

<b>Exp No: 7</b> <b>Date:</b>	<b>Data Visualization Using Power BI</b>
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### **Aim:**

To learn the Tableau interface and develop skills in connecting to various data sources (Excel, CSV, SQL databases), creating basic visualizations (bar charts, line charts, pie charts), creating calculated fields, and building interactive dashboards and stories.

### **Procedure:**

#### Step 1: Launch Tableau and Explore Interface

- Open Tableau Desktop.
- Familiarize yourself with the interface:
- Start Page (Connect pane, Open options)
- Data Pane (lists tables and fields)
- Sheets (for building visualizations)
- Dashboard and Story tabs

#### Step 2: Connect to Data Sources

- In the Connect pane, choose your data source type:
- Excel: Browse and select an Excel file, choose the sheet, and click Sheet1.
- CSV: Browse and select the CSV file, click Sheet1.
- SQL Database: Enter server, database credentials, select tables, and connect.
- Ensure your data appears in the Data Pane.

#### Step 3: Create Basic Visualizations

- Drag fields from the Data Pane to the Rows and Columns shelves:
- Bar Chart: Place a categorical field on Columns and a numerical field on Rows.
- Line Chart: Place a time/date field on Columns and a numerical field on Rows.
- Pie Chart: Use Marks → Pie, drag a categorical field to Color and numerical field to Angle.
- Use the Show Me panel to explore recommended visualization types.
- Format visualizations with colors, labels, and titles.

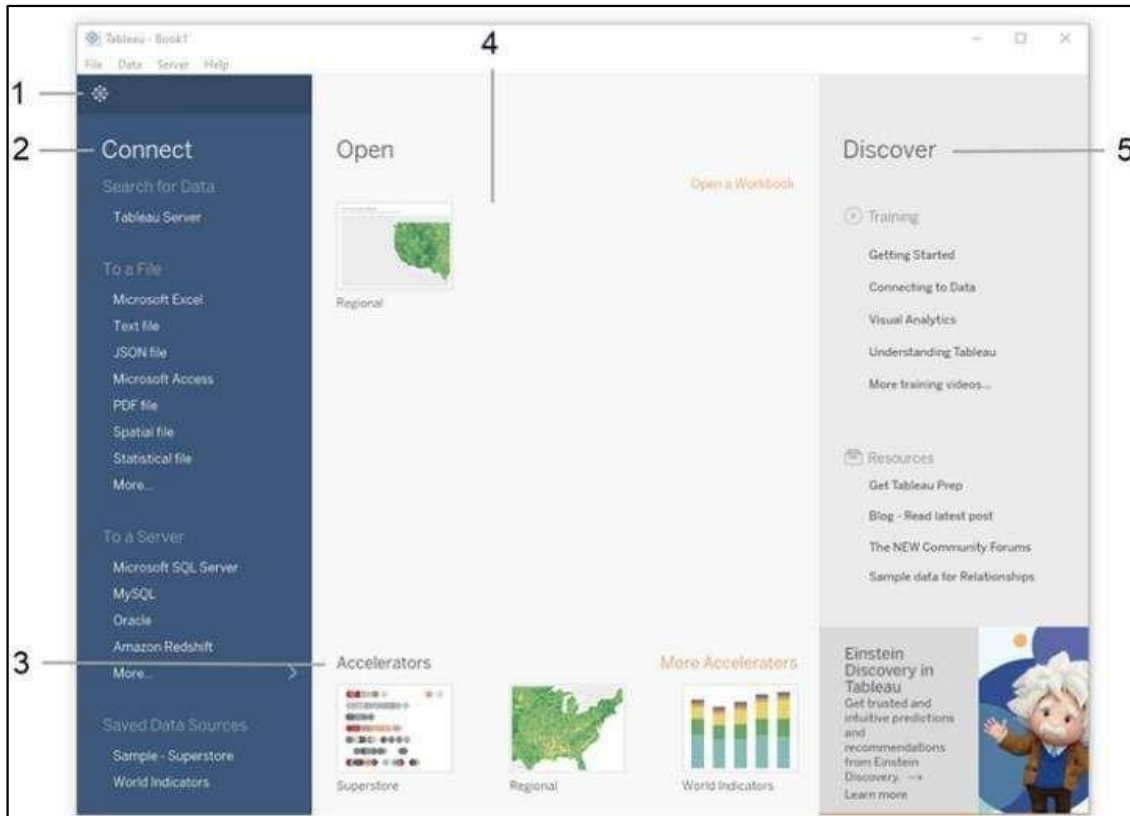
#### Step 4: Create Calculated Fields

- Click Analysis → Create Calculated Field.
- Enter a formula, e.g.,  $\text{TotalSales} = [\text{Quantity}] * [\text{UnitPrice}]$ .
- Use the calculated field in your visualizations to enhance insights.

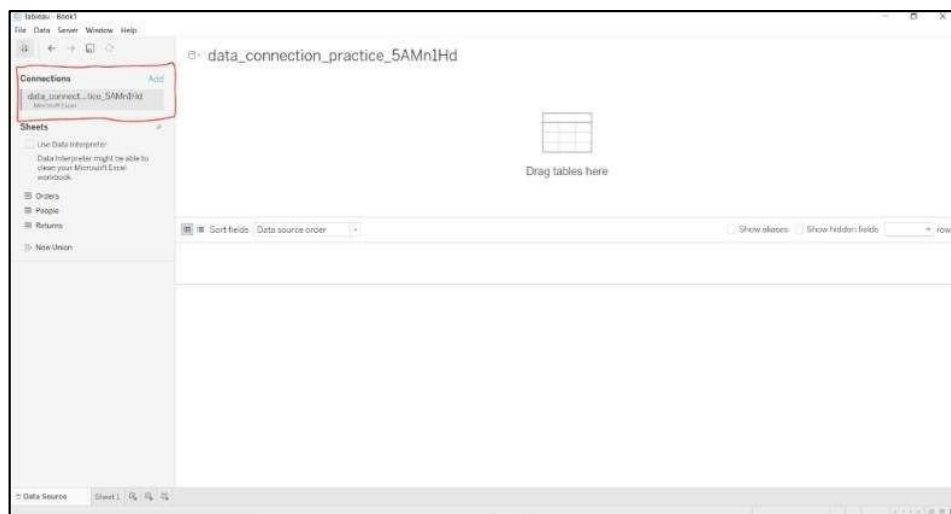
#### Step 5: Build Dashboards and Stories

- Click Dashboard → New Dashboard:
- Drag multiple sheets onto the dashboard canvas.
- Add filters, legends, and interactivity.
- Click Story → New Story:
- Combine multiple dashboards and visualizations into a narrative format.
- Add captions and navigation points.
- Customize layout, formatting, and interactivity for clarity.
- Save the workbook: File → Save As.

## 7.1 Introduction to Tableau and its interface



Connecting to various data sources (Excel, CSV, SQL databases)



File Home Settings View Help

data\_connection\_practice\_5AMnIHd

Connections: data\_connection\_practice\_5AMnIHd (Microsoft Excel)

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

Orders

People

Returns

New Union

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

Sort fields: Data source order

Show all rows Show hidden fields: 1,000 rows

Row	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	City	State	Global Area	Postal Code
1	MX-2014-148638	02-10-2014	06-10-2014	Standard Class	SC-20573	Sonia Casey	Consumer	Mexico City	Districto Federal	Mexico	
2	MX-2012-155017	15-10-2012	20-10-2012	Standard Class	KW-16570	Kelly Williams	Consumer	Dos Quebradas	Risaralda	Colombia	
4	MX-2012-155047	15-10-2012	20-10-2012	Standard Class	KW-16570	Kelly Williams	Consumer	Dos Quebradas	Risaralda	Colombia	
5	MX-2012-155047	15-10-2012	20-10-2012	Standard Class	KW-16570	Kelly Williams	Consumer	Dos Quebradas	Risaralda	Colombia	
7	MX-2013-134096	27-09-2013	01-10-2013	Standard Class	DP-13000	Darren Powers	Consumer	São Paulo	São Paulo	Brazil	
8	MX-2013-134096	27-09-2013	01-10-2013	Standard Class	DP-13000	Darren Powers	Consumer	São Paulo	São Paulo	Brazil	
10	MX-2013-134096	27-09-2013	01-10-2013	Standard Class	DP-13000	Darren Powers	Consumer	São Paulo	São Paulo	Brazil	
11	MX-2013-134096	27-09-2013	01-10-2013	Standard Class	DP-13000	Darren Powers	Consumer	São Paulo	São Paulo	Brazil	
13	MX-2013-136335	05-03-2013	12-03-2013	Standard Class	FB-21250	Tim Brockman	Consumer	Managua	Managua	Nicaragua	
14	MX-2014-121523	24-09-2014	01-10-2014	Standard Class	PH-10910	Paul Nussli	Home Office	Managua	Managua	Nicaragua	
16	MX-2014-130700	19-10-2014	10-11-2014	Standard Class	PH-10910	Paul Nussli	Home Office	Managua	Managua	Nicaragua	

Data Source Sheet 1

File Data Workbooks Dashboard Query Analysis Map Formula Server Window Help

Standard

Data Analytics Pages Columns

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Search

Tables

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

Filters

Automatic

Color Size Text

Detail Tooltip

Sheet 1

Sub-Category	Order Date			
	2011	2012	2013	2014
Accessories	Abc	Abc	Abc	Abc
Appliances	Abc	Abc	Abc	Abc
Art	Abc	Abc	Abc	Abc
Binders	Abc	Abc	Abc	Abc
Bookcases	Abc	Abc	Abc	Abc
Chairs	Abc	Abc	Abc	Abc
Copiers	Abc	Abc	Abc	Abc
Envelopes	Abc	Abc	Abc	Abc
Fasteners	Abc	Abc	Abc	Abc
Furnishings	Abc	Abc	Abc	Abc
Labels	Abc	Abc	Abc	Abc
Machines	Abc	Abc	Abc	Abc
Paper	Abc	Abc	Abc	Abc
Phones	Abc	Abc	Abc	Abc
Storage	Abc	Abc	Abc	Abc
Supplies	Abc	Abc	Abc	Abc
Tables	Abc	Abc	Abc	Abc

Data Source Sheet 1

File Data Workspaces Dashboard Query Analysis Map Forms Server Window Help

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Search

**Tables**

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

**Columns** YEAR(Order Date)

**Rows** Sub-Category

**Filters**

**Marks** Automatic

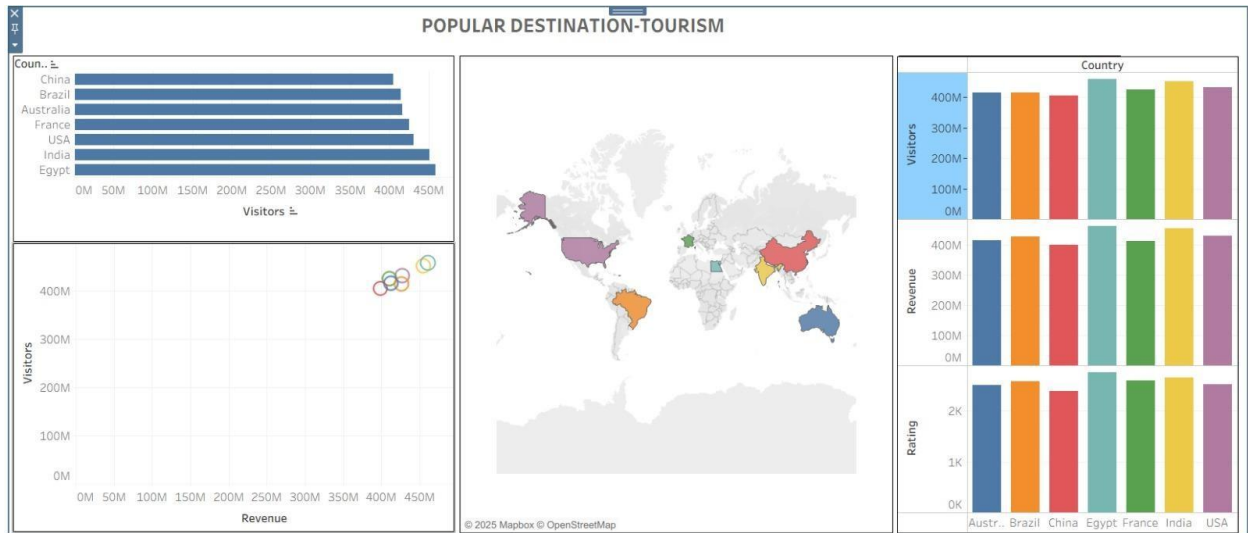
Color Size Text

Detail Tooltip

**Sheet 1**

	Order Date			
Sub-Catego...	2011	2012	2013	2014
Accessories	Abc	Abc	Abc	Abc
Appliances	Abc	Abc	Abc	Abc
Art	Abc	Abc	Abc	Abc
Binders	Abc	Abc	Abc	Abc
Bookcases	Abc	Abc	Abc	Abc
Chairs	Abc	Abc	Abc	Abc
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Labels	Abc	Abc	Abc	Abc
Machines	Abc	Abc	Abc	Abc
Paper	Abc	Abc	Abc	Abc
Phones	Abc	Abc	Abc	Abc
Storage	Abc	Abc	Abc	Abc
Supplies	Abc	Abc	Abc	Abc
Tables	Abc	Abc	Abc	Abc

## Output:



## Result:

This experiment introduced Tableau's interface and workflow, including connecting to data sources, creating visualizations, using calculated fields, and building dashboards and stories. Tableau simplifies data exploration and helps communicate insights effectively. To learn the Power BI interface and develop skills in connecting to various data sources (Excel, CSV, SQL databases), creating basic visualizations (bar charts, line charts, pie charts), using calculated columns and measures, and building interactive dashboards.