

CS3DV20

Data Integration and Visualisation



Lab 01:

Environment Setup

Outline

➤ Tableau access options:

✓ Polly Vacher G56

✓ Local Installation

Q&A



Polly Vacher G56 – Physical Access

- For the face to face session in Polly Vacher G56, this is the recommended method to access the tools needed for the Data Visualisation module (Tableau).
- Log into the computer using your university credentials.
- Click on the Tableau icon (if is not in the desktop, look at the apps installed).

Tableau

- Gartner is one of the companies that analyze different types of BI tools all over the world and has also proven that Tableau is one of the best products all over the world for data visualization.
- For the last 5 years it has been in the top position for data visualization.

Tableau Products



Tableau Desktop

[Tableau Desktop Help](#) 

Provides everything you need to access, visualize, and analyze your data. With an intuitive interface, you can uncover hidden insights and make smart decisions faster.

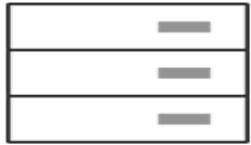




Tableau Server

Tableau Server Administrator Help:

[On Linux](#) 

[On Windows](#) 

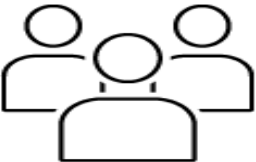
A self-hosted platform, either on-premises or in a public cloud, for creating or hosting visualizations, data sources, or flows. Tableau Server can have multiple sites.



Tableau Mobile

[Tableau Mobile Overview](#) 

The mobile application interacts with visualizations on your Tableau Server or Tableau Cloud site.



[Tableau Public](#) 

A free platform to explore, create, and publicly share data visualizations online. With the largest repository of data visualizations in the world to learn from, Tableau Public makes developing data skills easy.

Polly Vacher G56 – Physical Access



Local Installation

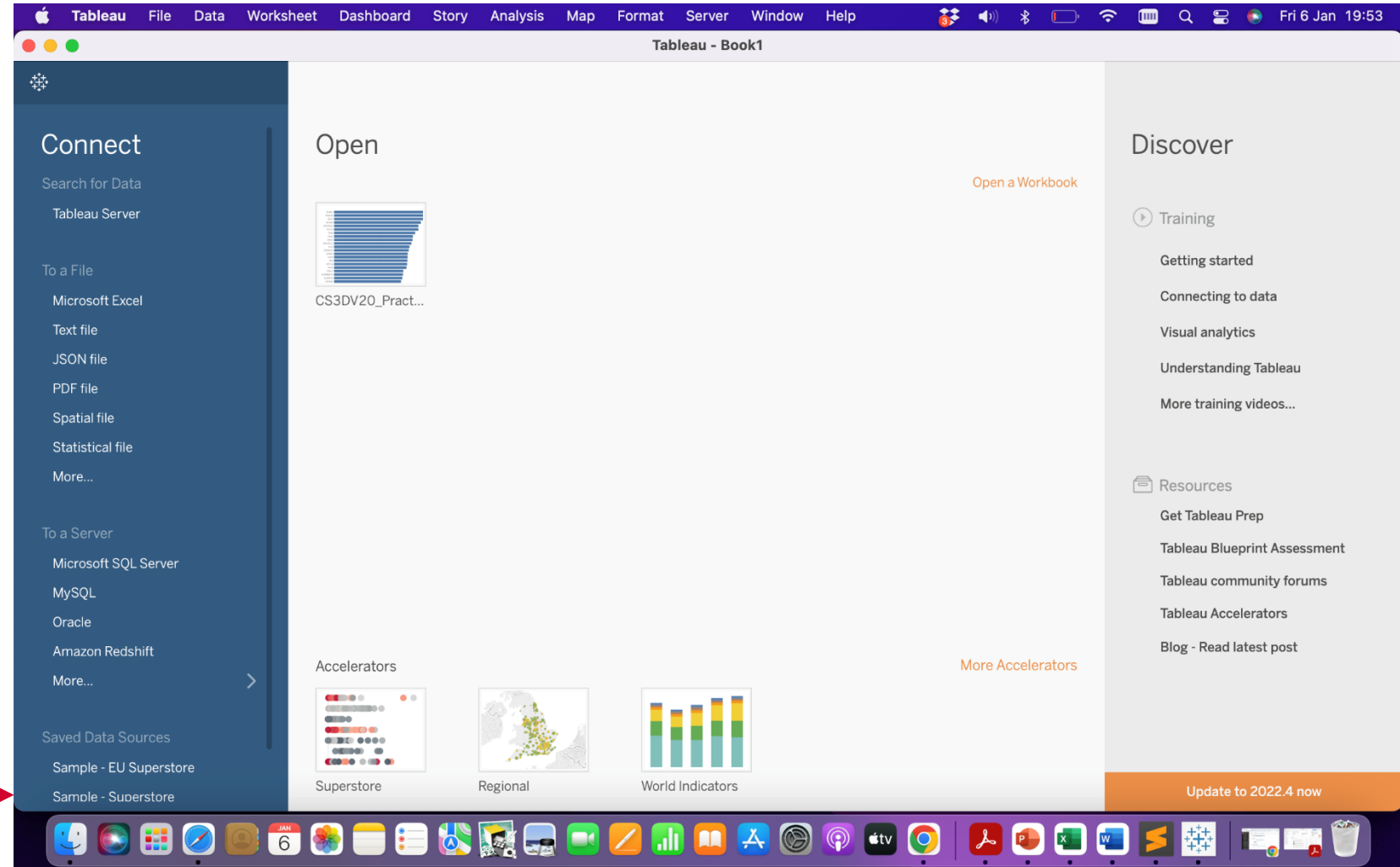
➤ The second option recommended to perform the activities of the module is to install Tableau. You can download the files from here:

<https://www.tableau.com/academic/students>

1. Download the latest version of Tableau Desktop and Tableau Prep Builder here- <https://www.tableau.com/products/prep/download?signin=academic>
2. Click on the link above and select “Download Tableau Desktop”. On the form, enter your school email address for Business E-mail and enter the name of your school for Organization.
3. You are going to need a **license key** to use Tableau: TC5O-E939-BD30-6688-BCA4

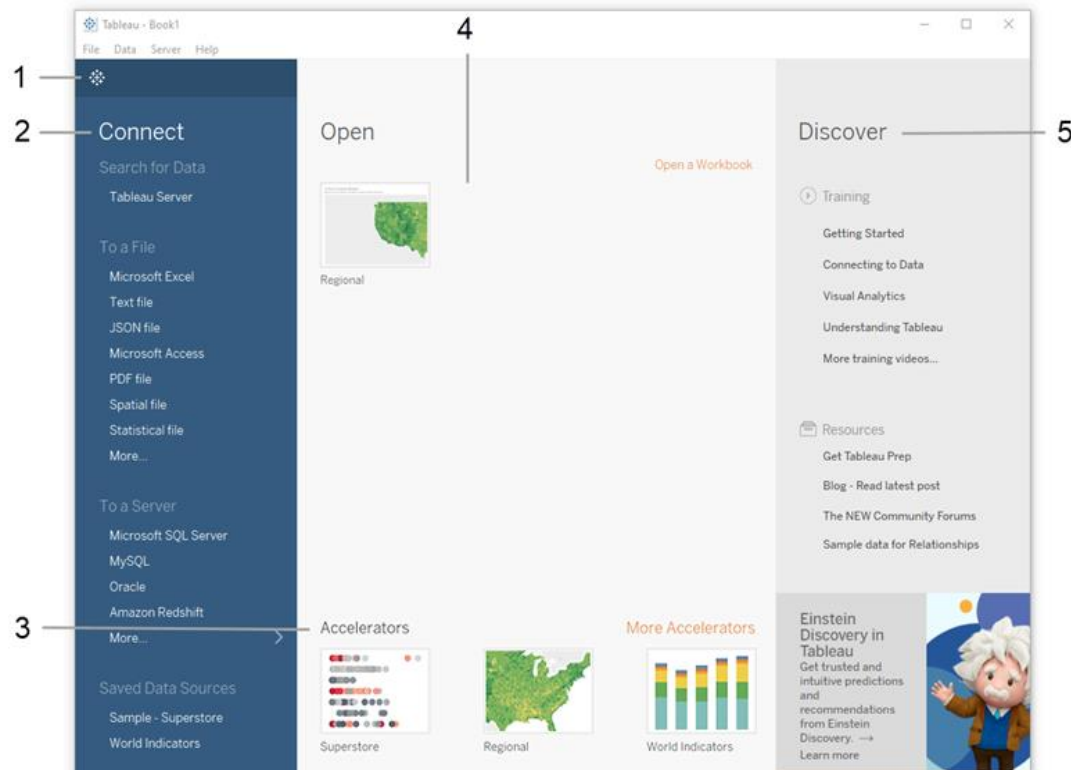
Validation

- Once you have installed/open Tableau, this is the landing page you should see:
- **You are ready to do the practical exercises!**
- (Please report any issues to the lecturer.)
- Click for sample-superstore dataset for first set of exercises



Connect to your data

➤ Open Tableau Desktop and begin



The start page gives you several options to choose from:

1. Tableau icon. Click in the upper left corner of any page to toggle between the start page and the authoring workspace.

2. Connect pane. Under Connect, you can:

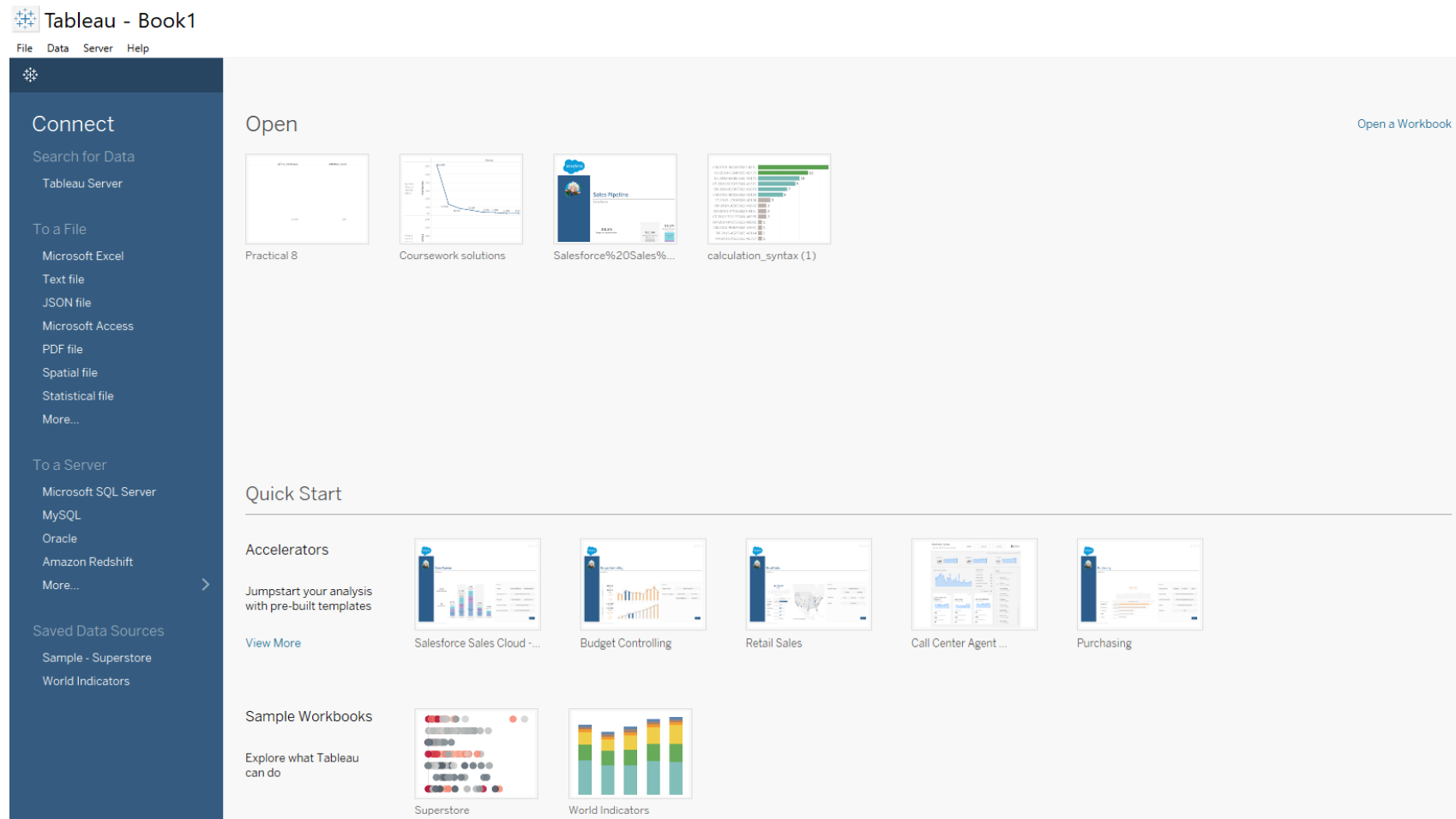
- Connect to data that is stored in a file, such as Microsoft Excel, PDF, Spatial files, and more.

4. Under Open, you can open workbooks you've already created.

5. Under Discover, find additional resources like video tutorials, forums, or the “Viz of the week” to get ideas about what you can build.

Connect to your data

- In the **Connect** pane, under **Saved Data Sources**, click **Sample - Superstore** to connect to the sample data set.



Connect to database

Tableau - Book1

File Data Server Window Help

Connections

Sample - Superstore
Microsoft Excel

Sheets

Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.

Orders
People
Returns
People
Returns
New Union
New Table Extension

Sample - Superstore

Orders

People

Returns

Connection

Live Extract

Filters

0 Add

Orders

20 fields 10194 rows

100 rows

Name

Orders

Fields

Type	Field Name	Physical Table	Remote Fiel...
ABC	Order ID	Orders	Order ID
Calendar	Order Date	Orders	Order Date
Calendar	Ship Date	Orders	Ship Date

Go to Worksheet

Data Source

Sheet 1

There are 6 datatypes supported by tableau:

Geographical Data Type

100 rows

Postal Code	Region	Category	Sub-Category	Product Name
77095	Central	Office Supplies	Paper	Message Book, Wirebound
60540	Central	Office Supplies	Binders	GBC Standard Plastic Binder
60540	Central	Office Supplies	Labels	Avery 508
60540	Central	Office Supplies	Storage	SAFECO Boltless Steel Storage
19143	East	Office Supplies	Art	Avery Hi-Liter EverBold I
42420	South	Furniture	Chairs	Global Deluxe High-Back
42420	South	Office Supplies	Art	Rogers Handheld Barrel

Click on Data Source to view the data.

Data Types

Tableau - Book1

File Data Server Window Help

Sample - Superstore

Connection: Live Extract Filters: 0 Add

Connections: Sample - Superstore (Microsoft Excel)

Sheets: Use Data Interpreter (Data Interpreter might be able to clean your Microsoft Excel workbook.)

Orders

When you click on datatype you can see all the datatypes supported by Tableau. You can also change the data type of the field values.

Orders 20 fields 10194 rows 100 rows

Name: Orders

Fields:

Type	Field Name	Physical Table	Remote Fiel...
US-2	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer Name	Orders	Customer Na...

Go to Worksheet

Number (decimal)
Number (whole)
Date & Time
Date
String
Spatial
Boolean
Default
Geographic Role
Image Role

Ship Date	Ship Mode	Customer Name	Segme
07/01/2020	Standard Class	Darren Powers	Consu
08/01/2020	Standard Class	Phillina Ober	Home
08/01/2020	Standard Class	Phillina Ober	Home
08/01/2020	Standard Class	Phillina Ober	Home
12/01/2020	Standard Class	Mick Brown	Consu
10/01/2020	Standard Class	Maria Etezadi	Home
10/01/2020	Standard Class	Maria Etezadi	Home

Hide and Unhide the fields

Tableau - Book1

File Data Server Window Help

Connections [Add](#)

Sample - Superstore
Microsoft Excel

Sheets [p](#)

☐ Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.

Orders
People
Returns
People
Returns
New Union
New Table Extension

Sample - Superstore

Connection ☒ Live ☐ Extract Filters 0 | [Add](#)

Orders

People

Returns

Click on this button and hide the fields that are least effective for data analysis

Orders 20 fields 10194 rows 100 rows

Name Orders

Fields

Type	Field Name	Physical Table	Remote Fiel...
Icon	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer Name	Orders	Customer Na...

Go to Worksheet

Order ID

US-2020-103800

US-2020-112326

US-2020-112326

US-2020-112326

US-2020-112326

US-2020-141817

US-2020-167199

US-2020-167199

Rename

Copy Values

Hide

Aliases...

Create Calculated Field...

Create Group...

Split

Custom Split...

Pivot (select multiple fields)

Describe...

Ship Mode

Customer Name

Segm

Standard Class

Darren Powers

Consu

Standard Class

Phillina Ober

Home

Standard Class

Phillina Ober

Home

Standard Class

Phillina Ober

Home

Standard Class

Mick Brown

Consu

Standard Class

Maria Etezadi

Home

Standard Class

Maria Etezadi

Home

Tableau - Book1

File Data Server Window Help

Connections [Add](#)

Sample - Superstore
Microsoft Excel

Sheets [p](#)

☐ Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.

Orders
People
Returns
People
Returns
New Union
New Table Extension

Sample - Superstore

Connection ☒ Live ☐ Extract Filters 0 | [Add](#)

Orders

People

Returns

Click on setting to unhide them

Orders 20 fields 10194 rows 100 rows

Name Orders

Fields

Type	Field Name	Physical Table	Remote Fiel...
Icon	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer Name	Orders	Customer Na...

Go to Worksheet

Customer Name

Segment

Country/Region

City

Postal C

Standard Class

Darren Powers

Consumer

United States

Houst

7095

Standard Class

Phillina Ober

Home Office

United States

Naper

0540

Standard Class

Phillina Ober

Home Office

United States

Naper

0540

Standard Class

Phillina Ober

Home Office

United States

Naper

0540

Standard Class

Mick Brown

Consumer

United States

Philadelphia

Pennsylvania

19143

Standard Class

Maria Etezadi

Home Office

United States

Henderson

Kentucky

42420

Standard Class

Maria Etezadi

Home Office

United States

Henderson

Kentucky

42420

Show aliases

Show hidden fields

Sort Fields:

☒ Data source order

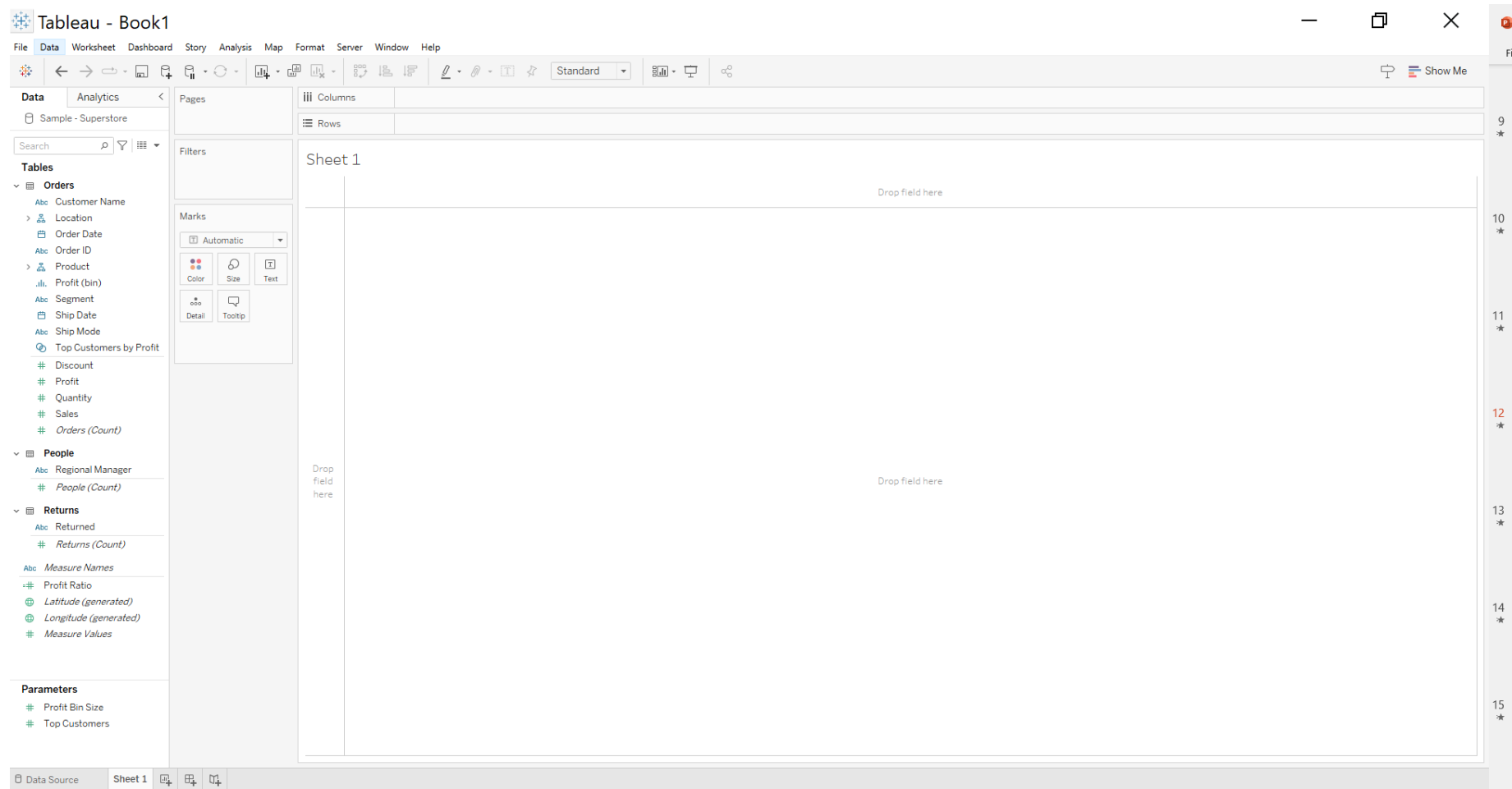
A to Z ascending

Z to A descending

A to Z ascending per table

Z to A descending per table

Connect to your data



Live vs. Extract data

Tableau - Book1

File Data Server Window Help

Sample - Superstore

Connections: Sample - Superstore (Microsoft Excel)

Sheets: Orders, People, Returns

Orders

20 fields 10394 rows

Name	Order ID	Order Date	Ship Date	Ship Mode	Customer Name	Segment	Country/Region	City	State/Province	Postal Code
US-2021-103800	03/01/2021	07/01/2021	Standard Class	Darren Powers	Consumer	United States	Houston	Texas	77095	
US-2021-112326	04/01/2021	08/01/2021	Standard Class	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	
US-2021-112326	04/01/2021	08/01/2021	Standard Class	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	
US-2021-112326	04/01/2021	08/01/2021	Standard Class	Phillina Ober	Home Office	United States	Naperville	Illinois	60540	
US-2021-141807	05/01/2021	12/01/2021	Standard Class	Mick Brown	Consumer	United States	Philadelphia	Pennsylvania	19143	
US-2021-167199	06/01/2021	10/01/2021	Standard Class	Maria Elcadi	Home Office	United States	Henderson	Kentucky	42420	
US-2021-167199	06/01/2021	10/01/2021	Standard Class	Maria Elcadi	Home Office	United States	Henderson	Kentucky	42420	
US-2021-106054	06/01/2021	07/01/2021	First Class	Jack O'Brian	Corporate	United States	Athens	Georgia	30605	
US-2021-167199	06/01/2021	10/01/2021	Standard Class	Maria Elcadi	Home Office	United States	Henderson	Kentucky	42420	

Open

« Data Integration » week 1

Search week 1

Organize New folder

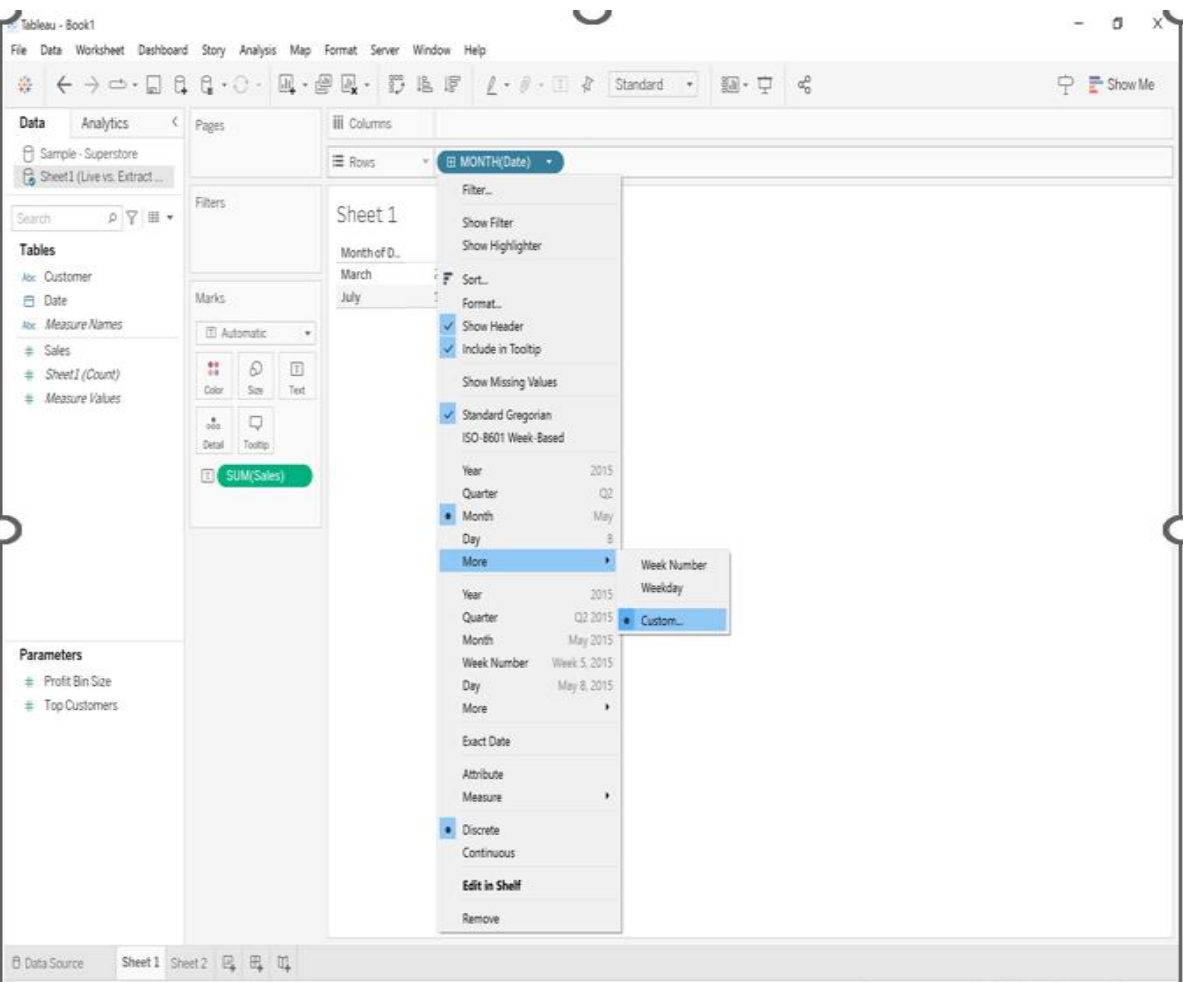
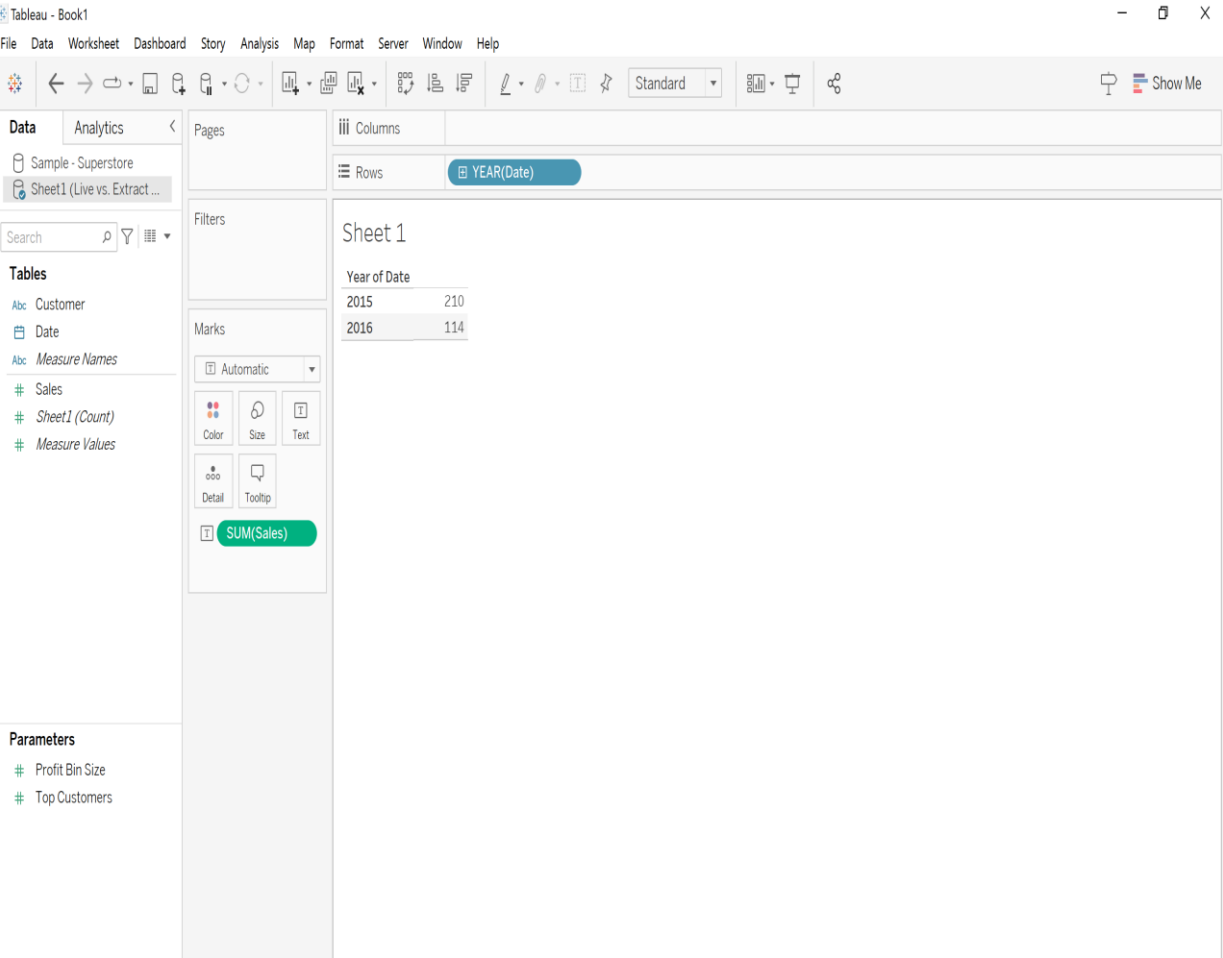
Apps Attachments Desktop Documents Microsoft Teams OfficeMobile Part 2 Personal Pictures This PC

File name: Live vs. Extract data

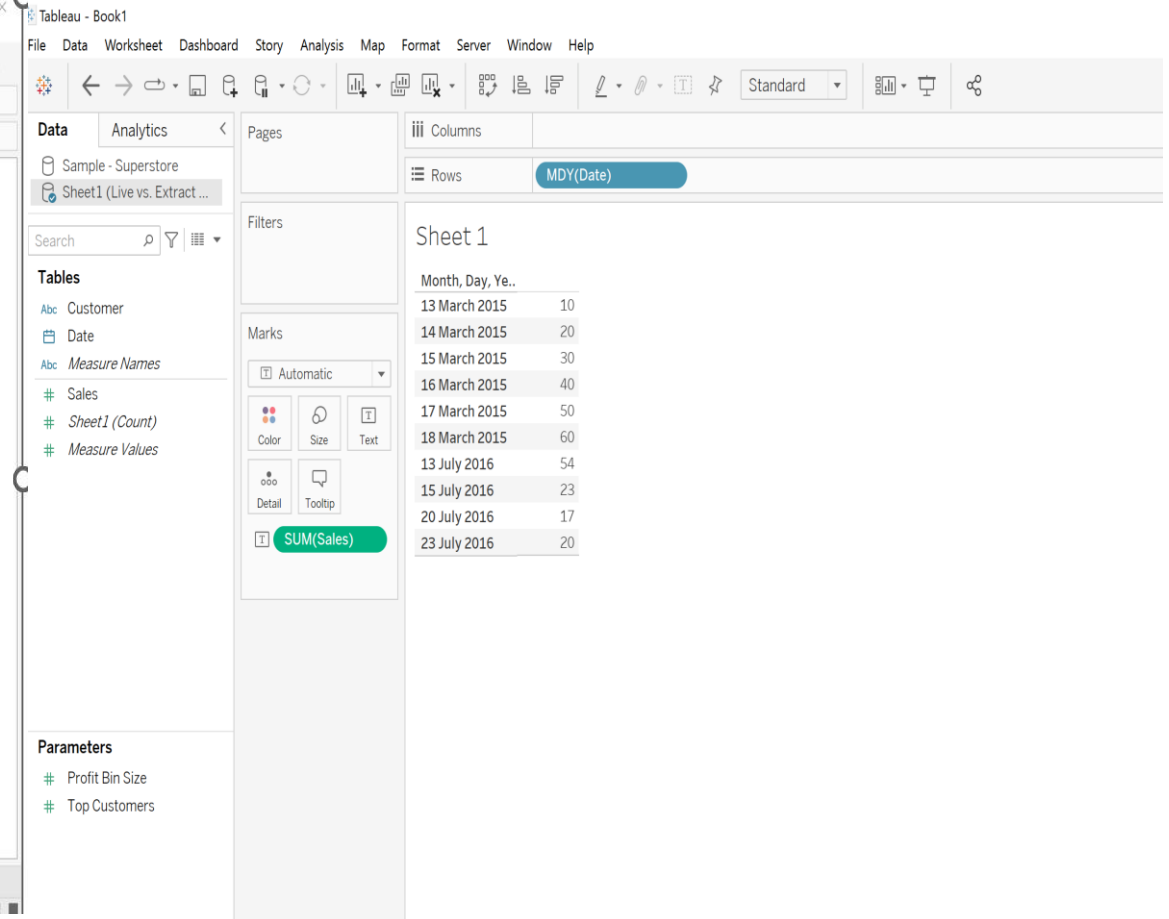
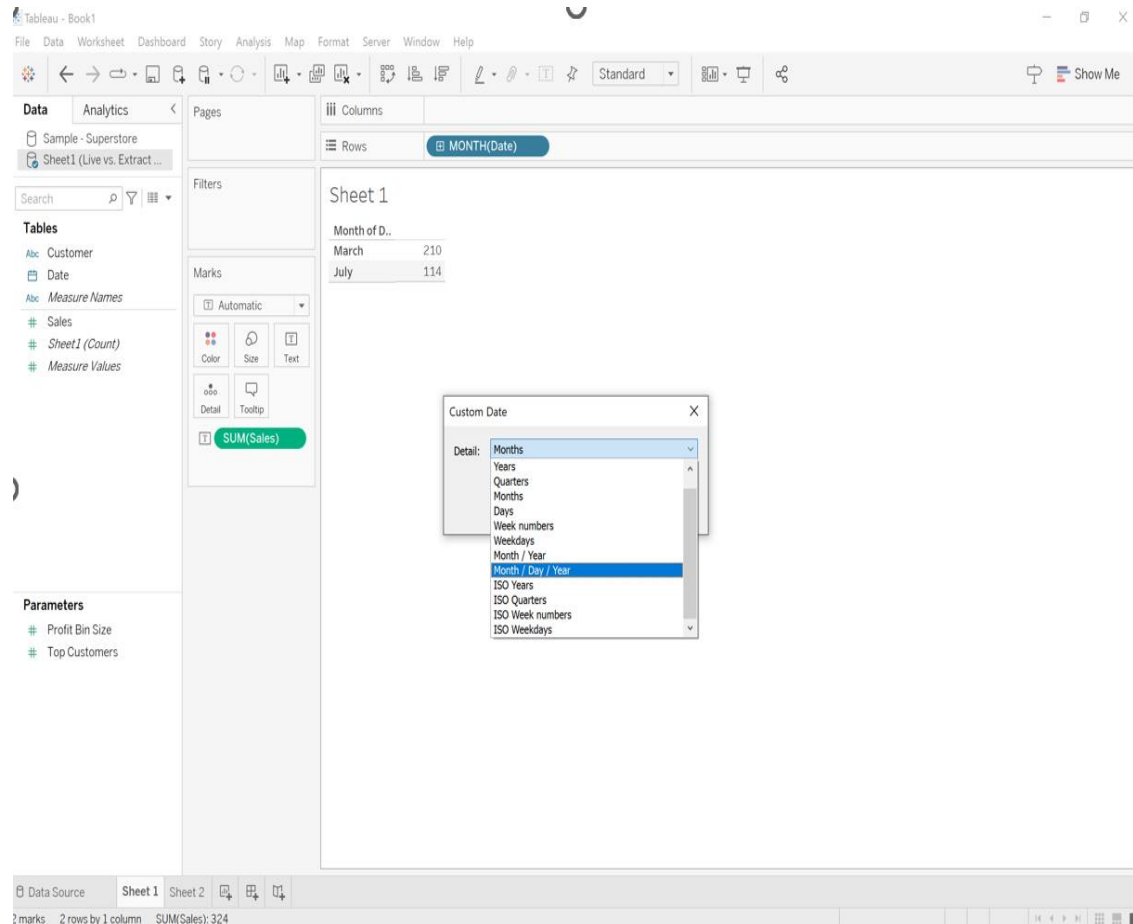
Excel Workbooks (*.xls *.xlsx *.xl)

Open Cancel

Live vs. Extract data







Live vs. Extract data

































Live vs. Extract data

➤ Add one more row to the database

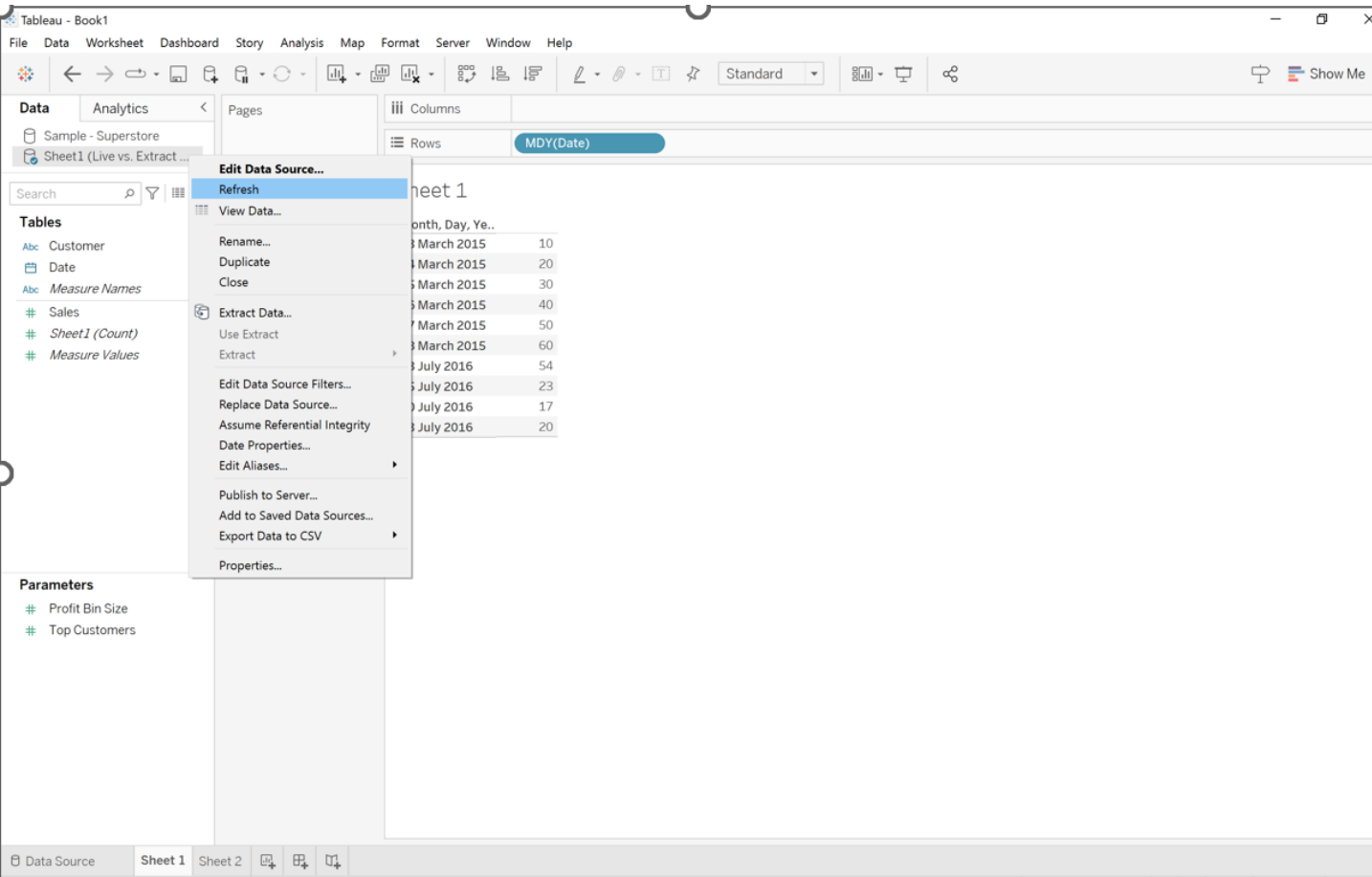
AutoSave **On**    Live vs. Extract da... • Saved  Se

File **Home** Insert Draw Page Layout Formulas Data Review View

Clipboard     Aptos Narrow 11 **B** *I* U                           <

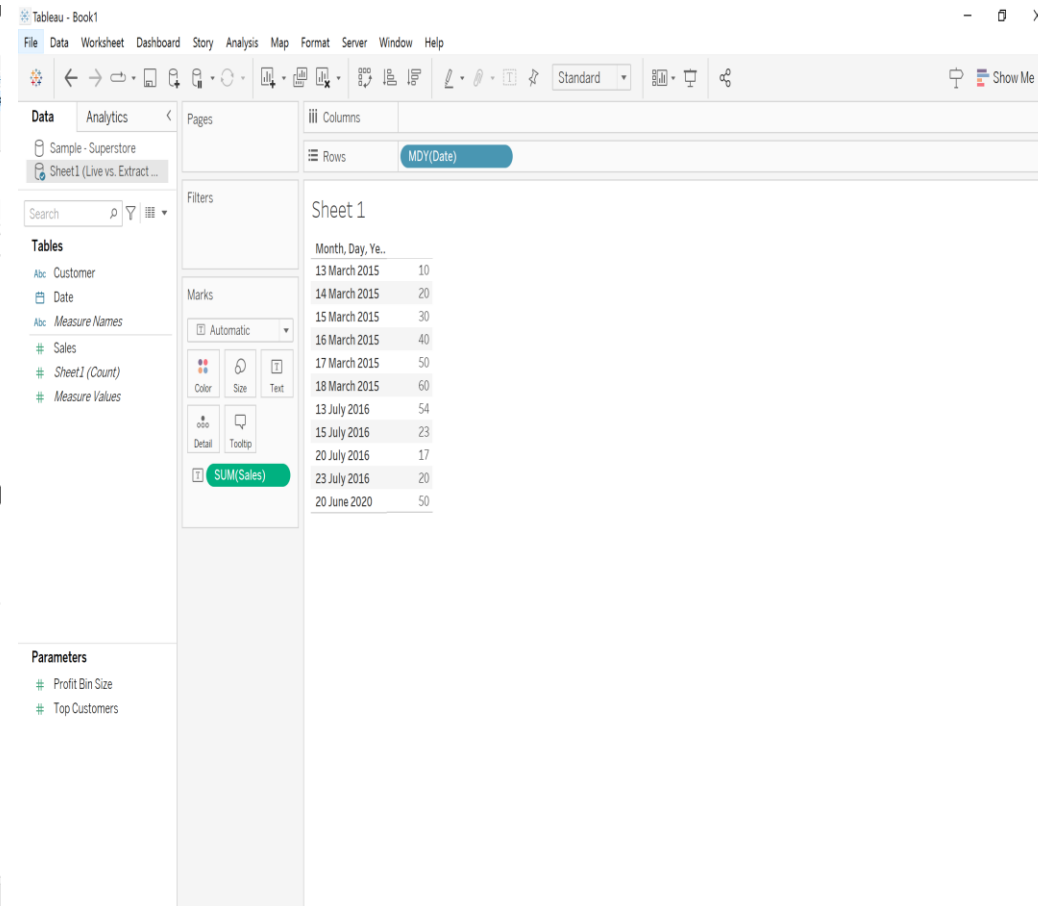
Live vs. extract data

➤ You could see the added row in the visualization



The screenshot shows the Tableau interface with the 'Edit Data Source' menu open. The 'Refresh' option is highlighted. The background shows a worksheet named 'Sheet1' with a table of data.

Month, Day, Year	Sales
13 March 2015	10
14 March 2015	20
15 March 2015	30
16 March 2015	40
17 March 2015	50
18 March 2015	60
13 July 2016	54
15 July 2016	23
20 July 2016	17
23 July 2016	20



The screenshot shows the same Tableau interface, but the 'Edit Data Source' menu is closed. The background shows the same worksheet named 'Sheet1' with a table of data. The table now includes an additional row at the bottom.

Month, Day, Year	Sales
13 March 2015	10
14 March 2015	20
15 March 2015	30
16 March 2015	40
17 March 2015	50
18 March 2015	60
13 July 2016	54
15 July 2016	23
20 July 2016	17
23 July 2016	20
20 June 2020	50

Live vs. Extract data

Close Tableau tool

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Data Analytics

Sample - Superstore

Sheet1 (Live vs. Extract ...)

Search

Tables

- Customer
- Date
- Measure Names
- Sales
- Sheet1 (Count)
- Measure Values

Parameters

- Profit Bin Size
- Top Customers

Pages

Columns

Rows

MDY(Date)

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

SUM(Sales)

Sheet 1

Month, Day, Ye..	
13 March 2015	10
14 March 2015	20
15 March 2015	30
16 March 2015	40
17 March 2015	50
18 March 2015	60
13 July 2016	54
15 July 2016	23
20 July 2016	
23 July 2016	
20 June 2020	
10 June 2024	

Tableau

Do you want to save the changes to the workbook?

Yes No Cancel

Live vs. Extract data

Tableau - Book1

Open

← → ↑ Data Integration > week 1 Search week 1

Organize New folder

Apps

Attachments

Desktop

Documents

Microsoft Teams

OfficeMobile

Part 2

Personal

Pictures


This PC

Name	Status	Date modified
Live vs. Extract data	✓	24/09/2016

File name: Live vs. Extract data Excel Workbooks (*.xls *.xlsx *.xl)

Open Cancel

Open a Workbook


Salesforce%20Sales%...

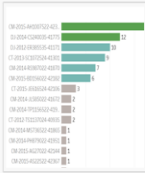

calculation_syntax (1)

Tableau - Book1

File Data Server Window Help

Connections

Live vs. Extract data
Microsoft Excel

Sheets

Sheet1

New Union

New Table Extension

Sheet1 (Live vs. Extract data)

Connection

☐ Live ☒ Extract Edit Refresh 0 Add

Extract will contain all data.

Sheet1

Need more data?
Drag tables here to relate them. [Learn more](#)

Sheet1 3 fields 11 rows 11 rows

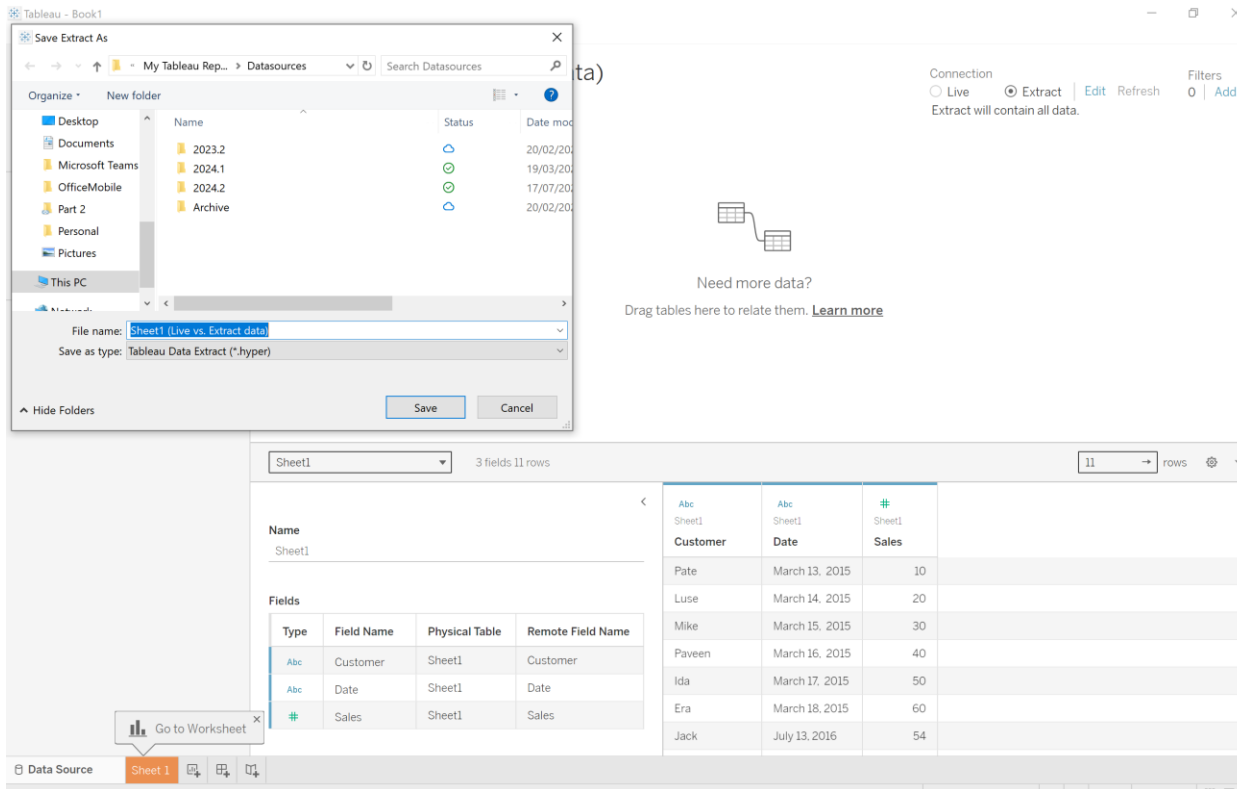
Name	Sheet1	Customer	Date	Sales
Pate	March 13, 2015	10		
Luse	March 14, 2015	20		
Mike	March 15, 2015	30		
Paveen	March 16, 2015	40		
Ida	March 17, 2015	50		
Era	March 18, 2015	60		
Jack	July 13, 2016	54		

Type	Field Name	Physical Table	Remote Field Name
Abc	Customer	Sheet1	Customer
Abc	Date	Sheet1	Date
#	Sales	Sheet1	Sales

Connect to the same database and select the option 'Extract' from the top bar

Live vs. Extract data

➤ Click to 'Sheet' in the bottom bar and it will save a snapshot of the database.



The screenshot shows the Tableau interface with the 'Save Extract As' dialog box open. The dialog box displays the file name 'Sheet1 (Live vs. Extract data)' and the save type 'Tableau Data Extract (*.hyper)'. The background shows the 'Sheet1' view with a table of data.

Tableau - Book1

Save Extract As

My Tableau Rep... > Datasources

Search Datasources

Organize New folder

Desktop Documents Microsoft Teams OfficeMobile Part 2 Personal Pictures This PC

Name Status Date mod

2023.2 20/02/2024

2024.1 19/03/2024

2024.2 17/07/2024

Archive 20/02/2024

File name: Sheet1 (Live vs. Extract data)

Save as type: Tableau Data Extract (*.hyper)

Save Cancel

Hide Folders

Connection

☐ Live ☒ Extract Edit Refresh Filters 0 Add

Extract will contain all data.

Need more data?

Drag tables here to relate them. [Learn more](#)

Sheet1 3 fields 11 rows 11 rows

Name Sheet1

Fields

Type	Field Name	Physical Table	Remote Field Name
Abc	Customer	Sheet1	Customer
Abc	Date	Sheet1	Date
#	Sales	Sheet1	Sales

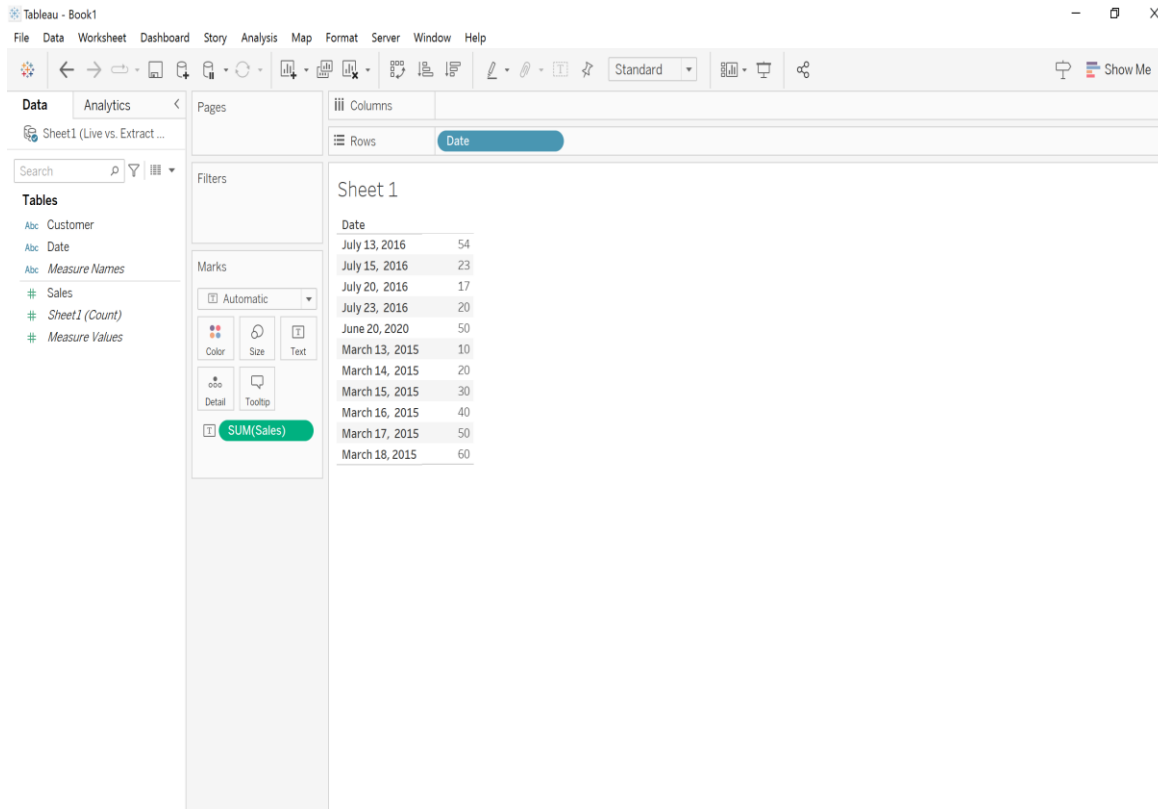
Abc Sheet1 Customer	Abc Sheet1 Date	# Sheet1 Sales
Pate	March 13, 2015	10
Luse	March 14, 2015	20
Mike	March 15, 2015	30
Paveen	March 16, 2015	40
Ida	March 17, 2015	50
Era	March 18, 2015	60
Jack	July 13, 2016	54

Go to Worksheet

Data Source Sheet 1

Live vs. Extract data

➤ Analyse the dataset



Live vs. Extract data

Add one more row to the dataset and press the refresh button again in Tableau tool, New changes will not appear in the visualization in 'Extract option.

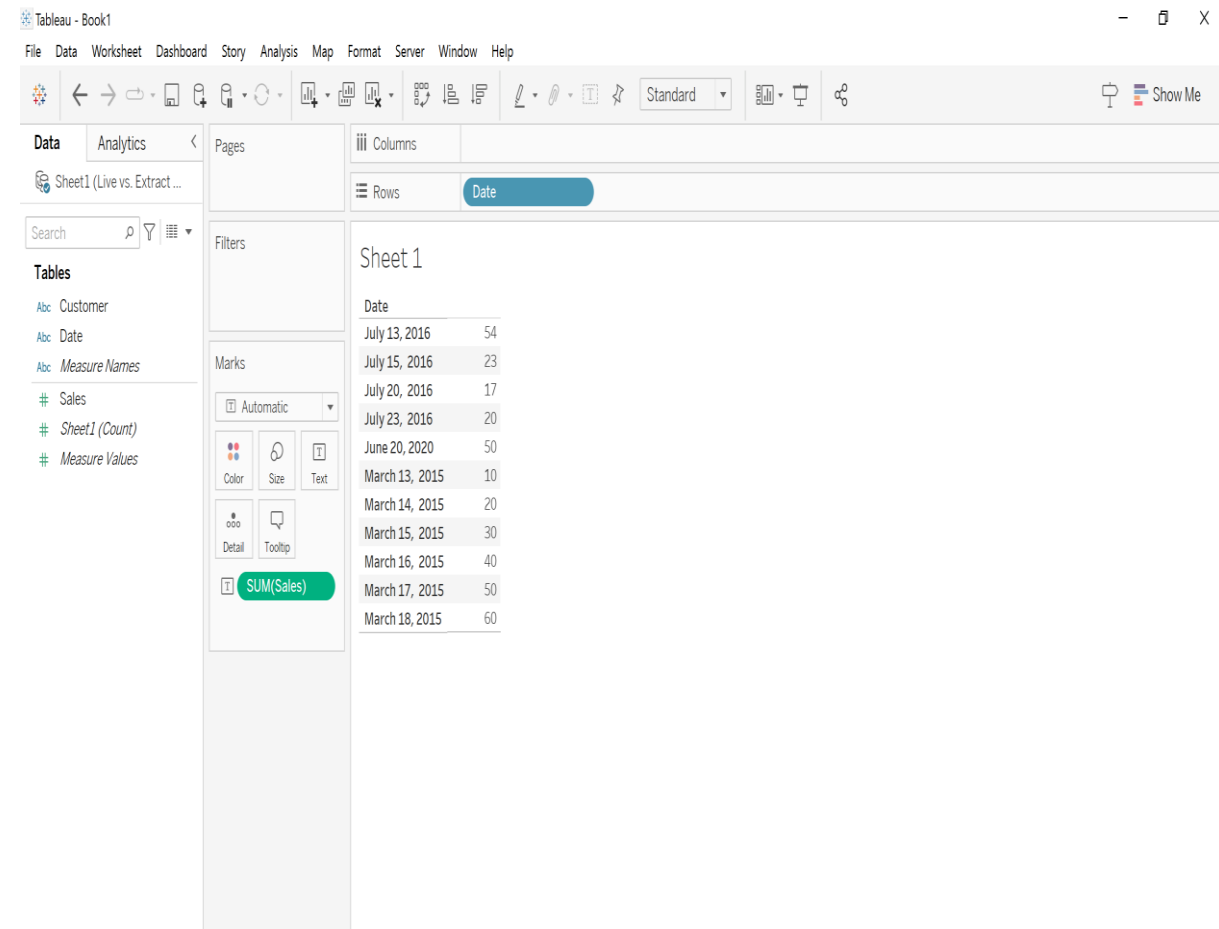
AutoSave Off Live vs. Extrac... • Last Modified: 6m ago

File Home Insert Draw Page Layout Formulas Data Review View

Clipboard Font Alignment

F16

	A	B	C	D	E
1					
2					
3		Customer	Date	Sales	
4		Pate	March 13, 2015	10	
5		Luse	March 14, 2015	20	
6		Mike	March 15, 2015	30	
7		Paveen	March 16, 2015	40	
8		Ida	March 17, 2015	50	
9		Era	March 18, 2015	60	
10		Jack	July 13, 2016	54	
11		Luke	July 15, 2016	23	
12		Steven	July 20, 2016	17	
13		Martin	July 23, 2016	20	
14		Mark	June 20, 2020	50	
15		Pret	June 10, 2024	100	
16		Peter	August 15, 2024	500	
17					
18					



Questions

