A quick guide to plotly

Why plotly?

We learned basic R plots and ggplot2 in this semester. All those graphs can effectively help us grasp useful information and find the pattern of data. Graphs are all neat and well-organized. However, sometimes when we want to know the exact value of a data point, it cannot be shown by static graphs. Therefore, I will introduce a package called plotly to address this problem and make interactive graphs.
Another advantage is that we can use the legend to control which histogram we would like to present. For example, clicking the trace 0 at the upper right legend, we can decide whether the trace shows or not. It is convenient.

plot_ly()

It is similar to ggplot() in ggplot2 package. The use is to initialize the visualization.

common arguments:

- **data**: A data frame or X,Y value instead.
- **type**: The default setting is NULL. There are many trace type we can choose:"scatter", "bar","box","histogram","pie" and etc. After you specify the type, it will add one trace in the graph automatically.
- **name**: Naming the trace.
- **text**: It is used to define the text will be shown in the interactive graph.
- **alpha**: The value can be from 0 to 1. It is used to adjust the transparency of colors.
- **linetypes**: It can either be "solid", "dot", "dash", "longdash", "dashdot", or "longdashdot".

layout()

We use layout() to adjust the layout of graphs common arguments:

- title: add title to the graph
- xaxis = list(title=‘’,font=list(size=‘’),color=‘’,tickvals=)
- yaxis
- showlegend. When it set to FALSE, the legend does not show
- legend = list(x=,y=). It can change the position of legend
- legend = list(orientation=‘h’). It can change the orientation of legend. And its default is vertical.

Basic Graphs

Histogram

Basic Histogram: **Basic Histogram**:
plot_ly(data,type=‘histogram’)
Overlaid Histogram:
p1<-plot_ly(data1,type=‘histogram’)
p2<-p1% > %add_histogram(data2)
p2<-p2% > %layout(barmode = "overlay")
p2
Stacked Histogram:
p1<-plot_ly(data1,type=‘histogram’)
p2<-p1% > %add_histogram(data2)
p2<-p2% > %layout(barmode = "stack")
p2

Bar Chart

Basic Bar Chart:plot_ly(data,type=‘bar’)
Stacked Bar Chart:
p1<-plot_ly(data1,type=‘bar’)
p2<-p1% > %add_trace(data2)
p2<-p2% > %layout(barmode = "stack")
p2 **Group Bar Chart**:
p1<-plot_ly(data1,type=‘bar’)
p2<-p1% > %add_trace(data2)
p2<-p2% > %layout(barmode = "group")
p2

Scatter and line plots

Basic scatter plot:plot_ly(data, type = ‘scatter’)
Basic line plot:plot_ly(data, type = ‘scatter’,mode=‘lines’)
Keep both point and line plot:plot_ly(data, type = ‘scatter’,mode=‘lines+markers’) **Different linetypes**: We can add more than one line into one graph by using add_trace(). And the line types can be modified in add_trace(dash=‘dash’) or add_trace(dash=‘dash’)

Pie Chart

Basic pie chart:plot_ly(data, type = ‘pie’)

Bubble Chart

Basic bubble chart:plot_ly(data, type = ‘scatter’,mode=‘markers’,marker=list(size= x)
We do not have a particular function for bubble chart, but we can create one by changing the size of marker.

Box Plot

Basic Box Plot: plot_ly(data, type = ‘box’)
It will clearly show the value of min, q1, median,q3, and max value in the graph.

Heatmap

Basic Heatmap: plot_ly(data, type = ‘heatmap’)
It will clearly show the x,y,z value of each data points.

arrange the plots

We can use subplot()