Project Development Phase
Sprint – 1

Date	29 October 2022
Team ID	PNT2022TMID29201
Project Name	Global sales Data Analytics
Maximum Marks	4 Marks

Sprint

Sprints are time-boxed periods of one week to one month, during which a product owner, scrum master, and scrum team work to complete a specific product addition. During a sprint, work is done to create new features based on the user stories and backlog.

Project (Global Sales Data Analytics)

Shopping online is currently the need of the hour. Because of this COVID, it's not easy to walk in a store randomly and buy anything you want. So, try to understand a few things like, Customer Analysis and Product Analysis of this Global Super Store.

Solution Requirements

IBM Cognos

IBM Cognos Analytics integrates reporting, modelling, analysis, dashboards, stories, and event management so that you can understand your organization data, and make effective business decisions. After the software is installed and configured, administrators set up security and manage data sources.

Project Objectives

By the end of this Project, you will

- Know fundamental concepts and can work on IBM Cognos Analytics.
- Gain a broad understanding of plotting different visualizations to provide a suitable solution.
- Able to create meaningful Visualizations and Dashboard(s).

Project Flow

1. Users create multiple analytical graphs/charts/Visualizations.
2. Using the Analytical Visualizations, build the required Dashboard(s).
3. Saving and visualizing the final dashboard in the IBM Cognos Analytics.

To accomplish this, we have to complete all the activities and tasks listed below:

IBM Cloud Account

Login to Cognos Analytics

Working with the Dataset

- Understanding the Dataset.
- Loading the Dataset.

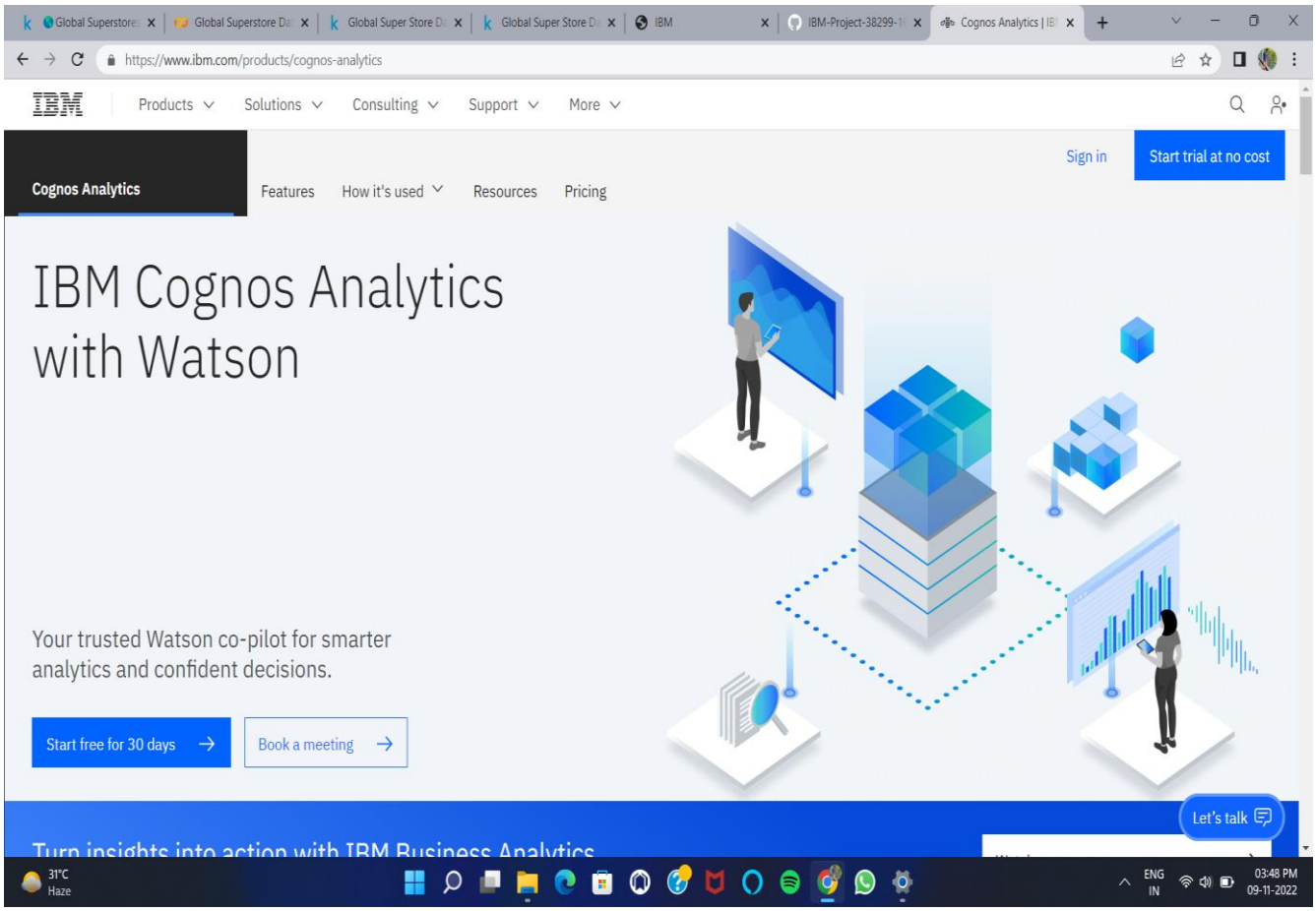
Data Visualization Chart

Data visualization helps to tell stories by curating data into a form easier to understand, highlighting the trends and outliers. A good visualization tells a story, removing the noise from data and highlighting useful information.

1. Global Superstore Data Upload.
2. Global Superstore Data Prep.
3. Date Calculations and Navigation path.
4. Segment wise Sales, Profit and Qty.
5. Use Pie to showcase Sales by Order Priority and Sales by Market.
6. Use a Tree Map to present Sales by Sub-Category
7. Using a Bar chart present Sales by Region by the Sales Order.
8. Present Regional Sales using Map Country points -- Showcase Top 10 countries.
9. Present Sales (Bar), Profit (line) by Sub-Category using Line and Column Chart.
10. Sales vs Profit Scatter Plot with Sub-Category points and Region in Colour.
11. Sales and Profit Forecast by Month Country as Region and Region as Filter.
12. Sales vs Profit forecast by Month by Order Priority.
13. Show the Min, Max, and Average Sales by Sub-Category using the Box plot.
14. By setting a 10% extra Target for Sales Present Segment-wise Sales use Bullet Chart.
15. Present Sales using Hierarchy Bubbles by Market / Region.
16. Using a Legacy Map Present Sales vs Profit by Country / Region.
17. Showcase Quantity Sold by Radar Chart across various Regions.
18. Present Monthly Sales by Sub-Category using Waterfall chart.
19. Present Sales Vs Profit of Countries by Word Cloud.
20. Sales dashboard with Summary Cards.

IBM Cloud Account

Create and login to IBM account



How does a Cognos account work:

Cognos allows the creation of intelligent interactive dashboards to make informed business decisions. Its system is Machine Learning and AI-enabled, which automates data creation and analysis and enables users to get relevant answers to their questions

What is a strength of IBM Cognos Analytics?

In Analytics, IBM Cognos Business Intelligence covers a phenomenal 97% of functions. This gives IBM's software a major advantage over other software packages, which provide an average 63% of features and functions for this module. IBM Cognos Business Intelligence is a viable option in the Analytics module.

What language is used in Cognos?

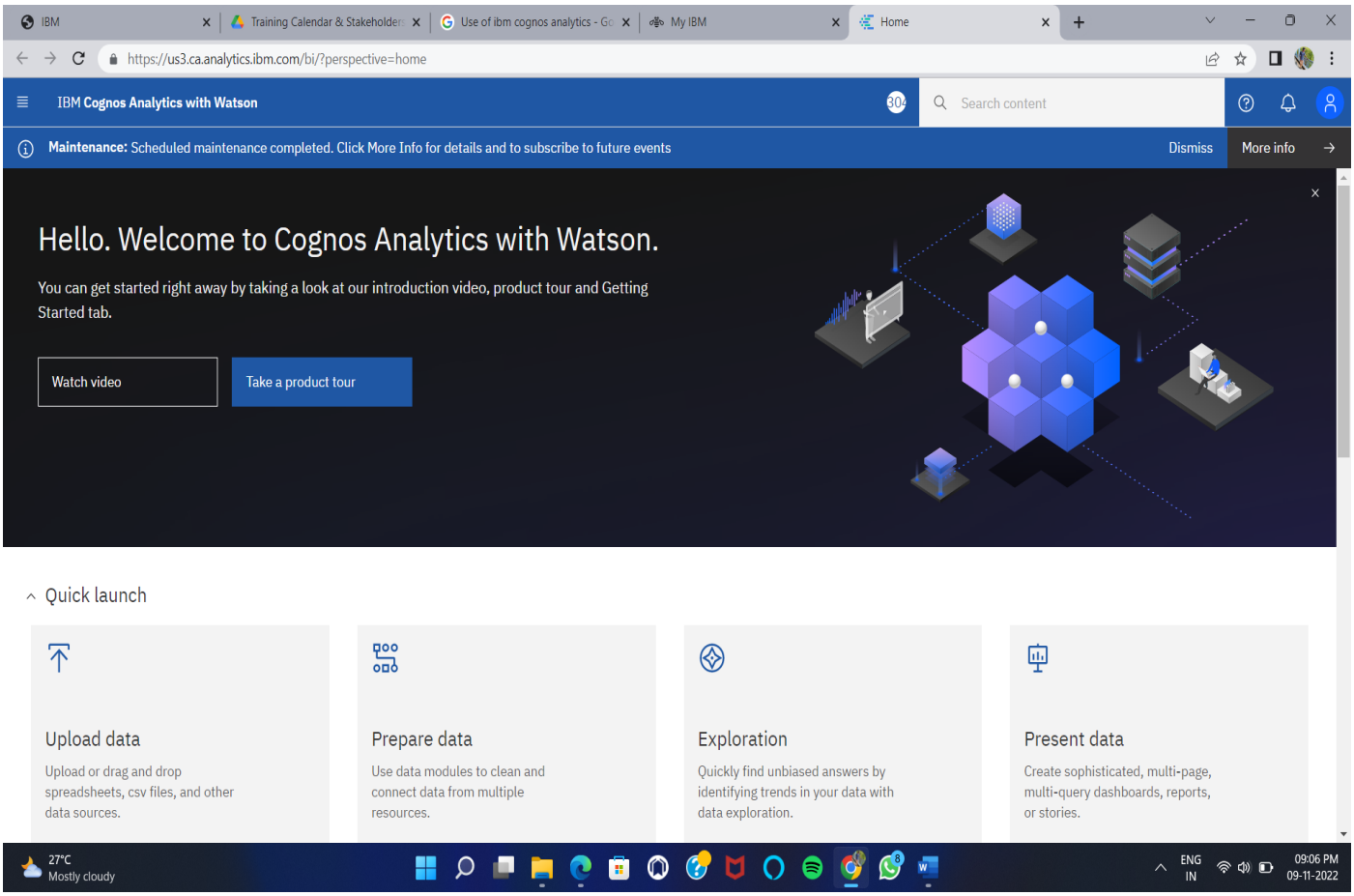
It's Java. If you have ever installed Cognos, or checked the directory structure, you know. It needs a JRE (Java Runtime Environment) to function. Also, there is the cute Java logo on the administrators guide.21-Dec-2016

Does Cognos require coding?

Cognos BI has very broad functionality, that requires no programming at all. If you create/administer very complex reports or reports for many (thousands) users you can take advantage of some custom SQL coding, JavaScript or development with Cognos SDK.

IBM Cognos Analytics

Data Analytics with Cognos



Upload data

The downloaded or fetched dataset can be uploaded into the Cognos account for further analysis and the dataset should be in acceptable format. Datasets should be clean to visualize the data.

Prepare data

Data preparation is critical in IBM Cognos Analytics. Only prepared data is entered into analysis for key drivers, decision trees, and relationships that are displayed in the advanced analytics visualizations: Spiral, Driver analysis, Decision tree, Sunburst, and Explore relationships.

Explore data

Explore is a flexible workspace where you can discover and analyze data. You can also explore an existing visualization from a dashboard or story. Uncover hidden relationships and identify patterns that turn your data into insights.

Present data

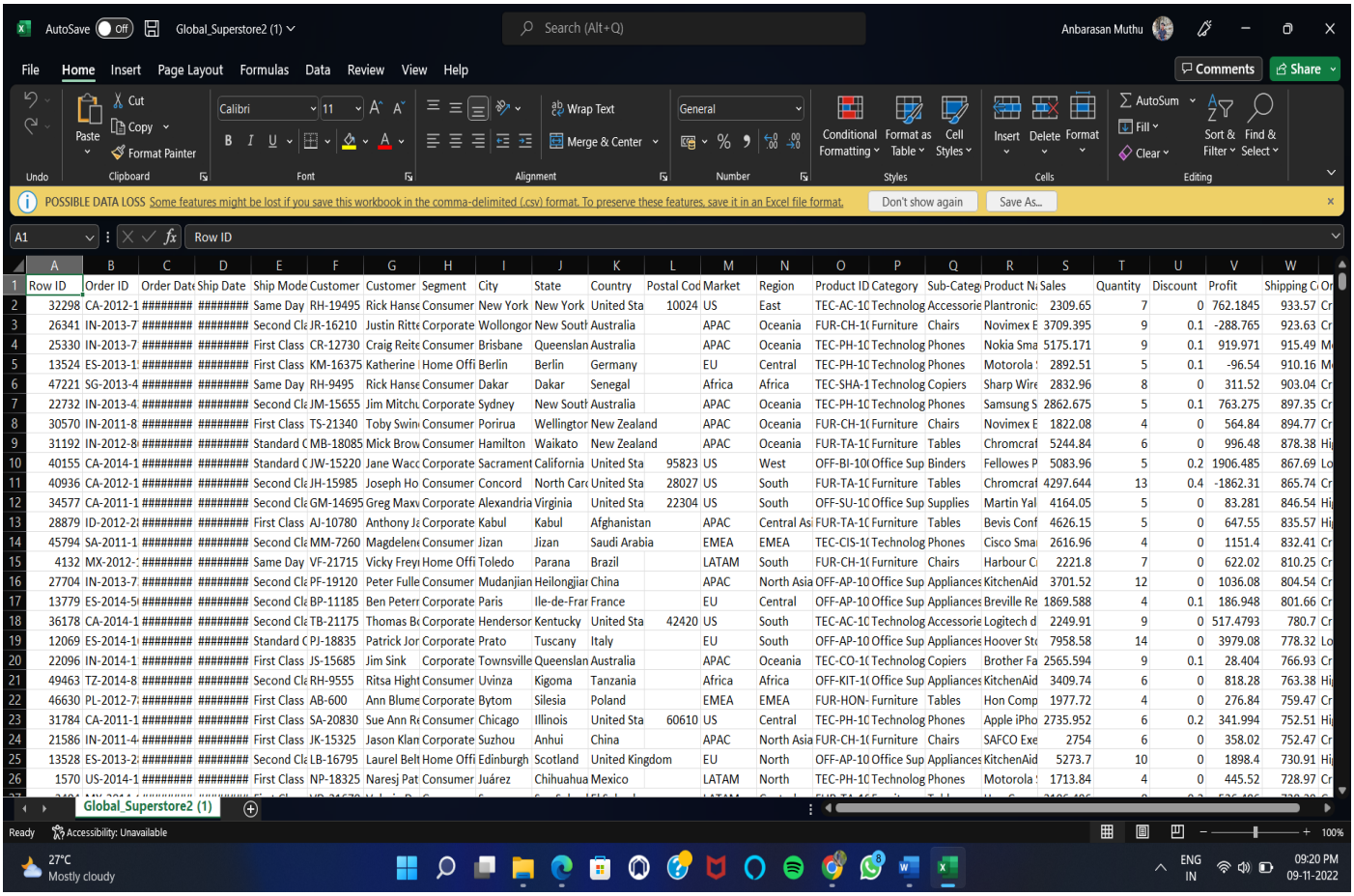
Data presentation is defined as the process of using various graphical formats to visually represent the relationship between two or more data sets so that an informed decision can be made based on them. Data presentation is an easy way to find the insights in a dataset.

Working with the dataset

When you want to provide a suitable solution to the given problem statement, you need to understand the dataset, load it to the cloud environment, and prepare it as per the technology requirement - such as - creating calculations, navigation paths, etc.

Understanding The Dataset

Once you download the Dataset, the rows you see are the details of the order done online by people across the globe in the time frame 1-jan-2011 to 31-dec-2014. There are no missing values in the majority of columns except postal code, you can drop it if not required.



Downloading Dataset from Kaggle

1. Create notebooks and keep track of their status here.
2. history. View versions.
3. Content paste. Copy API command.
4. Open in new. Open in Google Notebooks.
5. notifications. Follow comments.
6. File download. Download code.
7. Embed notebook

Consumer and product Analytics on Global Super Store Data.

Loading The Dataset

Before you can build a view and analyze your data, you must first connect the data to IBM Cognos. Cognos supports connecting to a wide variety of data, stored in a variety of places.

The data might be stored on your computer in a spreadsheet or a text file, or in a big data, relational, or cube (multidimensional) database on a server in your enterprise.

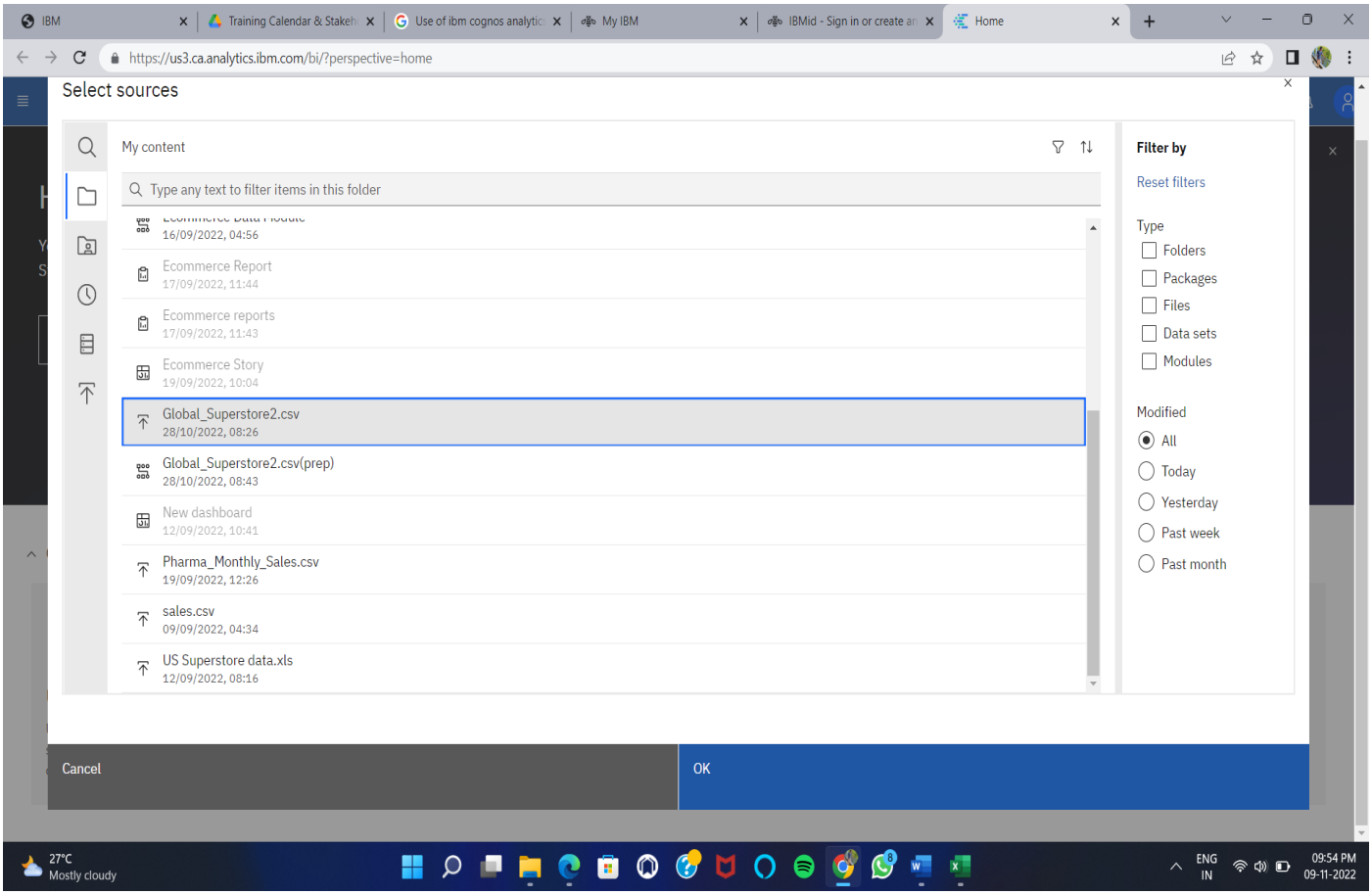
In our case, we will be using a spreadsheet or text file for making our analysis.

Prepare The Datasets

Once you load the data, we need to Prepare the data.

a. Prepare Calculations of Year, Month, Day fields and also the related Navigation path

b. Create a Few more Calculations – Target Sales, Min Sales, Max Sales, Middle Range Sales.



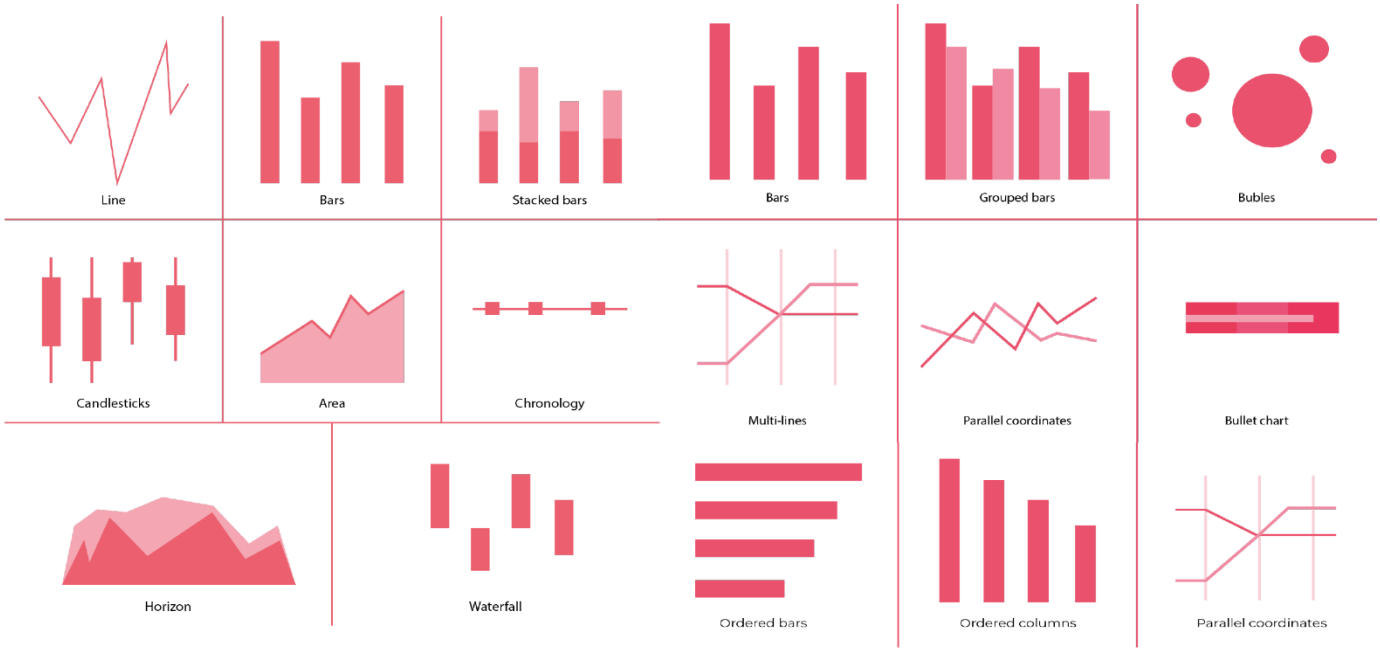
Data visualization charts

Data visualization charts are graphical representations of data that tell a story using symbols in order to improve the understanding of large amounts of data. Visual data metaphors such as charts effectively engage human perceptual processes and amplify human cognition more so than semantic data alone.

Most common types of charts and graphs to help communicate data with impact

- Bar chart.
- Line graph.
- Area graph.

- Scatter plot.
- Pie chart.
- Pictograph.
- Column chart.
- Bubble chart.



Data visualization is one of the steps of the data science process, which states that after data has been collected, processed and modelled, it must be visualized for conclusions to be made. Data visualization is also an element of the broader data presentation architecture (DPA) discipline, which aims to identify, locate, manipulate, format and deliver data in the most efficient way possible.

Other benefits of data visualization include the following:

- the ability to absorb information quickly, improve insights and make faster decisions;
- an increased understanding of the next steps that must be taken to improve the organization;
- an improved ability to maintain the audience's interest with information they can understand;
- an easy distribution of information that increases the opportunity to share insights with everyone involved;
- eliminate the need for data scientists since data is more accessible and understandable; and
- an increased ability to act on findings quickly and, therefore, achieve success with greater speed and less mistakes.