

ANWESHA MAKAR

TASK-04

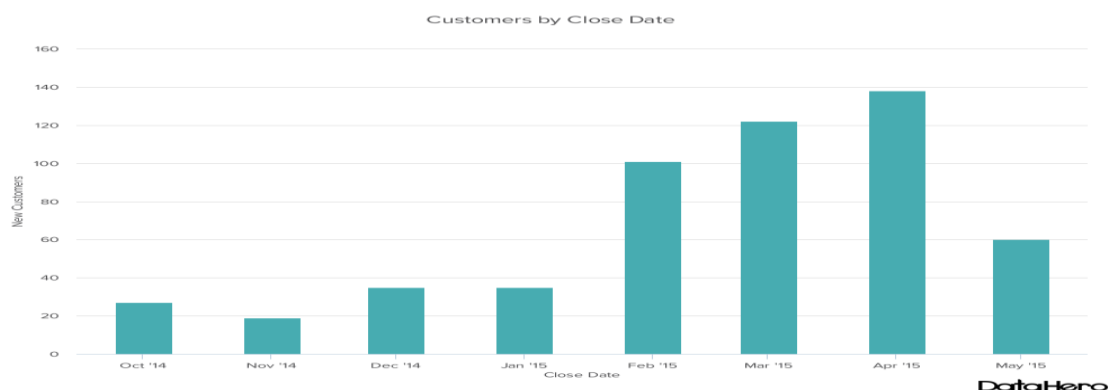
Data story telling-How to choose the right chart or graph for Data:

Different types of charts:

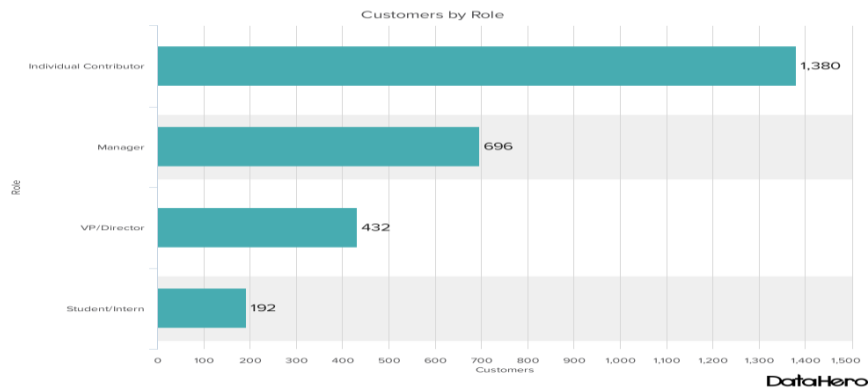
Charts are perfect for comparing one or many value sets, and they can easily show the low and high values in the data sets. To create a comparison chart, use these types of graphs:

- | | | | |
|----------------|----------------------|-----------------------|------------------|
| 1.Column Chart | 2. Bar Graph | 9. Scatter Plot Chart | 10. Bubble Chart |
| 3.Line Graph | 4. Dual Axis Chart | 11. Waterfall Chart | 12. Funnel Chart |
| 5.Area Chart | 6. Stacked Bar Graph | 13. Bullet chart | 14. Heat Map |
| 7.Mekko Chart | 8. Pie chart | 15. Histograms | |

- **Column Charts:** A column chart is used to show a comparison among different items, or it can show a comparison of items over time. You could use this format to see the revenue per landing page or customers by close date.



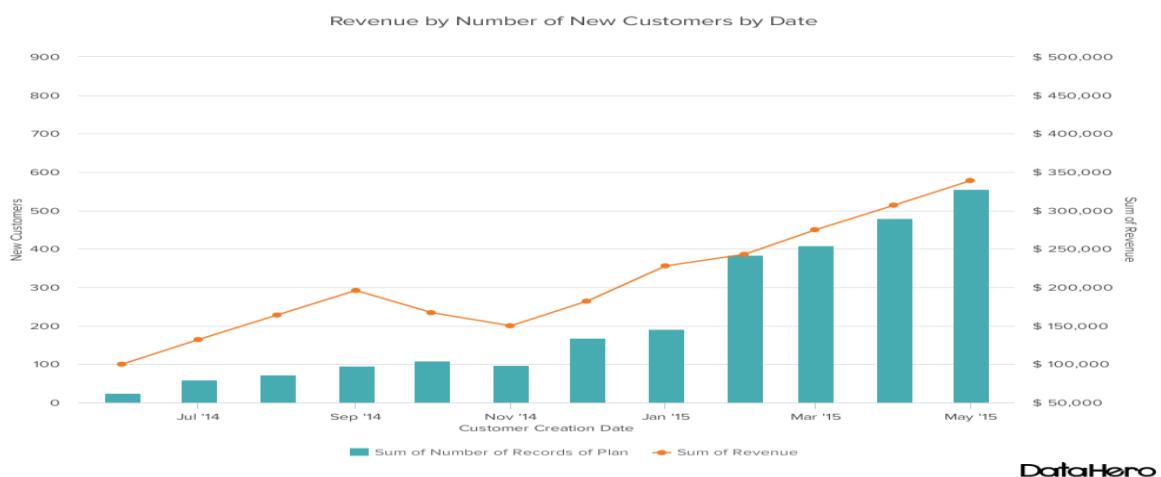
- **Bar charts:** Bar graphs offer a simple way to compare sets of data between different groups. Bar graphs can be either horizontal or vertical. One axis represents the categories, while the other represents the value of each category. Bar charts can also show big changes in data over time. Marketing companies often use bar graphs to display ratings and survey responses.



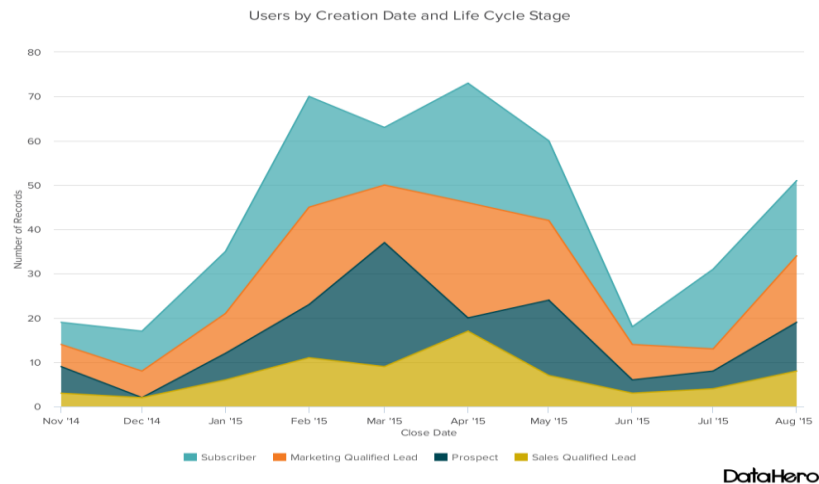
- **Line charts:** Line charts is excellent for mapping continuous data set over a period of time. Line chart uses lines to connect individual data points that display quantitative values over a specified time interval.



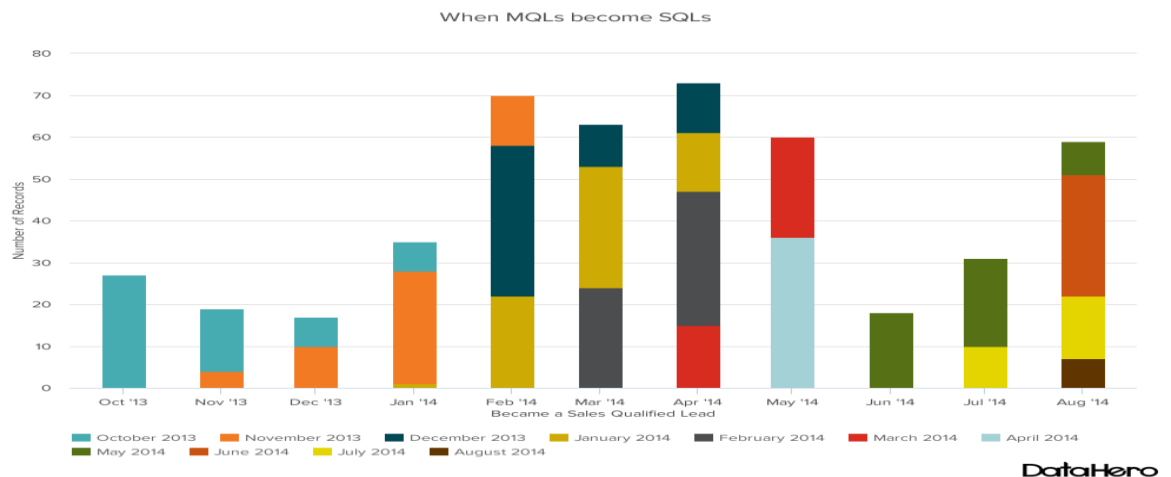
- **Dual axis charts:** A dual axis chart allows you to plot data using two y-axes and a shared x-axis. It's used with three data sets, one of which is based on a continuous set of data and another which is better suited to being grouped by category. This should be used to visualize a correlation or the lack thereof between these three data sets.



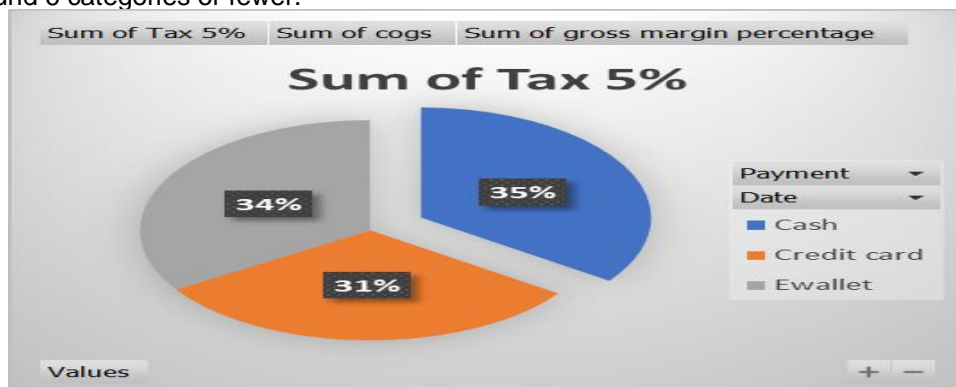
- **Area chart:** An area chart is basically a line chart, but the space between the x-axis and the line is filled with a colour or pattern.



- **Stacked Bar Chart:**



- **Pie charts:** A pie chart is a circular graphical representation which is used to show percentage or proportional data & usually the percentage represented by each category is provided next to the corresponding slicer of pie. The chart is good for displaying data for around 6 categories or fewer.



- **Scatter plot:** The scatter plot shows two variables in the form of points on a rectangular coordinate system. The position of the point is determined by the value of the variable. By

A scatter plot showing the relationship between life expectancy (y-axis, 30 to 80) and GDP per capita (x-axis, logarithmic scale from 10² to 10⁵). Data points are colored by continent: Asia (blue), Europe (orange), Africa (green), Americas (red), and Oceania (purple). The plot shows a general positive correlation between GDP per capita and life expectancy across all continents.

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- Figure 1 is a bubble chart illustrating the relationship between Strategic Importance (X-axis) and Complexity (Y-axis) for various IT capabilities. The X-axis ranges from 0 to 10, and the Y-axis ranges from 0 to 15. The legend on the right lists 20 capabilities, each associated with a unique color and size. The bubbles are distributed as follows:
- Product Catalog** (Blue): High Complexity, Low Strategic Importance.
 - Product Recommendation** (Green): High Complexity, High Strategic Importance.
 - Product Search** (Blue): High Complexity, Low Strategic Importance.
 - Product Information** (Green): High Complexity, Low Strategic Importance.
 - Product Management** (Orange): High Complexity, Low Strategic Importance.
 - Product Development** (Purple): High Complexity, Low Strategic Importance.
 - Product Marketing** (Red): High Complexity, Low Strategic Importance.
 - Product Sales** (Orange): High Complexity, Low Strategic Importance.
 - Product Support** (Blue): High Complexity, Low Strategic Importance.
 - Product Training** (Green): High Complexity, Low Strategic Importance.
 - Product Analytics** (Purple): High Complexity, Low Strategic Importance.
 - Product Integration** (Red): High Complexity, Low Strategic Importance.
 - Product Personalization** (Green): High Complexity, Low Strategic Importance.
 - Product Customization** (Orange): High Complexity, Low Strategic Importance.
 - Product Innovation** (Blue): High Complexity, Low Strategic Importance.
 - Product Collaboration** (Green): High Complexity, Low Strategic Importance.
 - Product Community** (Purple): High Complexity, Low Strategic Importance.
 - Product Ecosystem** (Red): High Complexity, Low Strategic Importance.
 - Product Ecosystem** (Orange): High Complexity, Low Strategic Importance.

- Histogram
-
- | Number of Children | Frequency (%) |
|--------------------|---------------|
| 0 | 15.122% |
| 1 | 16.246% |
| 2 | 12.822% |
| 3 | 13.167% |
| 4 | 31.836% |
| 5 | 39.245% |
| 6 | 52.652% |
| 7 | 69.579% |
| 8 | 52.157% |
| 9 | 52.246% |
| 10 | 31.432% |
| 11 | 18.249% |
| 12 | 11.246% |
| 13 | 17.432% |
| 14 | 15.122% |
| 15 | 15.122% |

Like for example, column chart is helping to compare data over one constraint like year, month etc. Pie chart is helpful in comparing proportions of a series of data. Line chart is excellent for mapping continuous dataset over a period of time.

By using charts, the data can be understood by the user more precisely. Its more like visualizing the data which will be user friendly data.

Design best Practices -:

Use these tips as a tool to create and concise spreadsheets, right from the start.

1. **Preparation of a good Spreadsheet:** - The first of our absolute Excel best practices is to choose an organization standard before developing your spreadsheet. Stick with it for as long as you're using the spreadsheet. An organization standard sets the stage for all future users who end up working with the spreadsheet. A shared standard improves communication and saves up in development time. Standardized organization may include cell formatting, general layout, color scheme, ordering, etc.

2. **Create Worksheets with the Future in Mind:** - It is important to be prepared. You might come across situations in the future that weren't present when you started setting up your spreadsheet. A longer lifespan means you waste less time on creating a replacement worksheet. A good preparation is therefore one of the most important Excel tips we can give you.

3. **Think about the Order of Worksheets:** - Put different kinds of data on different worksheets. For example, use the first few worksheets for input information, the following worksheets for calculations and the last sheet as a presentation worksheet for graphs and results. Limit the amount of tables per worksheet to just one. Multiple tables per worksheet cause problems when attempting to sort, insert or format cells.

4. **Choose Clarity over Looks:** - If your worksheet is user oriented, use an attractive "Results Worksheet". If not, don't! Most worksheets work best when they are designed to provide clarity of all present calculations. You can try splitting up long formulas, but do not hide them to provide more clarity for users.

5. **Keep your Timeline Consistent:** - Keep the timeline consistent across all worksheets, even if this leads to empty rows. Consistent timelines vastly improve the clarity of the spreadsheet and reduce the risk of incorrect formulas. For example, shortening four months into quarterly figures might give a more clear design in terms of presentation, but it also raises the risk of incorrect totals

6. Organize the Information Flow: - Try to organize worksheets in such a way that information always flows from top left to bottom right. This makes it considerably easier for a user to understand how the sheet works. When managing the flow of information, avoid criss-cross dependencies as they greatly detract from understandability. At all times avoid circle chain relations if a link to any previous data is needed.

7. Label Columns and Rows:- Columns without clear and consistent names might not be problematic for the creator of the worksheet, but to other users it might appear confusing. That is why our next Excel tip is to always label columns of tables with simple names that consistently follow previously used naming conventions. The same applies to horizontal tables

8. Keep Formulas Readable: - The 8th best practice in Excel is to split up calculations into multiple smaller calculations. This is a great way to increase readability, just like the correct use of spacing. Too many different operators or too many different references in a formula can make the formula unreadable. This causes the spreadsheet to be hard to use by anyone other than its creator.

9. Avoid Repetitive Formulas: - Avoid repetitive calculations. An exact duplicate of a formula doubles the risk for errors. In addition, changes in one formula are not automatically replicated in duplicates. Sometimes, these duplicates are overlooked, causing inconsistencies within the spreadsheet.

10. Avoid Fixed Numbers in Formulas: - Use a separate input cell for fixed values and employ references to this cell in order to use it in calculations. A formula that contains fixed numbers is a major risk. If the value ever changes, it needs to be changed in every instance it appears.

11. Do not Merge Cells: - Merging cells are seldom good practice. It is usually done to improve aesthetics, but it eventually leads to an increased risk of problems with calculations and references. The biggest risk is making references to merged cells. In a referenced merged cell, all cells can be part of the calculations, but only one of those cells is going to be the correct part.

12. Avoid Hiding Data: - Hiding columns, rows, or even entire worksheets from view is almost never a good idea. It only increases the chance that a user overlooks something important when working with the spreadsheet, increasing the risk for errors. The only exception to this rule would

be when it is necessary to hide information that somehow cannot be put into a separate worksheet.

13. Build in Data Verification: - Building in data verification, such as audit tests, alerts and automated checks, is a good way to avoid making any damaging changes or additions to existing work. It is important to build these in when the worksheet is created.

14. Save Styling for the End: - Excel's formatting options are quite extensive. They allow for the fine-tuning of cell appearance, values, and plenty of options for colours, borders, and features alike. While styling can help keep a spreadsheet understandable, the process of doing so includes abstracting information for the viewer.

15. Keep Styling Consistent: - Your choice of styling should remain consistent throughout the entire spreadsheet. A simple and consistent style for formatting is critical to help viewers understand your spreadsheet. Always include a legend. Abbreviations and colored cell definitions can be listed on a separate worksheet if needed.

16. Keep Conditional Formatting Simple:-Conditional formatting helps the viewer understand how the spreadsheet works. Complex formatting rules defeat that purpose by obscuring how the spreadsheet is set up. It also causes confusion for the user.

17. Use Positive Numbers: - Ever accidentally subtracted what should have been added? Chances are this was the result of an input cell that was entered as a negative number. Always try to build a spreadsheet that promotes the use of positive numbers.

18. Be Clear Which Units Are Used: - Make sure viewers can always trace the units that are used in the spreadsheet. You can do this by either setting the units in the cell properties within Excel, or you can mention them in a column label. But beware: never type a currency symbol (€, \$, £ etc.) directly after a value.

19. Clarify your Sources: - When complicated calculations in Worksheet A are made using cells from Worksheet B, show the viewer those cells from Worksheet B in Worksheet A in your spreadsheet. Users that trying to understand how the calculation works can stay on the same worksheet, instead of having to switch worksheets.

20. **Avoid the Use of Macros:** - Always use Excel's solutions before resorting to VBA macros. VBA macros make the spreadsheet less transparent, as they abstract away logic. For some tasks, VBA macros even perform worse than Excel's default solutions.

21. **Use Simple Ranges:** - For many calculations in your spreadsheet, it is good practice to incorporate additional empty rows or columns. This prevents future edits of the spreadsheet from messing up your formulas. The less you use separate small ranges, the smaller the chance of erroneous calculations in the future.