



COS80025 Data Visualisation

Week 1 Lab tasks

ILO	Create interactive data visualisations using real-world data sets.
Aim	Introduction to Tableau software Connecting to a data source Use Tableau to a basic visualisation
Resources	Books: Communicating Data with Tableau – Ben Jones (O'Reilly) Tableau Cookbook – Recipe for Data Visualisation – Shweta Sankhe-Savale (Packt)
Requirements for submission to be marked as complete	Submit working Tableau workbook that meets the requirements specified in the document below Demonstrate and explain workbook to tutor
Submission	Submit to Canvas <ul style="list-style-type: none">• Screenshot of visualisation• Tableau workbook Bring workbook to class to demonstrate to tutor

Note: This Task Guide is not meant to be fully explanatory. You are expected to do an extensive self-study to complete and create the visualisations designated as lab tasks. The textbooks referenced above are good resources to refer to; they provide further explanations on creating visualisations in Tableau.



Introduction to Tableau

Tableau is a suite of business analytics and data visualisation tools that makes it easy to explore and analyse data quickly and easily.

Tableau Software Inc. (<http://www.tableau.com/>) was founded in 2003 by Chris Stolte, Christian Chabot, and Pat Hanrahan. What began as a research project at Stanford University between 1999 and 2002 soon changed the way people see and interact with their data. Through the development of a database visualisation language called VizQL (Visual Query Language), which is a combination of a structured query language for databases and a descriptive language for rendering graphics, Tableau was able to give great power to the end-users and allowed them to visualise and interact with their data with simple drag-and-drop operations.

The Tableau product suite – differences between the products

The overall suite of products can be broadly divided into two categories; the ones built for creation of dashboards and visualisations and those built for collaboration, sharing, and management of these dashboards and visualisations.

Tableau Desktop

Tableau Desktop is the primary tool we will use for this course. It is where we create the visualisations and dashboards.

Tableau Desktop comes in two editions; the Desktop Professional edition which is a full-feature version that can connect to a wide range of data sources, including flat files as well as large database formats, and the Desktop Personal edition, which is a limited version that can connect only to flat-file formats as a data source (Excel, Access, Statistical files, and so on) and does not give the option to connect to any database formats.

Tableau Public

Tableau Public is a free edition that is similar to Desktop Personal in but with one key distinction: visualisations are published directly to the web and cannot be saved offline.

Tableau Server

Tableau Server is an on-premise hosted browser and mobile-based collaboration platform used to publish dashboards created in Tableau Desktop for organisations.

Tableau Online

Tableau Online is a cloud-hosted version or SaaS version of Tableau Server. It brings Server's capabilities on the cloud without the infrastructure cost.

Tableau Reader

Tableau Reader is a free desktop application that can be used to open, view, and interact with dashboards and visualisations created in Tableau Desktop. However, Tableau Reader cannot be used to author new visualisations.

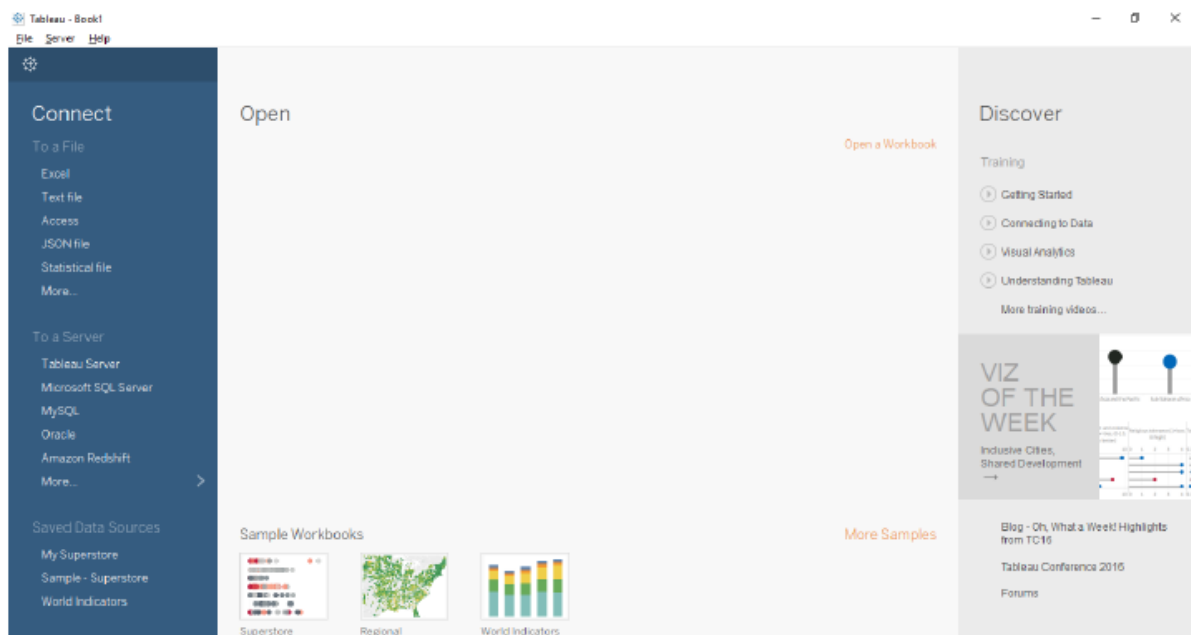
Tableau Installation (on your local machine)

1. Register with Tableau (<https://www.tableau.com/academic/students>) using your Swinburne student details to receive a free one-year Tableau Desktop professional licence
2. Download and install Tableau Desktop Professional 2019.4
3. Upon installation, activate the license by entering the one-year student license key received from Tableau

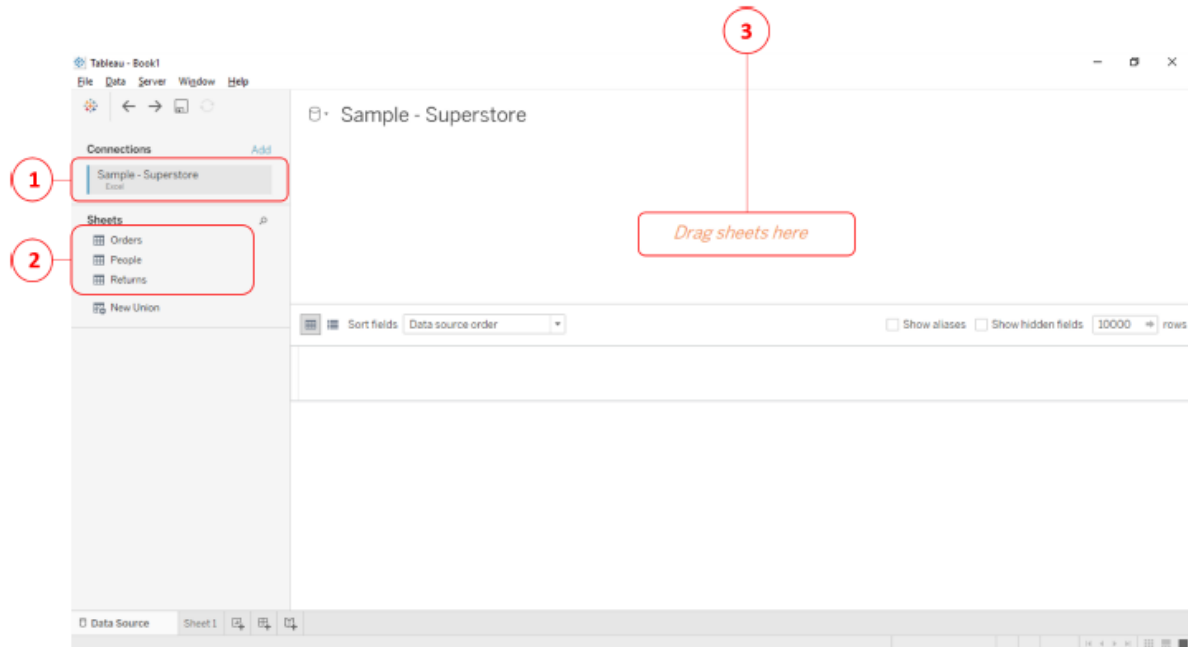
Connecting to Data Source

Let's see how to connect to a data source. To begin with, we will work on the *Orders* sheet of the *Sample - Superstore.xls* data (Available in the Canvas under Assignments). This worksheet contains the order details in terms of the products purchased, the name of the customer, sales, profits, discounts offered, day of purchase, and the order shipment date, among many other transactional details.

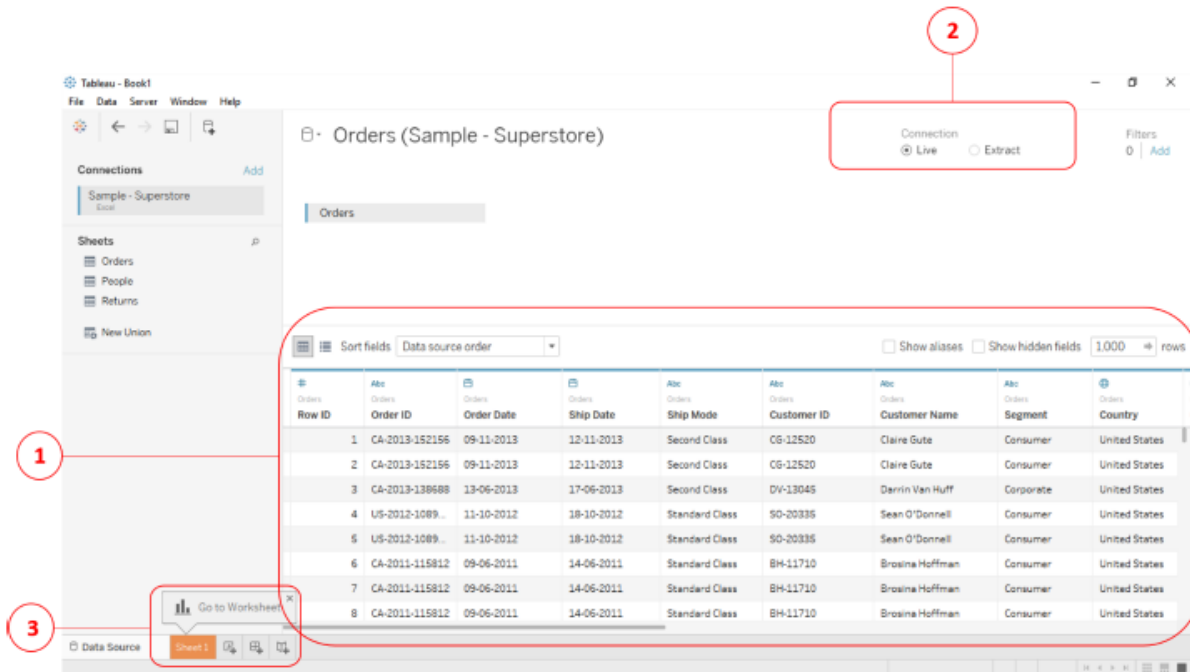
1. Open Tableau Desktop.



2. Select the Excel option from under the Connect header on the left-hand side of the screen.
3. Once you have done this, browse the Excel file called Sample - Superstore.xls.
4. Once we are able to establish a connection to the referred Excel file, we will get a view as shown in the following image:



5. The number 1 in the preceding image refers to the data that we have connected to, and 2 refers to the list of worksheets/tables/views in our data.
6. Double-click on the **Orders** sheet or drag and drop the **Orders** sheet from the lefthand side section of the screen into a blank space that says Drag sheets here. Refer to number 3 in the preceding image.
7. Once we select the **Orders** sheet, we will get to see the preview of our data, highlighted using the number 1 in the following image. We will see the column headers, their data type (#, Abc, and so on), and the individual rows of data:



8. While connecting to a data source, we can also read data from multiple tables/sheets from that data source. Moving on, we will need to specify what type of connection we wish to maintain with the data source. Do we wish to connect to our data directly and maintain Live connectivity with it or do we wish to import the data into Tableau's data engine by creating an Extract? Refer to number 2 in the preceding image. However, to begin with, we will select the Live option.
9. Next, to get to our Tableau workspace, where we can start building our visualizations, click on the Go to Worksheet option and then Sheet 1, which we will find at the bottom left-hand side corner. Refer to number 3 in the preceding image.
10. This is how we can connect to the data in Tableau. If we have a database to connect to, then we can select the relevant data source from the list and fill in the necessary information in terms of the server name, username, password, and so on.

Creating a Simple Visualisation

1. Make sure you are connected live to the **Orders** sheets of Sample - Superstore.xls by following the steps in the previous section.
2. Click on the Go to Worksheet option and then the Sheet 1 tab. Refer to the following image:

File Data Server Window Help

← → [Icon] [Icon]

Connections [Add](#)

Sample - Superstore
Excel

Sheets [p](#)

- Orders
- People
- Returns
- New Union

Orders (Sample - Superstore)

Orders

Sort fields Data source order

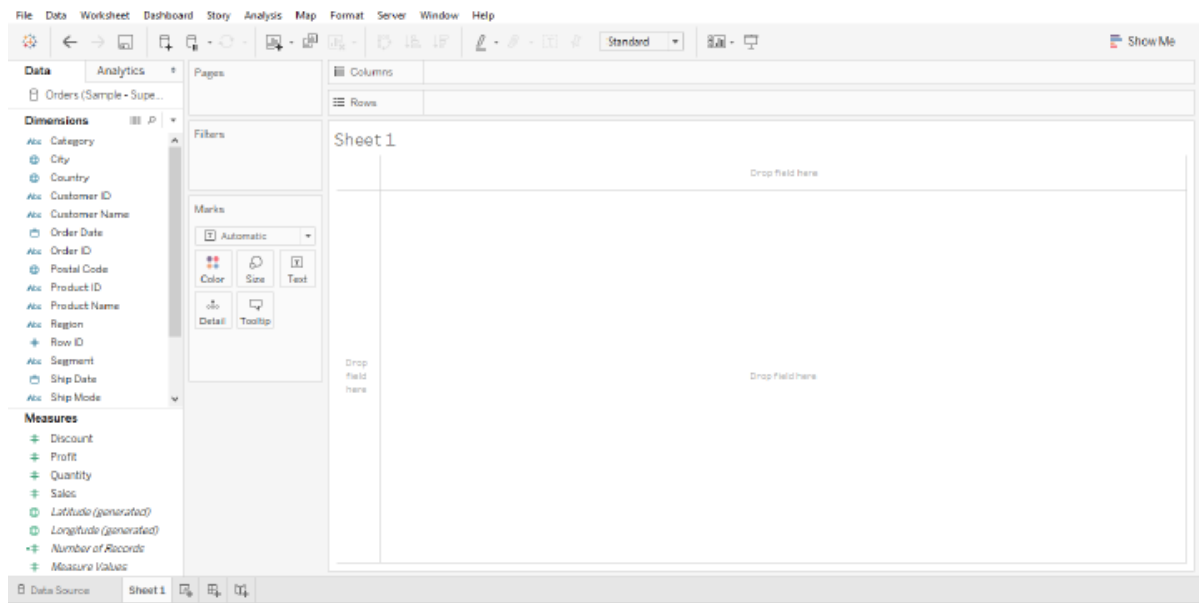
# Orders Row ID	Abc Orders Order ID	📅 Orders Order Date	📅 Orders Ship Date
742	CA-2011-112326	05-01-2011	09-01-2011
740	CA-2011-112326	05-01-2011	09-01-2011
741	CA-2011-112326	05-01-2011	09-01-2011
593	CA-2011-135405	10-01-2011	14-01-2011
594	CA-2011-135405	10-01-2011	14-01-2011
867	CA-2011-149020	11-01-2011	16-01-2011
866	CA-2011-149020	11-01-2011	16-01-2011
717	CA-2011-130092	12-01-2011	15-01-2011

Data Source

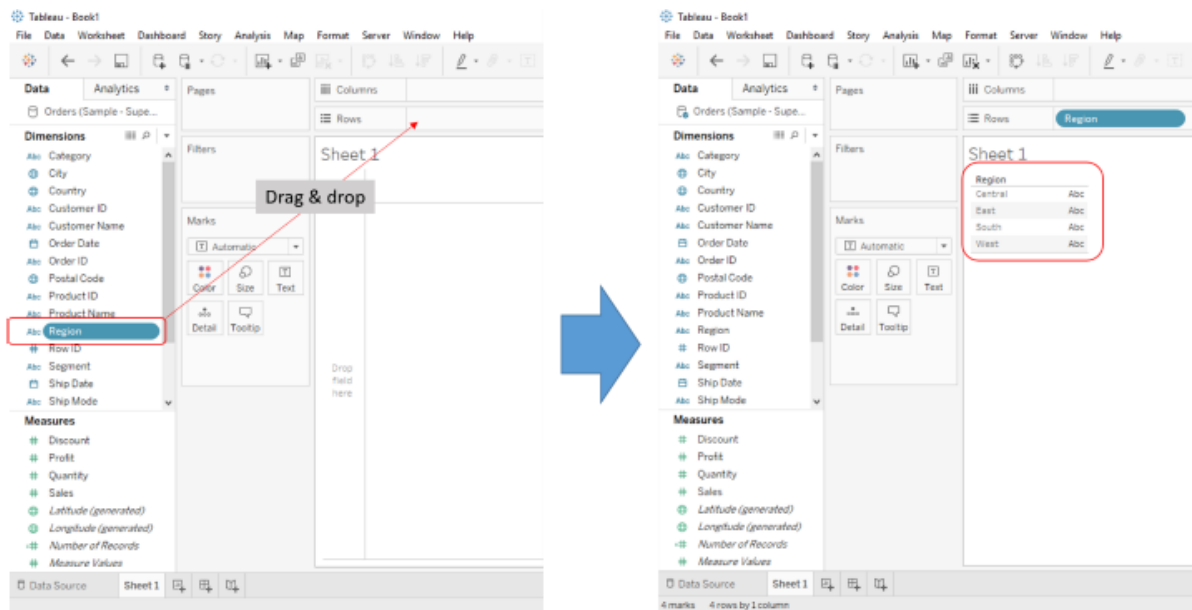
Sheet 1 [Icon] [Icon] [Icon]

Go to Worksheet [Close]

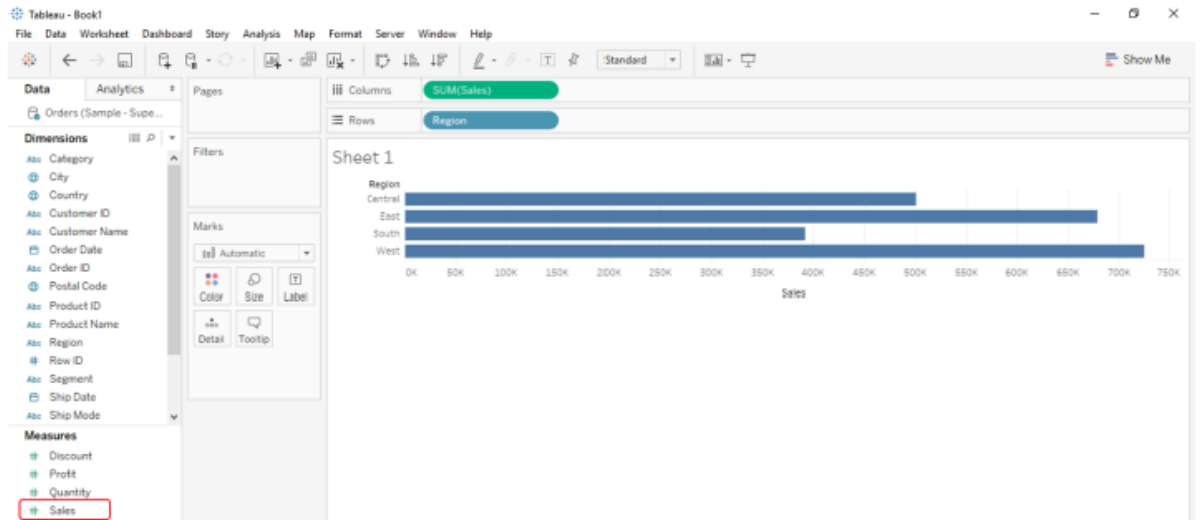
3. Once we do this, we will get a view as shown in the following image:



4. Drag **Region** field from the left-hand side pane and drop it into the Rows shelf. Refer to the following image:



5. Drag **Sales** and drop it into the Columns shelf, and our view will be updated as shown in the following image:



6. What we see in the preceding image is a bar chart that shows region-wise **Sales**.