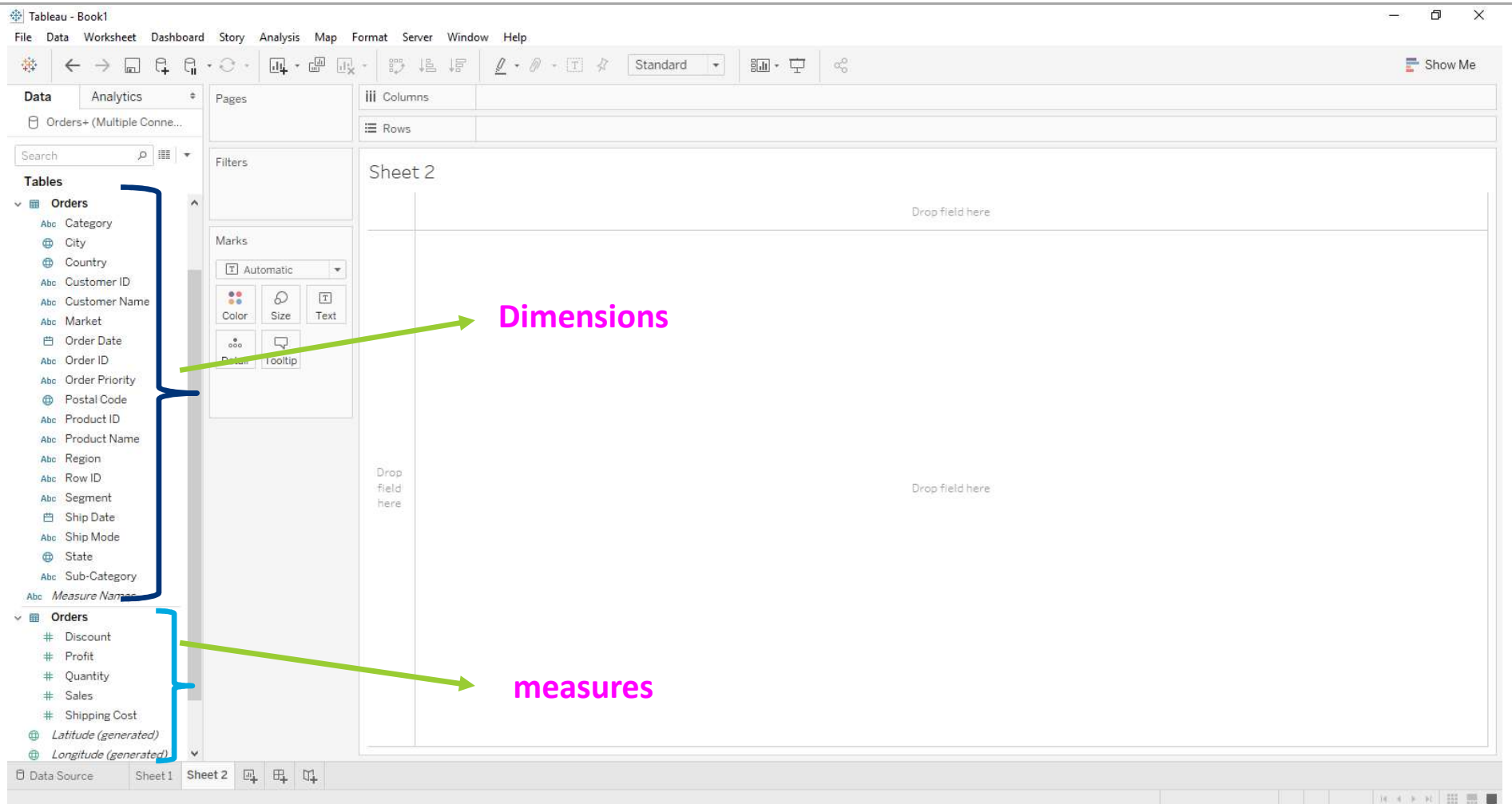
Global Superstore Ret...	Global Superstore Returns 2016.csv	Global Superstore Returns 2016.csv	Orders	Orders	Orders	Orders	Orders	Orders	Orders
Returned	Order ID (Global S...	Region (Global Su...	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name
Yes	IN-2012-PB19210127...	Eastern Asia	30191	IN-2012-PB19210127...	12/16/2012	12/19/2012	First Class	PB-19210127	Phillip Breyer
Yes	IN-2012-PB19210127...	Eastern Asia	30190	IN-2012-PB19210127...	12/16/2012	12/19/2012	First Class	PB-19210127	Phillip Breyer
Yes	IN-2015-JH158207-4...	Oceania	25438	IN-2015-JH158207-4...	5/16/2015	5/18/2015	Second Class	JH-158207	John Huston
Yes	CA-2014-AS10045140...	Southern US	32648	CA-2014-AS10045140...	3/29/2014	4/1/2014	First Class	AS-100451408	Aaron Smayling
Yes	IN-2014-LC168857-41...	Oceania	29629	IN-2014-LC168857-41...	4/18/2014	4/19/2014	First Class	LC-168857	Lena Creighton
Yes	ID-2013-AB1001527-...	Eastern Asia	30267	ID-2013-AB1001527-...	6/14/2013	6/17/2013	First Class	AB-1001527	Aaron Bergman
Yes	ES-2015-RA1994545-...	Western Europe	15162	ES-2015-RA1994545-...	8/2/2015	8/3/2015	First Class	RA-1994545	Ryan Akin
Yes	IN-2012-PB19210127...	Eastern Asia	30187	IN-2012-PB19210127...	12/16/2012	12/19/2012	First Class	PB-19210127	Phillip Breyer
Yes	ES-2014-JF15295120-...	Southern Europe	18990	ES-2014-JF15295120-...	10/12/2014	10/12/2014	Same Day	JF-15295120	Jason Fortune-
Yes	IN-2014-NM1844527-...	Eastern Asia	24361	IN-2014-NM1844527-...	6/10/2014	6/10/2014	Same Day	NM-1844527	Nathan Mautz
Yes	IN-2014-NM1844527-...	Eastern Asia	24363	IN-2014-NM1844527-...	6/10/2014	6/10/2014	Same Day	NM-1844527	Nathan Mautz

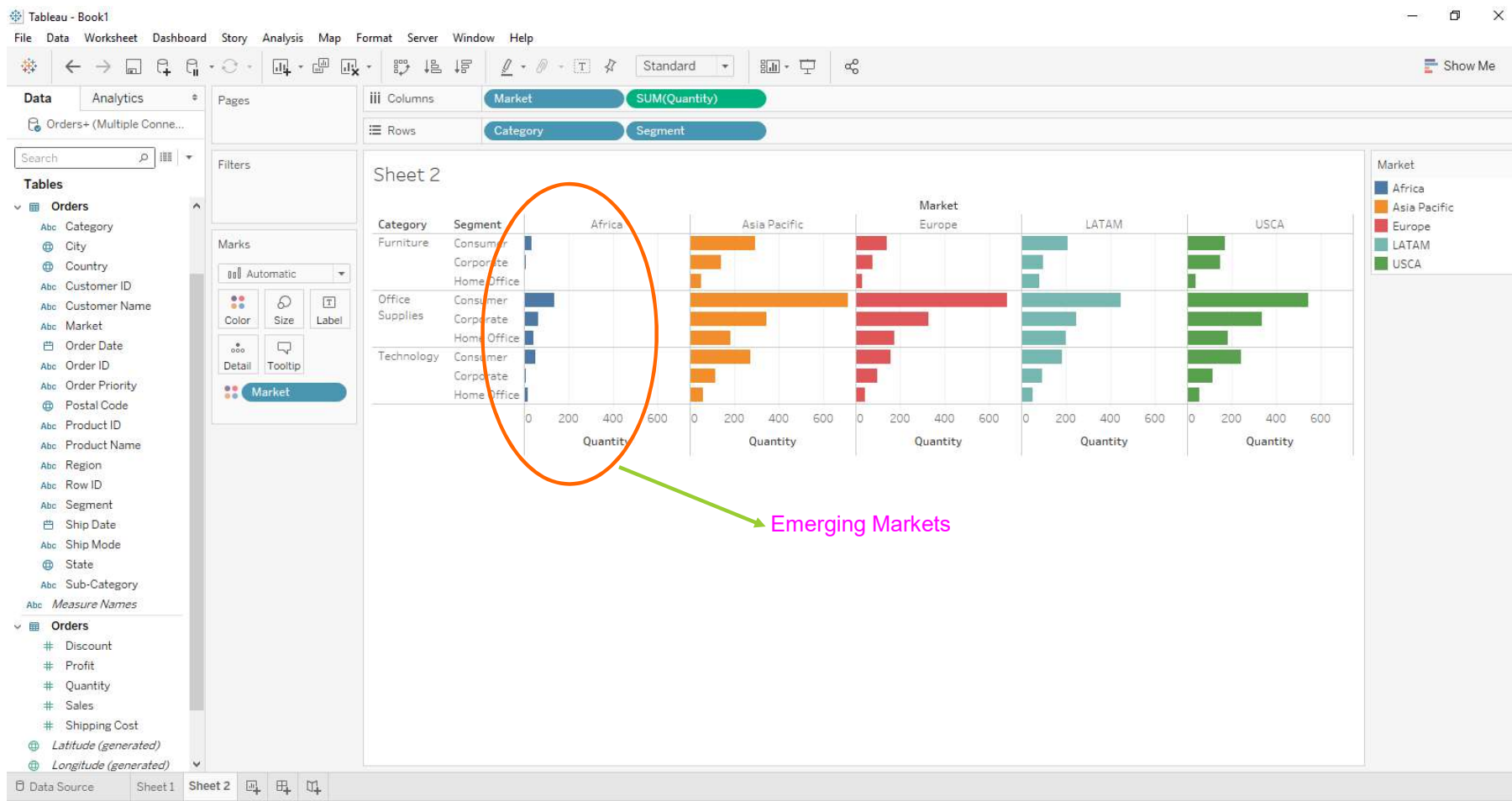
Data Source

Sheet 1

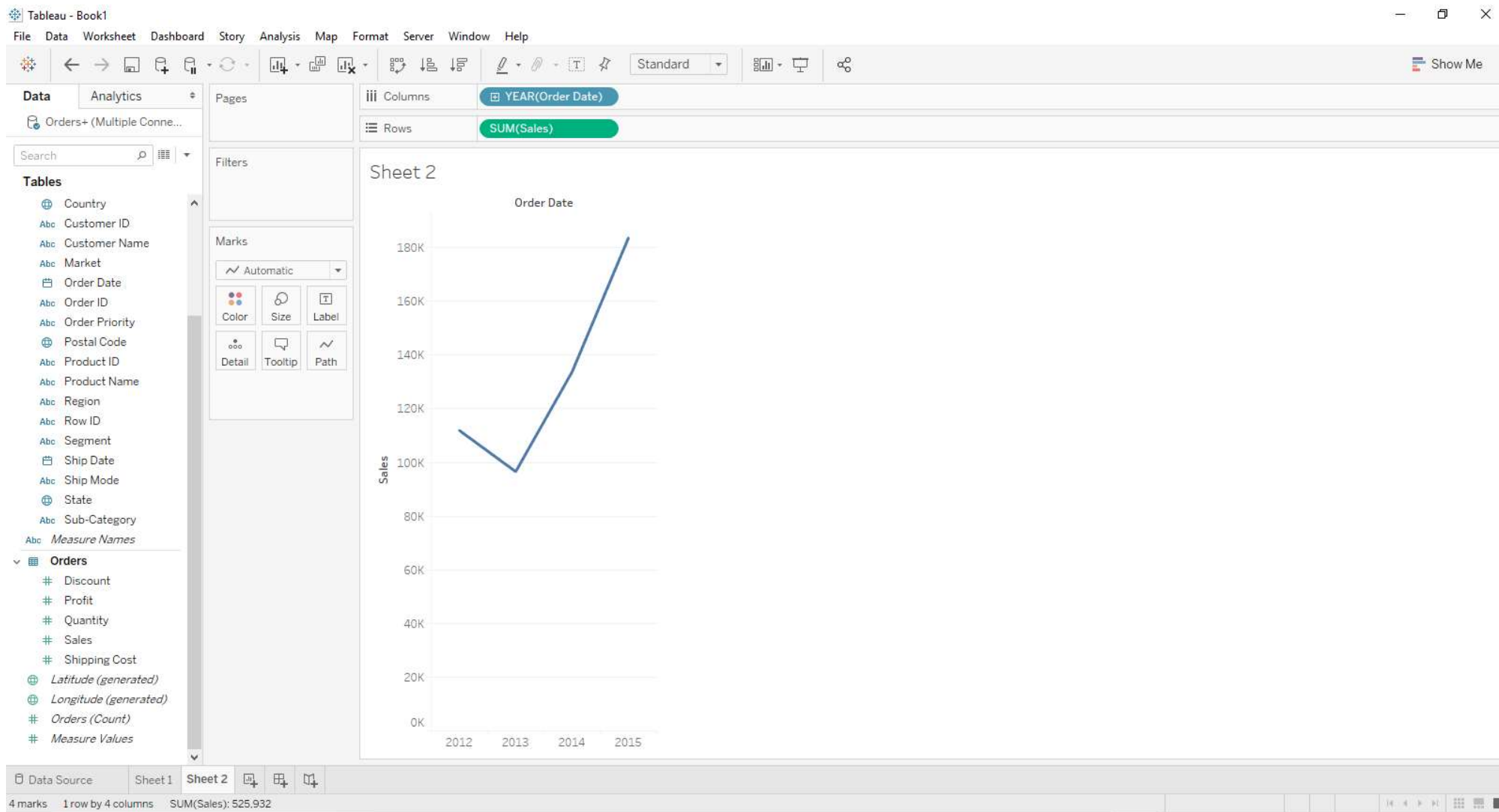
Go to Worksheet

# About the Data pane

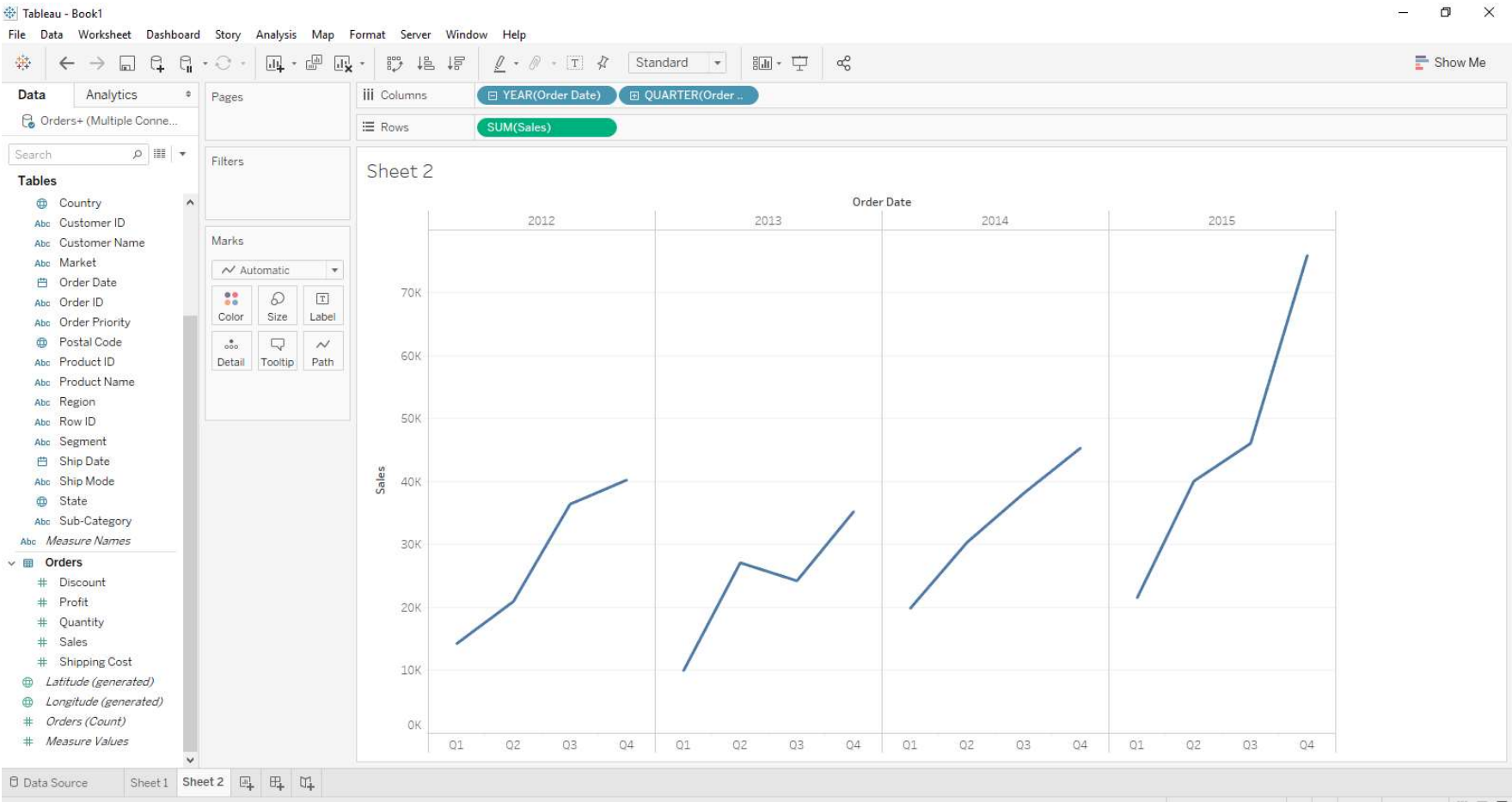




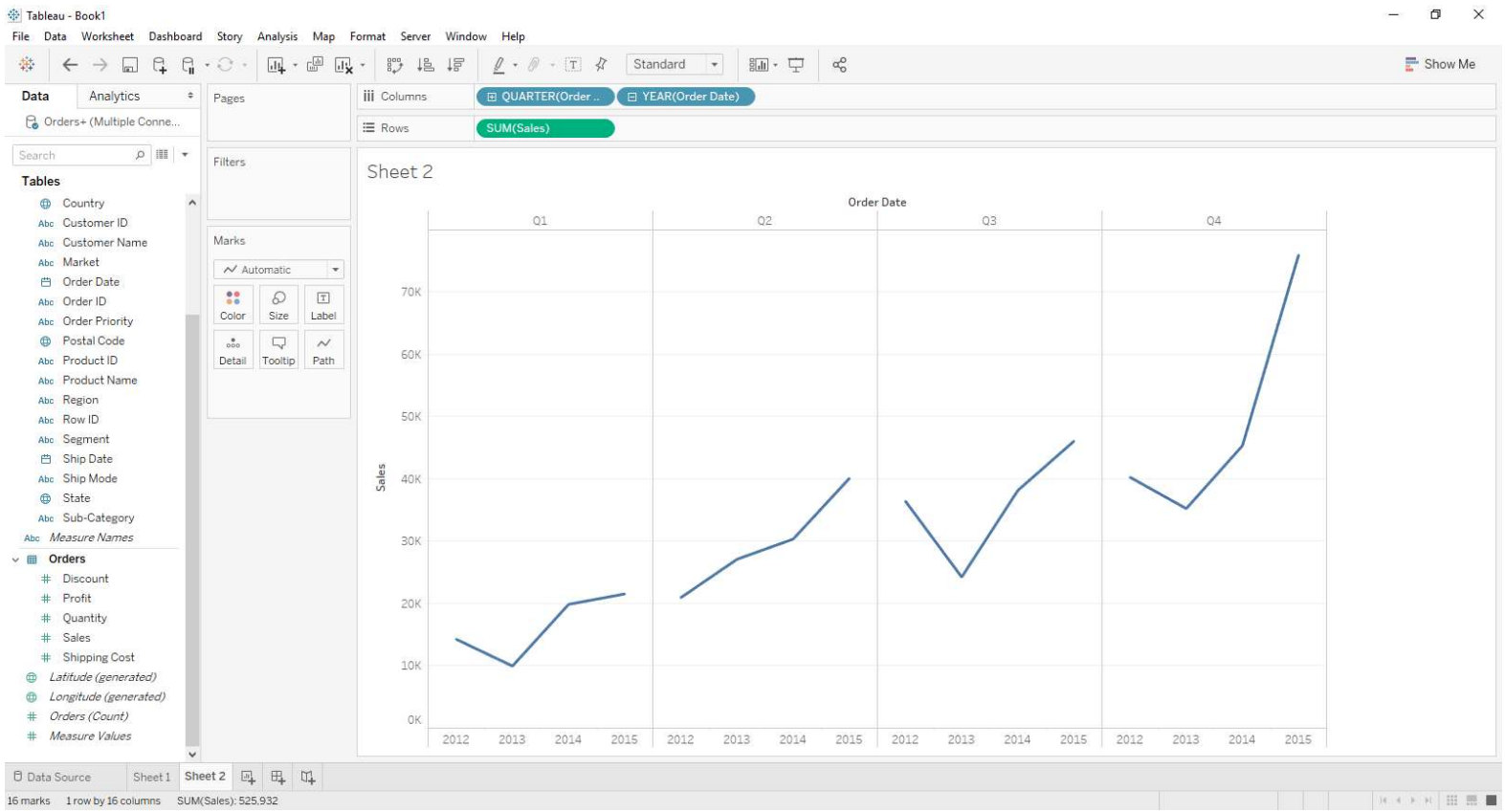




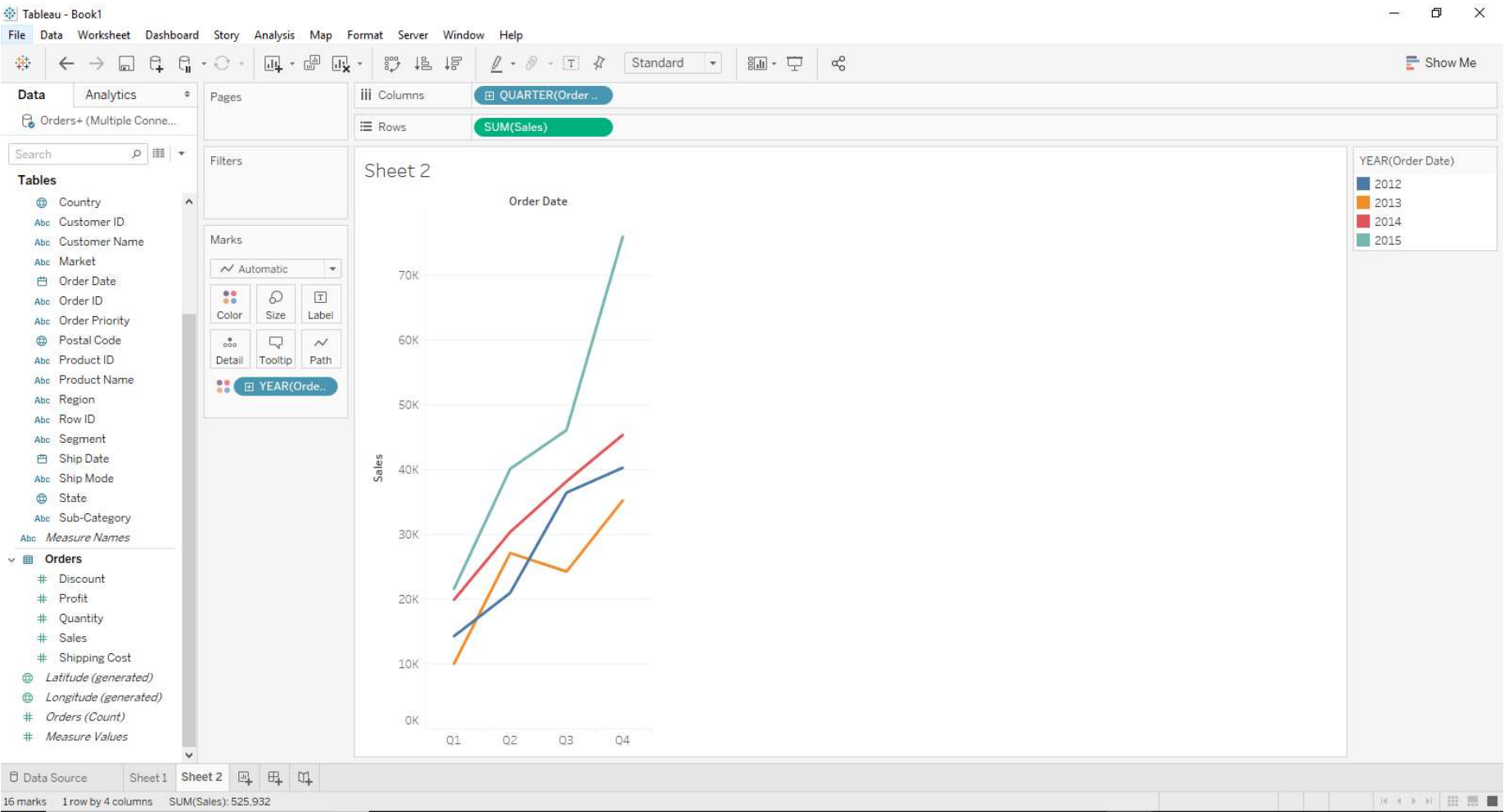
# Year and Quarter



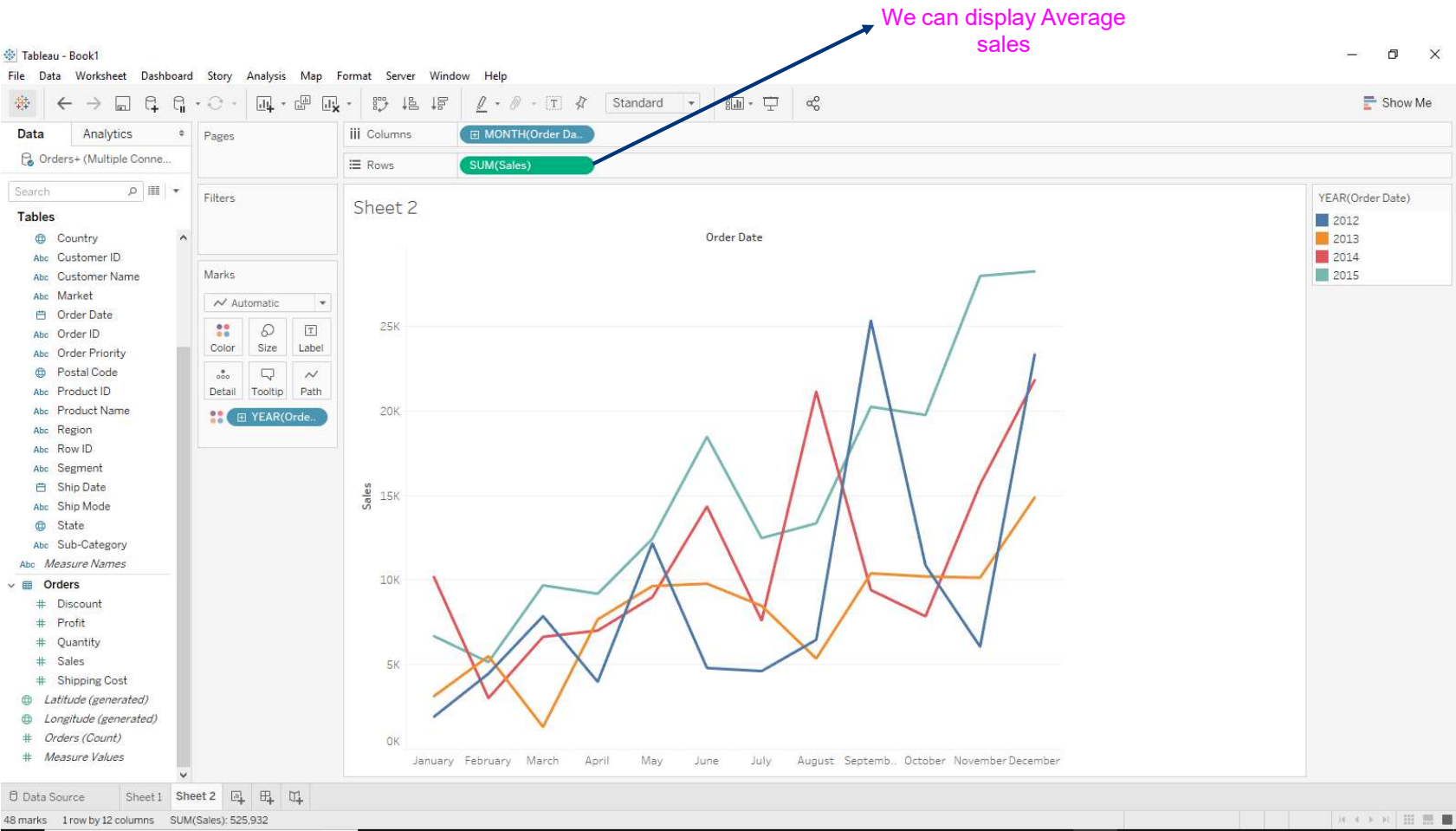
# Year and Quarter

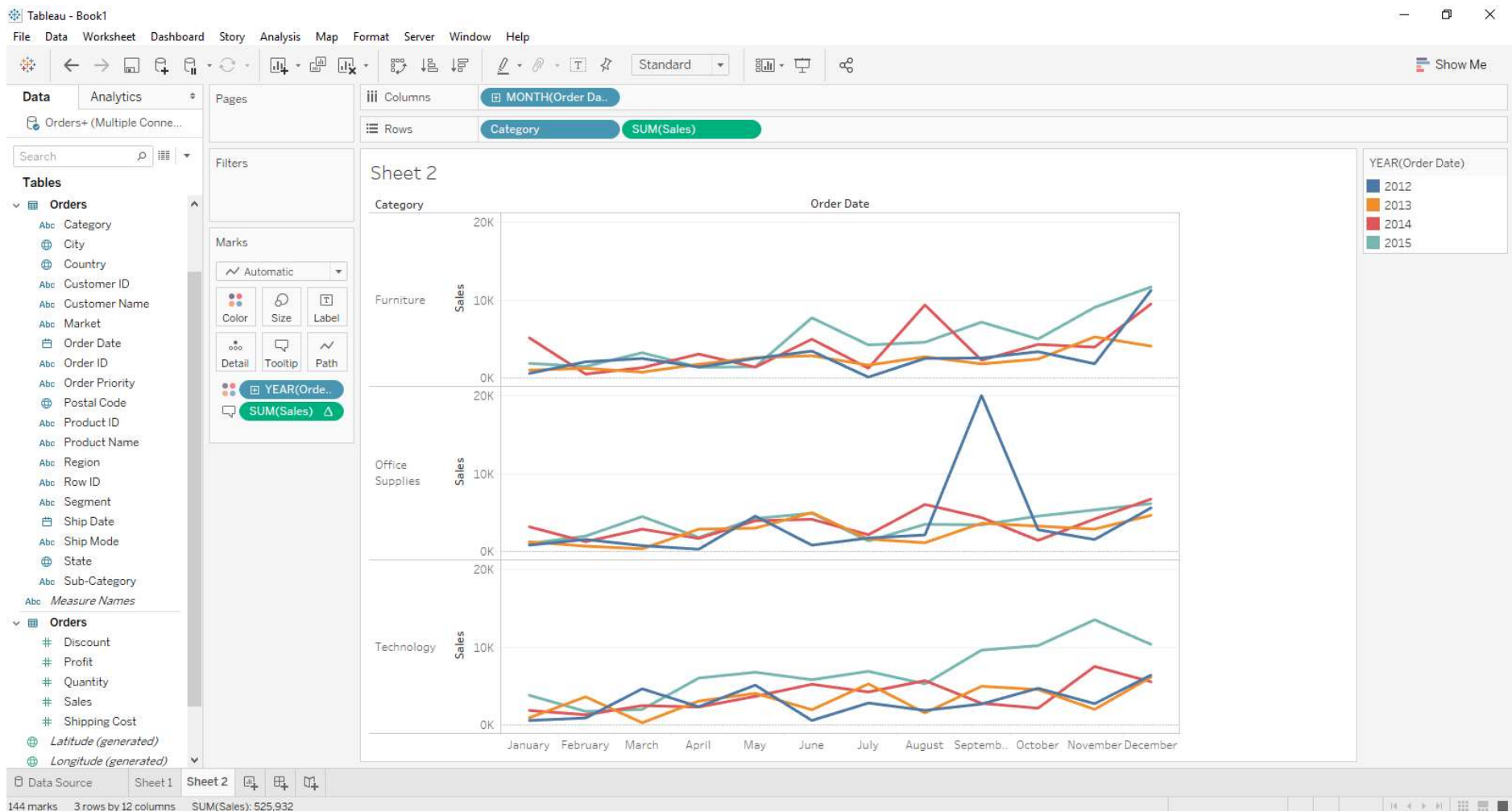


# Colors on year

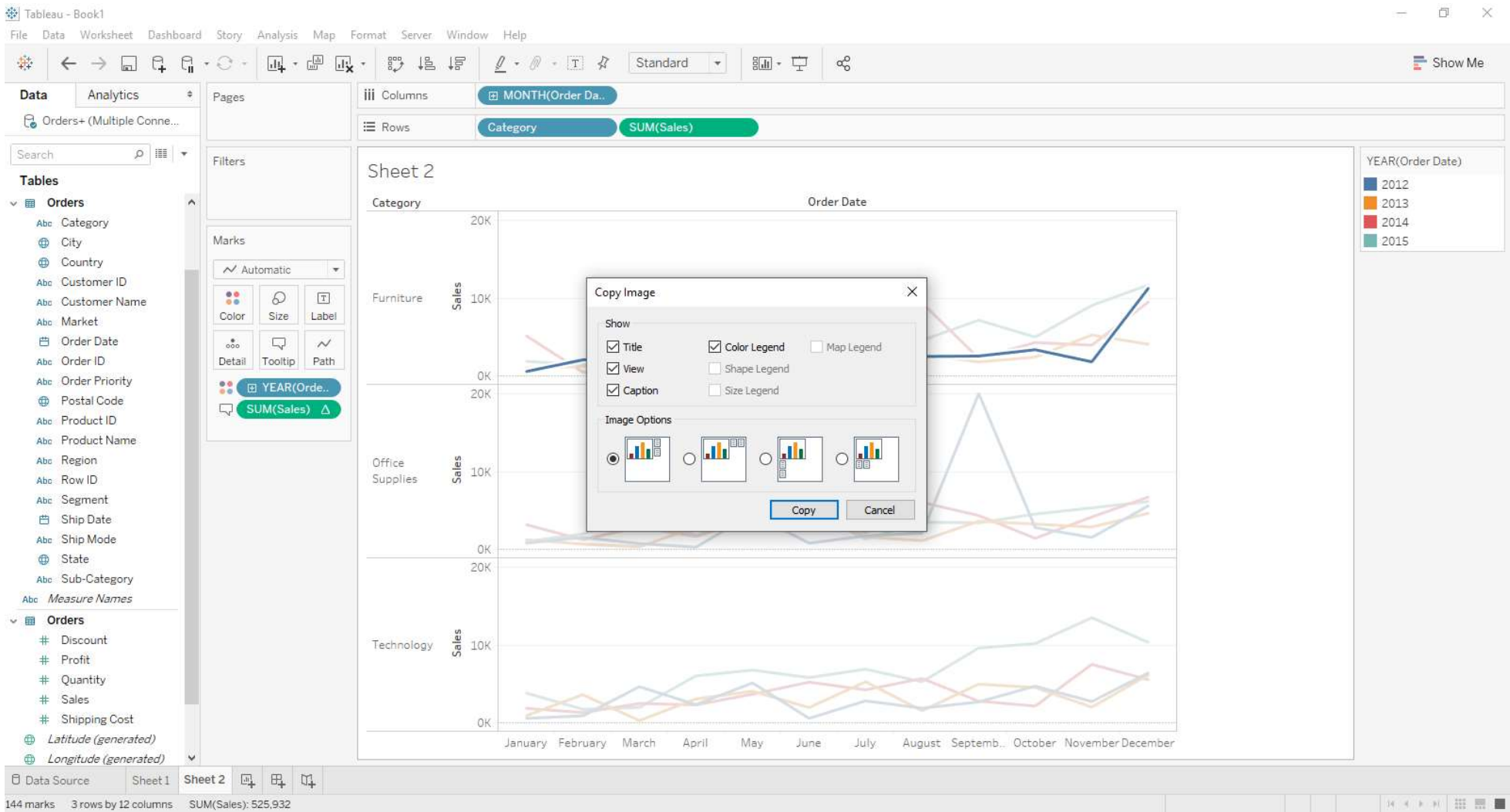


# Monthly sales





# Copy Image and Share



## View and copy data

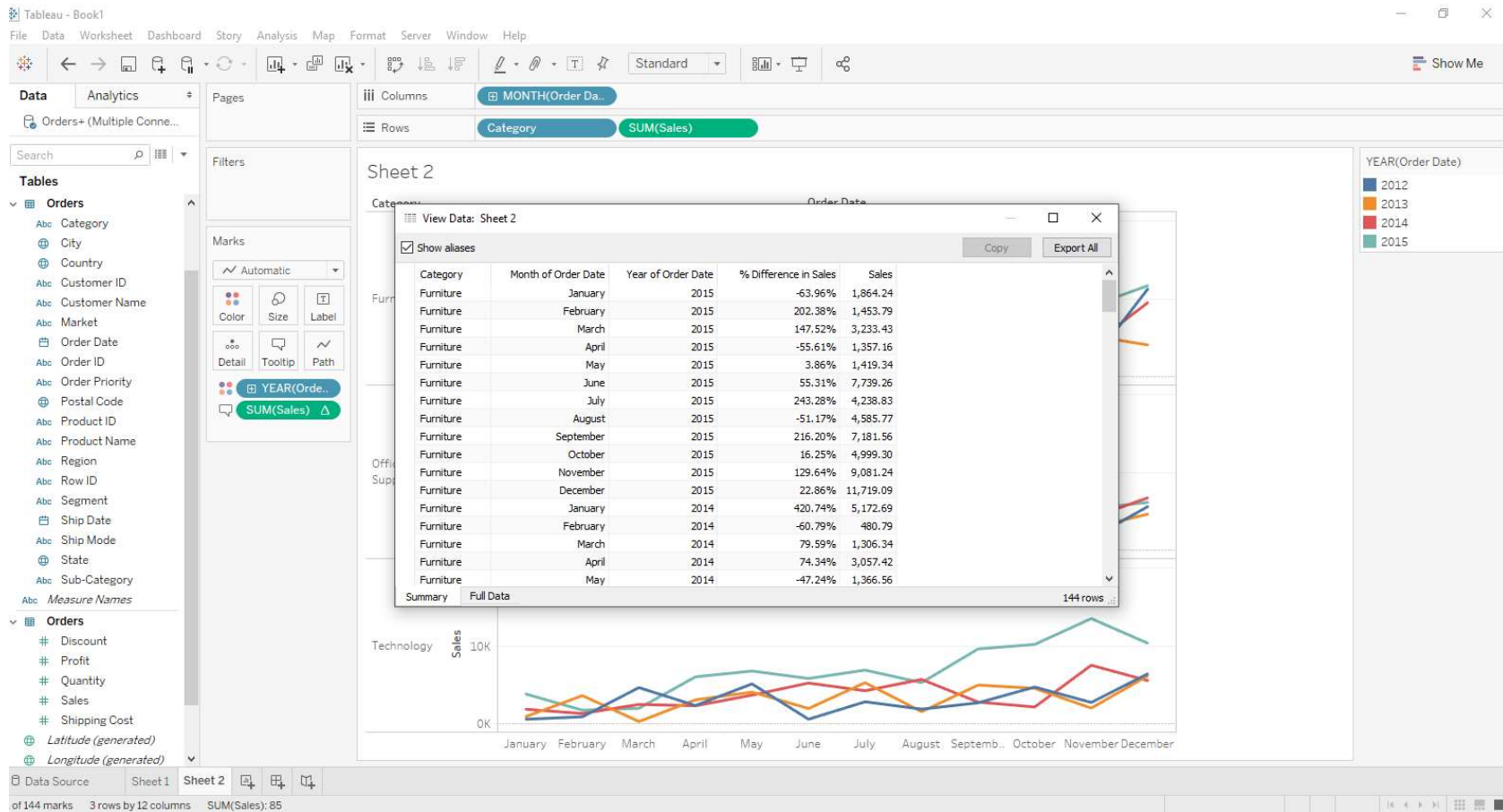




Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Search

Tables

- Orders
  - Category
  - City
  - Country
  - Customer ID
  - Customer Name
  - Market
  - Order Date
  - Order ID
  - Order Priority
  - Postal Code
  - Product ID
  - Product Name
  - Region
  - Row ID
  - Segment
  - Ship Date
  - Ship Mode
  - State
  - Sub-Category
- Measure Names
  - Discount
  - Profit
  - Quantity
  - Sales
  - Shipping Cost
  - Latitude (generated)
  - Longitude (generated)

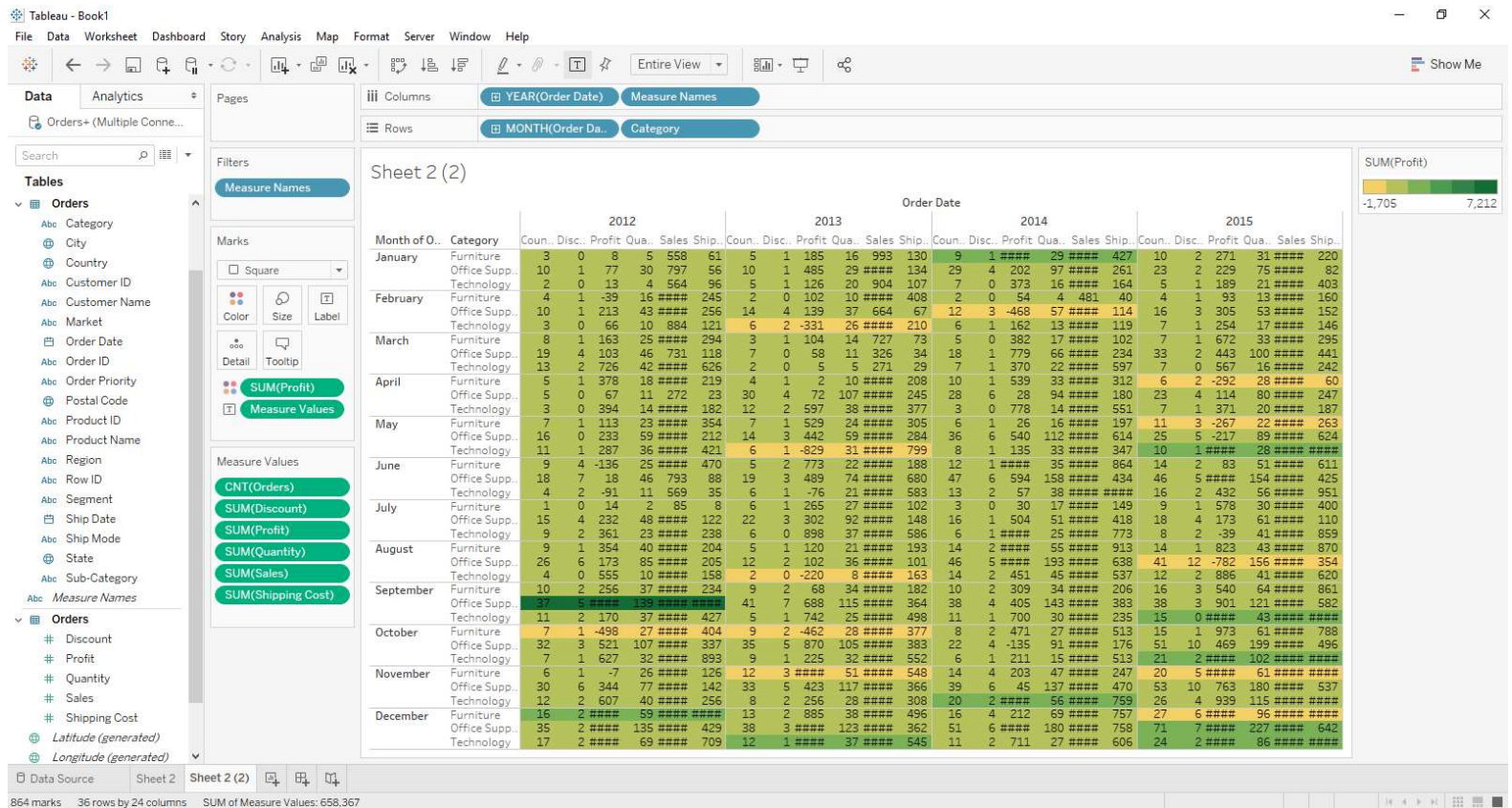
Columns: YEAR(Order Date), Measure Names

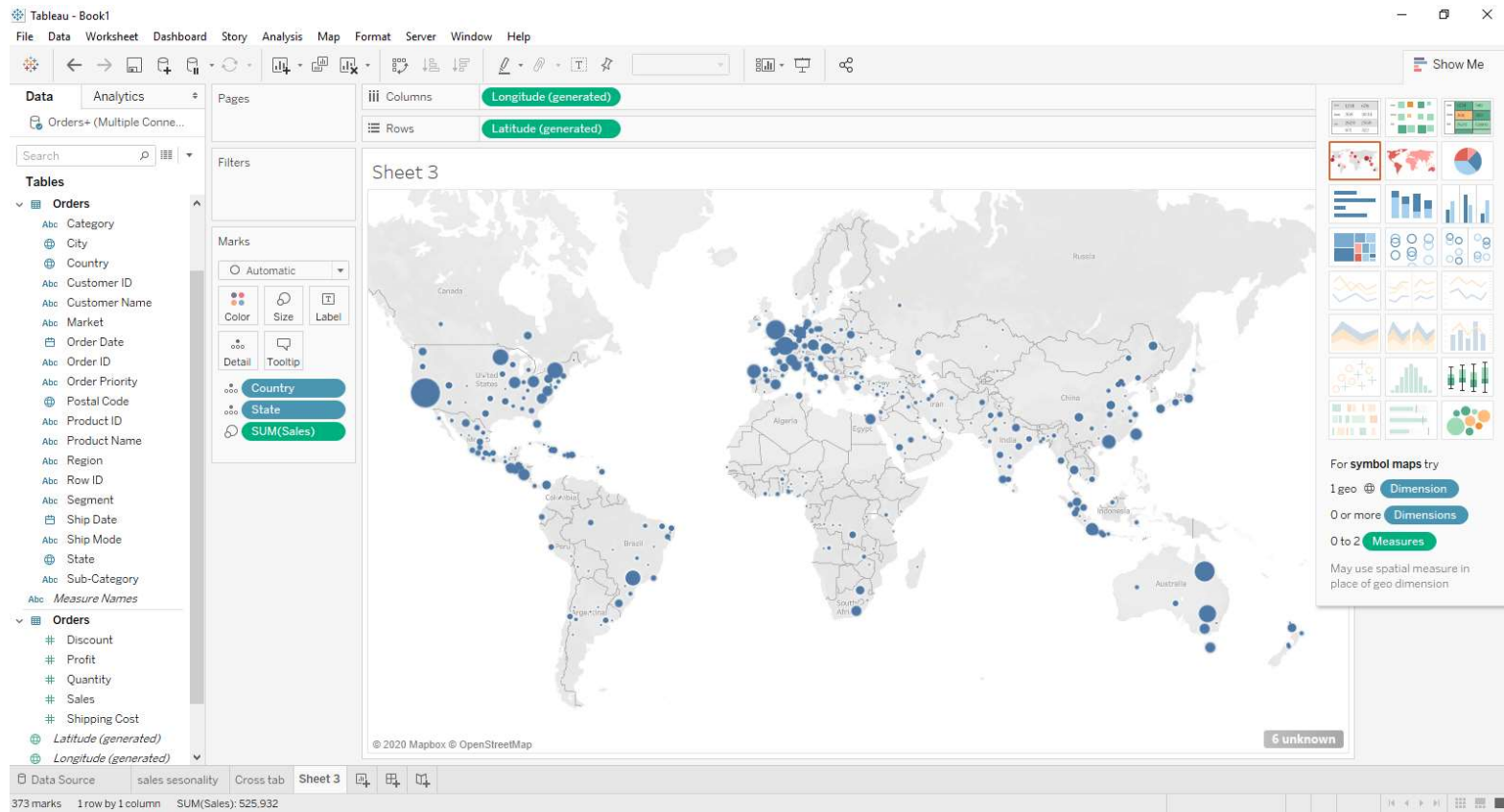
Rows: MONTH(Order Date), Category

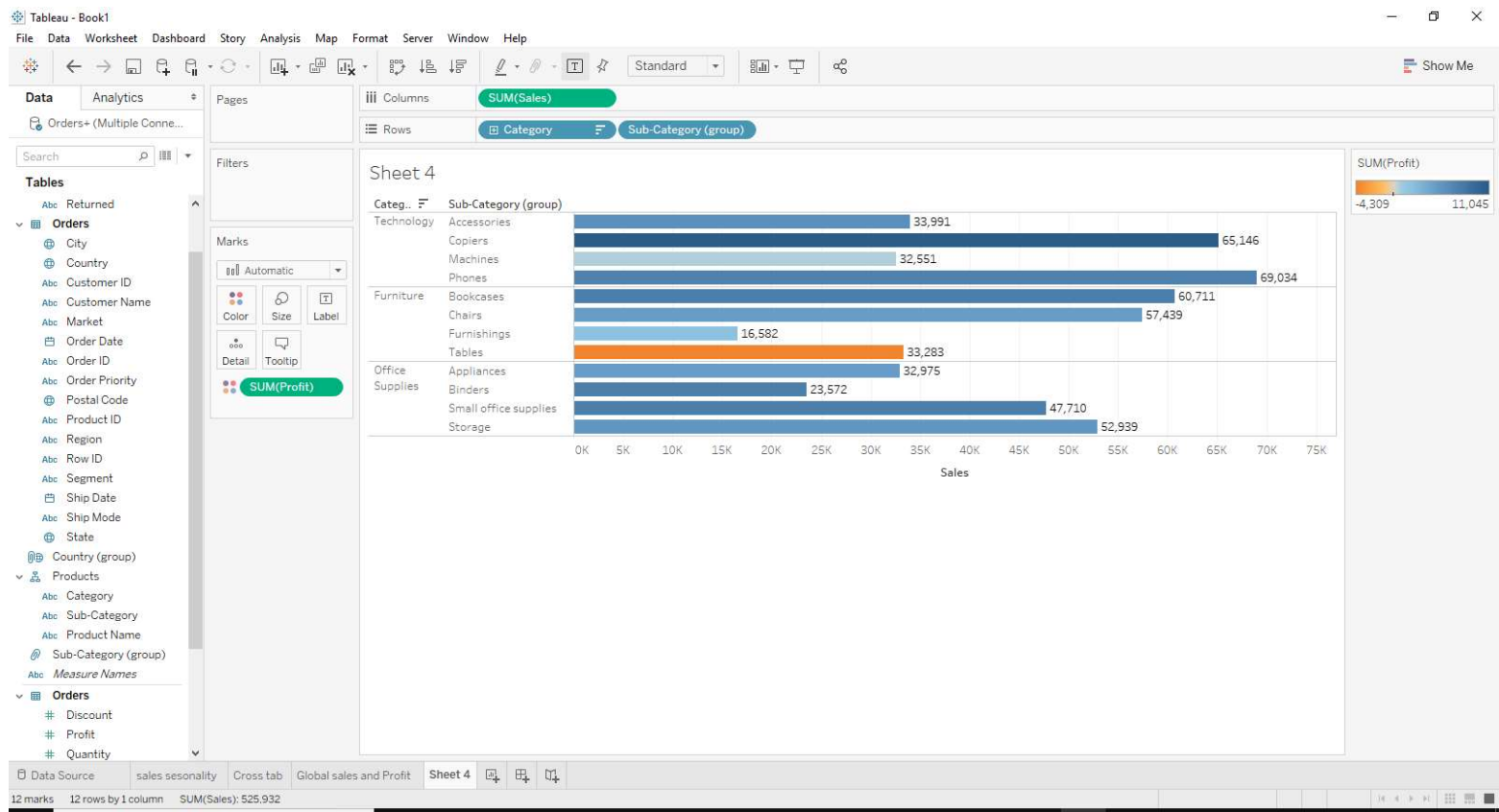
Sheet 2 (2)

Month of O..	Category	2012						2013						2014					
		Count o..	Discount	Profit	Quantity	Sales	Shippin..	Count o..	Discount	Profit	Quantity	Sales	Shippin..	Count o..	Discount	Profit	Quantity	Sales	Shippin..
January	Furniture	3	0	8	5	558	61	5	1	185	16	993	130	9	1	1,756	29	5,173	
	Office Supp..	10	1	77	30	797	56	10	1	485	29	1,239	134	29	4	202	97	3,169	
	Technology	2	0	13	4	564	96	5	1	126	20	904	107	7	0	373	16	1,858	
February	Furniture	4	1	-39	16	2,063	245	2	0	102	10	1,226	408	2	0	54	4	481	
	Office Supp..	10	1	213	43	1,527	256	14	4	139	37	664	67	12	3	-468	57	1,246	
	Technology	3	0	66	10	884	121	6	2	-331	26	3,615	210	6	1	162	13	1,300	
March	Furniture	8	1	163	25	2,495	294	3	1	104	14	727	73	5	0	382	17	1,306	
	Office Supp..	19	4	103	46	731	118	7	0	58	11	326	34	18	1	779	66	2,859	
	Technology	13	2	726	42	4,647	626	2	0	5	5	271	29	7	1	370	22	2,483	
April	Furniture	5	1	378	18	1,382	219	4	1	2	10	1,754	208	10	1	539	33	3,057	
	Office Supp..	5	0	67	11	272	23	30	4	72	107	2,856	245	28	6	28	94	1,661	
	Technology	3	0	394	14	2,337	182	12	2	597	38	3,068	377	3	0	778	14	2,302	
May	Furniture	7	1	113	23	2,498	354	7	1	529	24	2,590	305	6	1	26	16	1,367	
	Office Supp..	16	0	233	59	4,545	212	14	3	442	59	2,992	284	36	6	540	112	3,946	
	Technology	11	1	287	36	5,125	421	6	1	-829	31	4,067	799	8	1	135	33	3,678	
June	Furniture	9	4	-136	25	3,443	470	5	2	773	22	2,845	188	12	1	1,110	35	4,983	
	Office Supp..	18	7	18	46	793	88	19	3	489	74	4,991	680	47	6	594	158	4,130	
	Technology	4	2	-91	11	569	35	6	1	-76	21	1,952	583	13	2	57	38	5,234	
July	Furniture	1	0	14	2	85	8	6	1	265	27	1,626	102	3	0	30	17	1,235	
	Office Supp..	15	4	232	48	1,719	122	22	3	302	92	1,574	148	16	1	504	51	2,138	
	Technology	9	2	361	23	2,821	238	6	0	898	37	5,284	586	6	1	1,057	25	4,241	
August	Furniture	9	1	354	40	2,500	204	5	1	120	21	2,714	193	14	2	1,243	55	9,391	
	Office Supp..	26	6	173	85	2,107	205	12	2	102	36	1,111	101	46	5	1,193	193	6,042	
	Technology	4	0	555	10	1,867	158	2	0	-220	8	1,542	163	14	2	451	45	5,702	
September	Furniture	10	2	256	37	2,551	234	9	2	68	34	1,794	182	10	2	309	34	2,271	
	Office Supp..	37	5	7,212	139	20,093	1,114	41	7	688	115	3,626	364	38	4	405	143	4,358	

864 marks 36 rows by 24 columns SUM of Measure Values: 658,367







# Tableau Prep

The screenshot shows the Tableau Prep Builder interface. On the left is the **Connection Pane** with a list of tables. The main area is the **Workflow pane**, which includes a **Profile Pane** showing data distributions and a **Data Pane** showing a table view of the data. A context menu is open over the workflow steps.

**Connection Pane**

- Connections: ABA Bestsellers 02-28-18 (Microsoft Excel)
- Search: [Search bar]
- Tables: Use Data Interpreter, Early & Middle, Hardcover Fiction, Hardcover Nonfiction, Mass Market, Trade Paperback Fiction, Trade Paperback Nonfiction, Young Adult

**Workflow pane**

**Profile Pane**

Rank	Info	Last Week/ Weeks on List	Table Names	File Paths
1	Lincoln in the Bardo   George Saunders \$17.00   ISBN: 9781455563920	1/3	Trade Paperback	ABA Bestsellers 02-28-18.xlsx
2	The Underground Railroad   Colson Whitehead \$16.95	2/4	Trade Paperback	ABA Bestsellers 02-28-18.xlsx
3	Pachinko   Min Jin Lee \$15.99   ISBN: 9781455563920	4/15	Trade Paperback	ABA Bestsellers 02-28-18.xlsx

**Data Pane**

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