### Dot Plot

Dot plots are very similar to lollipops, but without the line and is flipped to horizontal position. It emphasizes more on the rank ordering of items with respect to actual values and how far apart are the entities with respect to each other.

Distribution

When you have lots and lots of data points and want to study where and how the data points are distributed.

Histogram

By default, if only one variable is supplied, the geom\_bar() tries to calculate the count. In order for it to behave like a bar chart, the stat=identity option has to be set and x and y values must be provided.

Histogram on a continuous variable

Histogram on a continuous variable can be accomplished using either geom\_bar() or geom\_histogram(). When using geom\_histogram(), you can control the number of bars using the bins option. Else, you can set the range covered by each bin using binwidth. The value of binwidth is on the same scale as the continuous variable on which histogram is built. Since, geom\_histogram gives facility to control both number of bins as well as binwidth, it is the preferred option to create histogram on continuous variables.

#### Histogram on a categorical variable

Histogram on a categorical variable would result in a frequency chart showing bars for each category. By adjusting width, you can adjust the thickness of the bars.

Frequency polygon

A frequency polygon appears similar to a kernel density estimate curve, but it shows the same information as a histogram. That is, like a histogram, it shows what is in the data, whereas a kernel density estimate is just that – an estimate – and requires you to pick some value for the bandwidth.

Density plot

A density plot is an alternative to Histogram used for visualizing the distribution of continuous variable.

The peaks of a Density Plot help to identify where values are concentrated over the interval of continuous variable. Compare with histograms, Density plots are better at finding the distribution shape because they are not affected by the number of bins used (each bar is used in a typical histogram).

For example, a Histogram with only 4 bins wouldn’t produce distinguishable enough shape of distribution as a 30-bin Histogram would. However, with density plots, this isn’t an issue.

Scatter plot

Scatter plot also known as **X-Y** plot or **Point graph,** is very commonly used in science and other disciplines, and is used to display the relationship between two continuous variables x and y. Scatter plot for example can help to determine if an association or a correlation exist between the two observables. The correlation can be positive (values increase together), negative (one value decreases as the other increases), null (no correlation), linear, exponential and U-shaped.

Box plot

Boxplots (or Box plots) are used to visualize distribution of a grouped continuous variable through their quartiles. Box Plots have the advantage of taking up less space compared with Histogram and Density plot. This is useful when comparing distributions between many groups.

Visualizing data using box plots makes it possible to:

* Inspect the key values of the data, including: the average, median, first and third quartiles, etc.
* Identify potential outliers in the data
* See whether the data is tightly grouped, symmetrical or skewed, etc.

Violin plots

A Violin Plot is used to visualize the distribution of the data and its probability density. This chart is a combination of a Box plot and a Density Plot that is rotated and placed in each side, to display the distribution shape of the data.

Typically, violin plots will include a marker for the median of the data and a box indicating the interquartile range, as in standard boxplots.

A Violin Plot shows more information than a Box Plot. For example, in a Violin Plot, you can see whether the distribution of the data is bimodal or multimodal.