

Types of Charts and Graphs: Choosing the Right Chart for the Right Task

- The most attractive format is not always the right one for your data as each have their own strengths and weaknesses
- With practice and experience, you can choose the best chart for data visualization.

Visual	Use	Best practice
Table	Tables are good for <ol style="list-style-type: none">1) looking up individual numbers,2) and it's used to present data when the precise values matter.3) To help people scan and compare the data	<ol style="list-style-type: none">1) always align whole numbers and decimal values to the right.2) Also, adding thousands separators -- such as commas, dots, or spaces -- to break the number into smaller chunks can help people store values in their working memory and spot differences between the numbers more easily.
Timeline	<ul style="list-style-type: none">- Timeline is used to display a list of events in chronological order.- A timeline can show development of a event from the beginning to the end	
Bar chart	Bar charts are used to compare quantities of different categories or different times. Besides simple bar charts, there are grouped bar charts, stacked bar charts, and 100% stacked bar charts.	Most humans can easily perceive differences in length, height, or position along the axes, making bar charts highly accurate ways to enable users to compare values.
	<ul style="list-style-type: none">- Grouped bar charts compare grouped variables to other groups.- Stacked bar charts, besides comparing grouped variables to other groups, also show the part-to-whole relationship- A 100% bar chart deals with percentage and it shows part-to-whole relationships.	

Comparison/Grouped & Stacked Bar

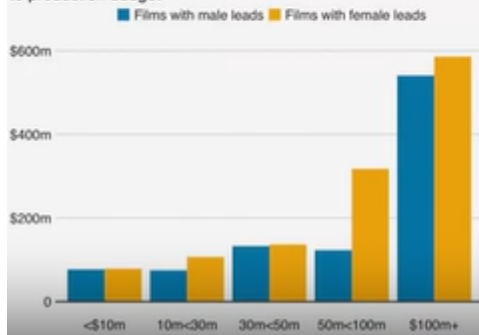
Compares grouped variables to other groups

Shows part-to-whole relationships



Films starring women outperform

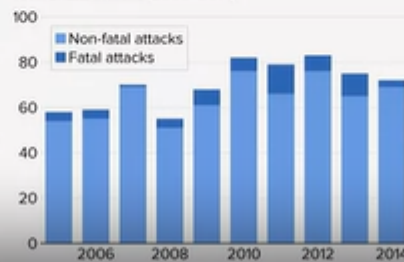
Box office revenues for films (2014-2017), grouped according to production budget



SHARK ATTACK INCIDENTS AVERAGE AROUND 70 PER YEAR FOR LAST 10 YEARS

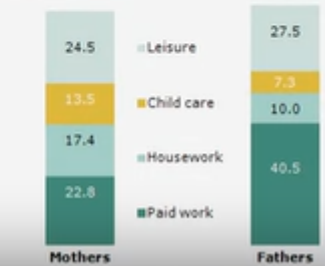
There have been 701 shark attacks from 2005-2014 in world locations with the highest shark attack activity. Only 59, or about 8.4 percent, were fatal.

Total shark attacks (2005-2014)



How Moms and Dads Spend Their Time

Average number of hours per week spent on ...



Note: Based on adults ages 18 to 64 with own child(ren).

Pie chart and donut chart

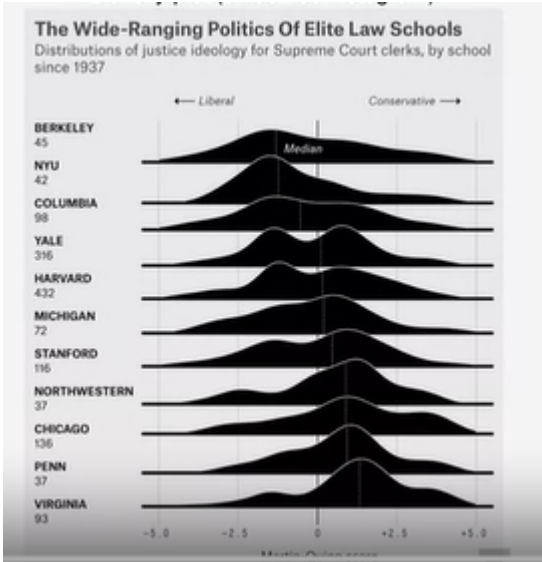
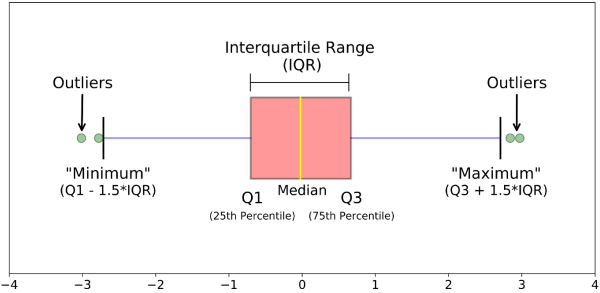
- For more comparison, we can do pie charts or donut charts.
- Pie charts and donut charts compare part-to-whole data, but are more difficult for humans to perceive visually.
- So pie charts and donut charts are good for showing a trend or a big picture, but make comparing exact values difficult.
- For pie charts, the visual cue is the relative degrees in a circle.
- For donut charts, the arc length is the visual cue, and we usually use it when we want to include text, annotation, and information in the center of the empty area.

- pie charts and donut charts are good for showing a trend or a big picture,
- We usually use a donut chart when we want to include text, annotation, and information in the center of the empty area.
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Histogram

- A histogram represents the distribution of data by forming bins along the range of the data, and then drawing bars to show the number of observations that fall in each bin.
- It summarizes the statistical distribution of a continuous interval or time period; each bar represents a frequency.

- When dealing with a set of data, often the first thing we want to do is to get a sense of how the variables are distributed.

density plot	density plot is a smoothed, continuous version of a histogram estimated from the data	 <p>The Wide-Ranging Politics Of Elite Law Schools Distributions of justice ideology for Supreme Court clerks, by school since 1937</p> <p>← Liberal → Conservative →</p> <p>BERKELEY 45 NYU 42 COLUMBIA 98 YALE 316 HARVARD 432 MICHIGAN 72 STANFORD 116 NORTHWESTERN 37 CHICAGO 136 PENN 37 VIRGINIA 93</p> <p>-5.0 -2.5 0 +2.5 +5.0</p>
<ul style="list-style-type: none"> - A histogram represents the frequency distribution of continuous variables. - Conversely, a bar graph is a diagrammatic comparison of discrete variables. - Histogram presents numerical data whereas bar graph shows categorical data. - The histogram is drawn in such a way that there is no gap between the bars. 		
Boxplot	<p>Box plots are used to summarize distributions by showing</p> <ul style="list-style-type: none"> - the median and the range of data. - It can be used to show the change of data across multiple categories. - The line that divides the box into two parts represents the median of the data. - The end of the box shows the third and first quartiles. - The extreme lines show the highest and lowest values excluding outliers, - but we have to be careful that box plots hide their sample size and the distribution of the data. 	<ul style="list-style-type: none"> - it hides the sample size and the distribution of your data points  <p>Outliers</p> <p>Interquartile Range (IQR)</p> <p>Outliers</p> <p>"Minimum" (Q1 - 1.5*IQR)</p> <p>Q1 Median Q3</p> <p>(25th Percentile) (75th Percentile)</p> <p>"Maximum" (Q3 + 1.5*IQR)</p> <p>-4 -3 -2 -1 0 1 2 3 4</p>
line chart	tt allows tracking changes and trends over time	
scatterplot	Scatterplot shows the relationship between two continuous variables and is a good way to see trends and identify outliers.	
Map	When showing regional differences, using a map can convey the needed information.	

sankey diagram	show the flows	<div><h3>Flow/Sankey</h3><p>Displays flows and their quantities in proportion to one another</p><table border="1"><thead><tr><th>Category</th><th>Amount (bn €)</th></tr></thead><tbody><tr><td>Research and training to boost growth</td><td>125.6</td></tr><tr><td>Agriculture funds for farms</td><td>278</td></tr><tr><td>Support for poorer</td><td>325</td></tr><tr><td>Security, inc border controls</td><td>15.7</td></tr><tr><td>EU as global player, inc development aid</td><td>59</td></tr><tr><td>Administration</td><td>62</td></tr><tr><td>Rural development and fisheries</td><td>95</td></tr><tr><td>Total</td><td>960</td></tr></tbody></table></div>	Category	Amount (bn €)	Research and training to boost growth	125.6	Agriculture funds for farms	278	Support for poorer	325	Security, inc border controls	15.7	EU as global player, inc development aid	59	Administration	62	Rural development and fisheries	95	Total	960
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Network Diagram	<div>https://zoomcharts.com/en/microsoft-power-bi-custom-visuals/blog/network-chart-custom-visual-for-microsoft-power-bi</div>																			