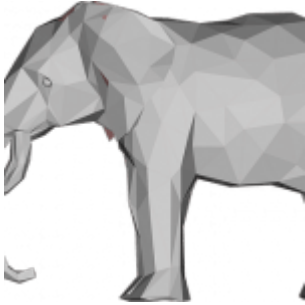


# Getting started with Plotly: basic Plots



Plotly is a d3 based graphing library used to produce interactive and high quality graphs in R. In the following exercises, we will look at the basic plots' syntax and some basic features in the plotly functions.

We will use datasets available in base R packages.

Refer to the documentation of the plotly packages when in need of help with the functions and arguments.

Also, refer to this [link](#) for figure references

Installation of the package is straight-forward as it is available on CRAN.

Use this command `install.packages('plotly')` to install the package. Do not forget to load the package before trying out the exercises.

Answers to the exercises are available [here](#).



**Learn more** about Plotly in Section 17 *Interactive Visualizations with Plotly* of the online course [Data Science and Machine Learning Bootcamp with R](#).

## **Exercise 1**

a. Generate a histogram for the first column of iris dataset using the `plot_ly()` function.

For the first run, supply only one argument to the function and see the message it returns.

identify the argument that you need to include to specify a chart type.

## **Exercise 2**

Identify the argument to specify number of bins and generate a histogram with 20 bins using the same data.

Notice the behaviour of plot on mouse hover. There are also a few options available on the right top corner of the plot to zoom, save the plot etc.

### **Exercise 3**

a. Generate a scatter plot for the first two columns of the iris dataset. Identify and use the appropriate arguments to get the plot with first column on the x axis and second column on y axis.

b. Using the color argument, specify the color such that data points are colored based on the Species column. HINT: color argument takes a vector of same length of number of data points data points with the level info.

### **Exercise 4**

To the same code in the previous exercise, use the size argument to specify the markers' size based on the third column of the iris dataset.

### **Exercise 5**

a. Generate a line plot for 100 values of random normal distribution with the default mean and standard deviation.

HINT: Use index values on x axis. Use `type="scatter"` and `mode="lines"` to get a line chart

### **Exercise 6**

b. Save the previous plot in an object p. Use layout function to add an appropriate title to the plot.

### **Exercise 7**

To learn how to generate a bar plot, we will simulate sample data and look at how to prepare the data before plotting.

Run the below code to generate the data.

```
cat <- c(rep("A", 2), rep("B", 4), rep("C", 8))
```

Data has to be in the form of Levels and their Counts . Therefore, using `table()` function to summarize and `as.data.frame` to create a data frame.

```
df <- as.data.frame(table(cat))
```

a. Now, using `type="bar"` and the appropriate `x` and `y` arguments, create a bar graph.

b. Add color to each bar using `color` argument, based on the categorical levels.

### **Exercise 8**

Pie chart is an alternative way of representing categorical data, but, when the levels in the data are more, bar chart is preferred.

Data has to be prepared in the same way as we do it for bar chart. The arguments vary a little. Instead of `x` and `y`, we use `labels` and `values`.

Generate a pie chart using the same data from the previous exercise and appropriate arguments.

Notice how the tick marks and the axes appear behind the chart.

### **Exercise 9**

For the first column in the `iris` dataset, generate a box plot using the `box trace` type.

HINT:For a simple box plot, just the `y` argument and `type` arguments are given.

### **Exercise 10**

Add another argument to the code used in the previous exercises to generate multiple box plots for the first column of `iris` dataset, where each box corresponds to data of particular

Species.

HINT : Remember the argument we used to specify the color for each species in Exercise 3.

In the coming exercise sets on plotly, we will work on some advanced plots and see how to use arguments from the layout function to manipulate the plot layout and settings.