

Customize your traces

INTERACTIVE DATA VISUALIZATION WITH PLOTLY IN R



Adam Loy

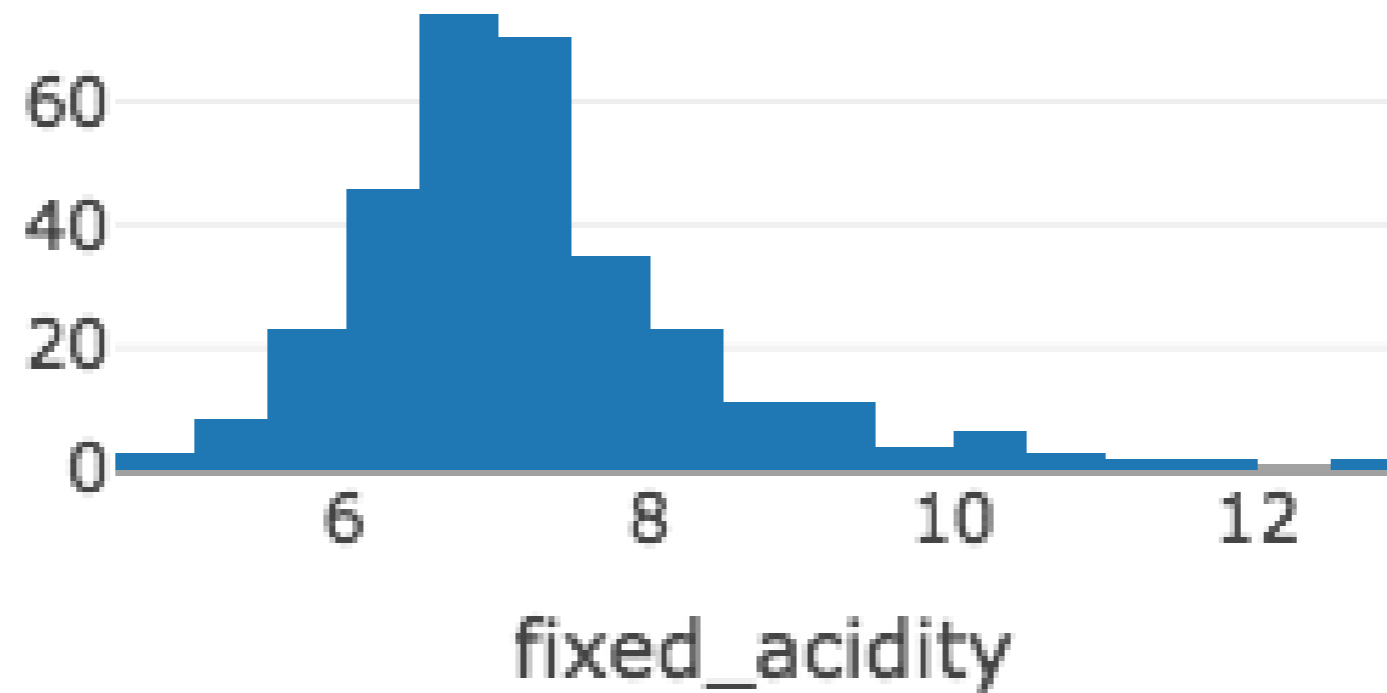
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Wine quality data

```
glimpse(winequality)
```

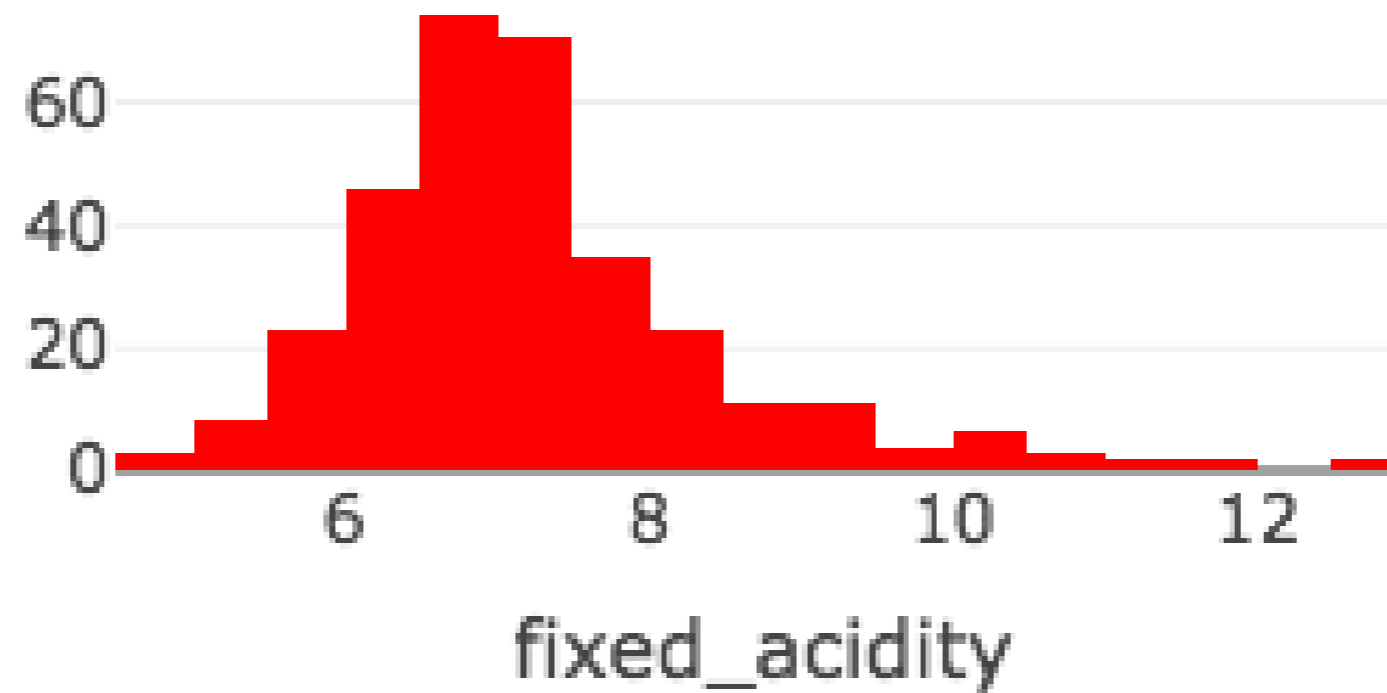
```
Rows: 325
Columns: 14
$ type      <chr> "red", "red", "red", "red", "red", "red", ...
$ fixed_acidity <dbl> 8.2, 8.2, 8.0, 10.2, 8.6, 6.1, 10.7, 9.1, 7.2...
$ volatile_acidity <dbl> 0.885, 0.640, 0.715, 0.360, 0.520, 0.590, 0.6...
$ citric_acid <dbl> 0.20, 0.27, 0.22, 0.64, 0.38, 0.01, 0.22, 0.3...
$ residual_sugar <dbl> 1.40, 2.00, 2.30, 2.90, 1.50, 2.10, 2.70, 2.1...
...
$ sulphates <dbl> 0.46, 0.62, 0.54, 0.66, 0.52, 0.56, 0.98, 0.8...
$ alcohol   <dbl> 10.0, 9.1, 9.5, 12.5, 9.4, 11.4, 9.9, 11.2, 1...
$ quality   <int> 5, 6, 6, 6, 5, 5, 6, 6, 6, 7, 6, 5, 4, 6, 6, ...
$ quality_label <chr> "low", "medium", "medium", "medium", "low", ...
```

Color



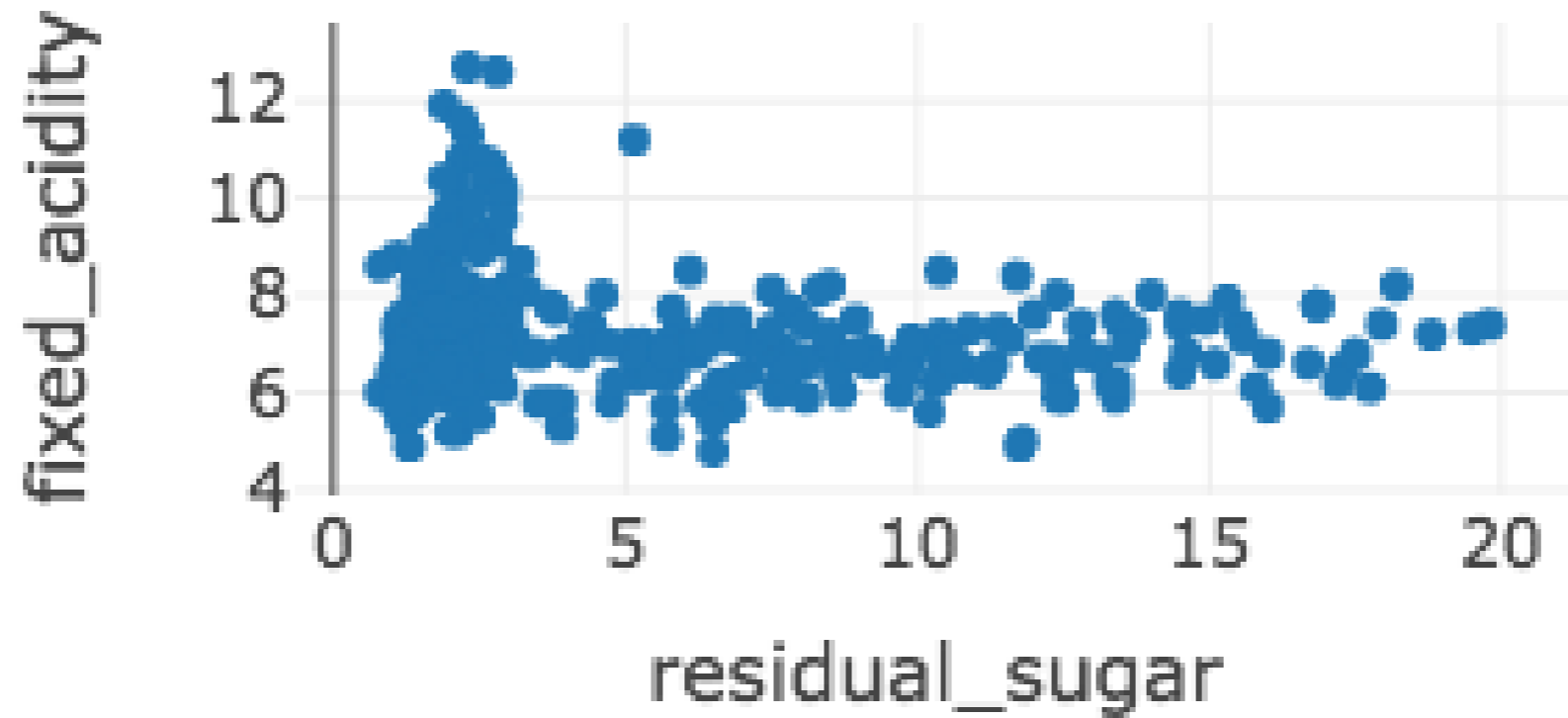
```
winequality %>%  
  plot_ly(x = ~fixed_acidity) %>%  
  add_histogram()
```

Color



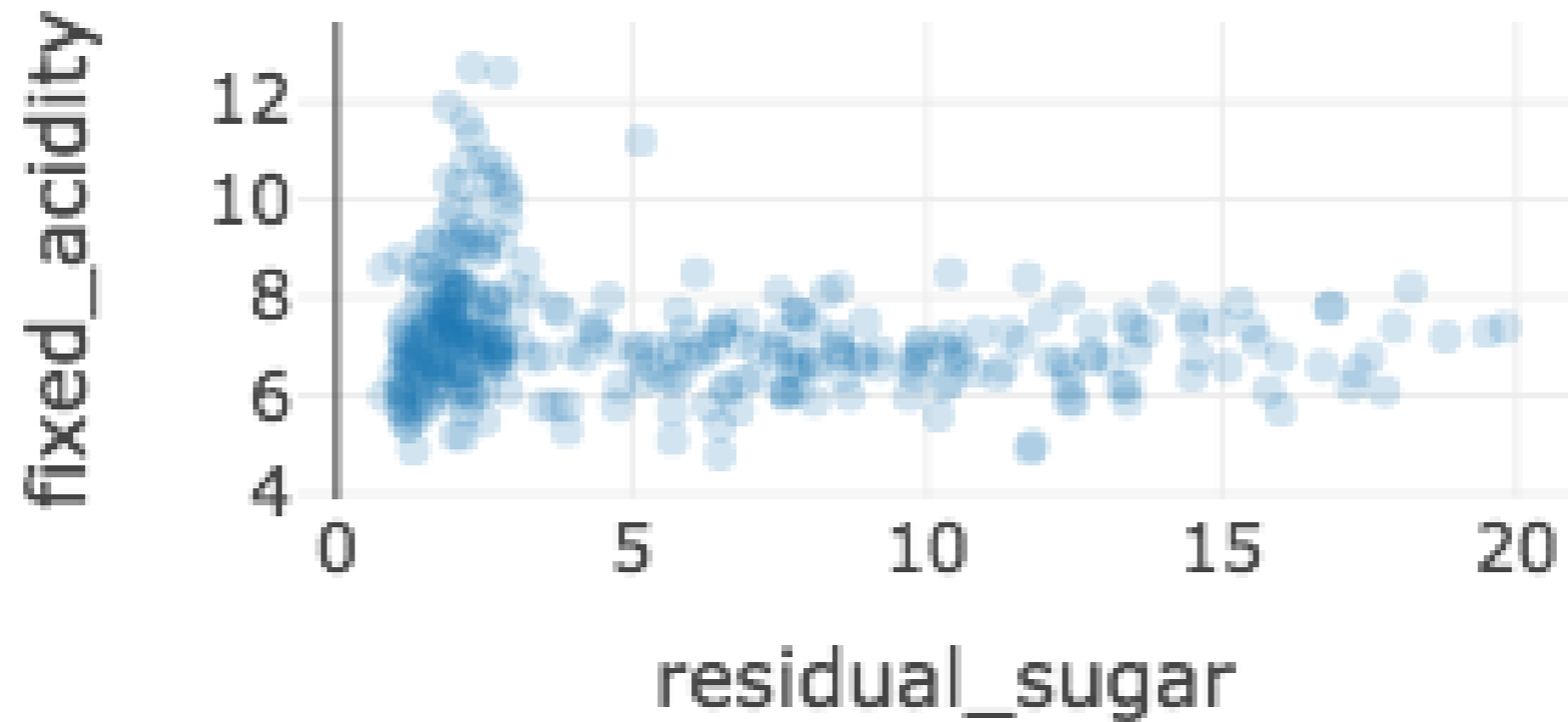
```
winequality %>%  
  plot_ly(x = ~fixed_acidity) %>%  
  add_histogram(color = I("red")) # Setting color
```

Opacity



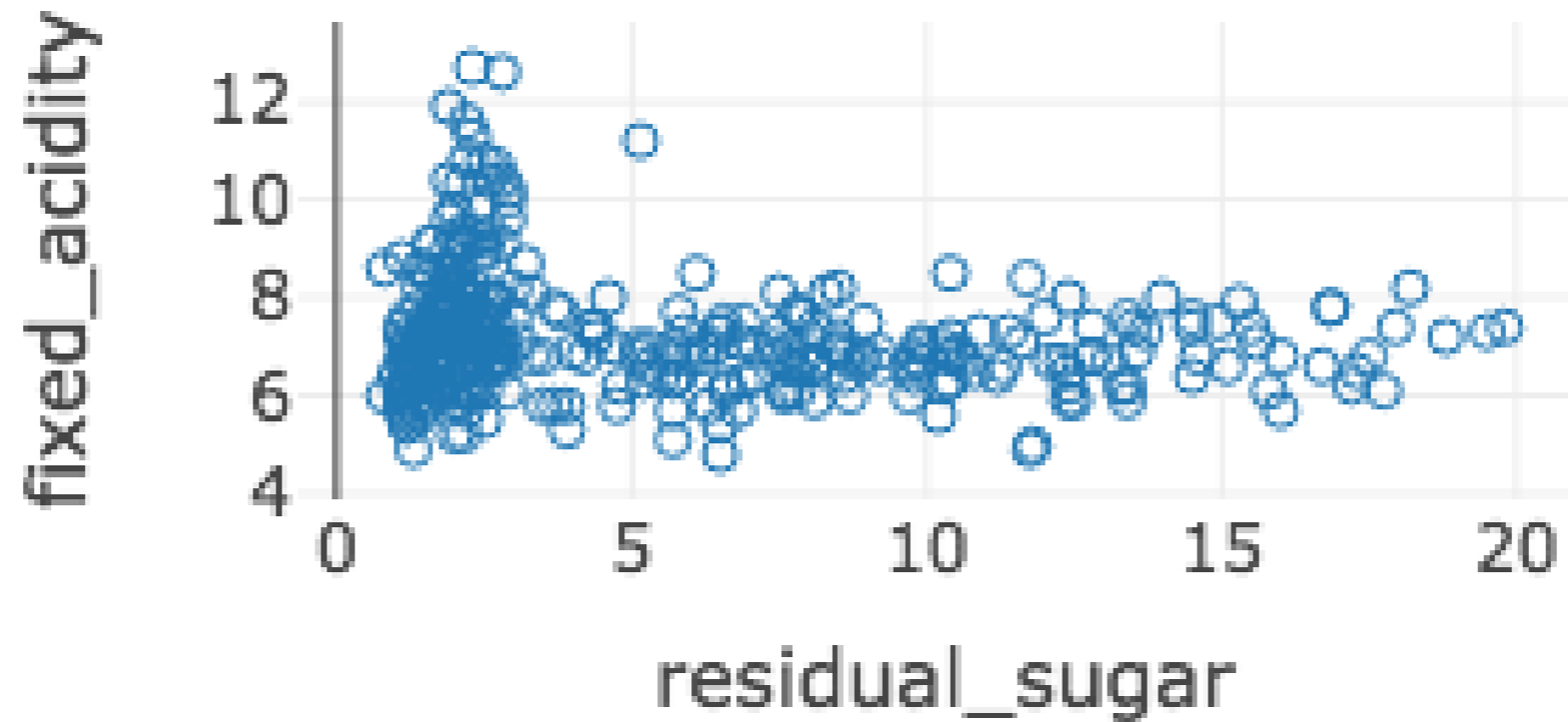
```
winequality %>%  
  plot_ly(x = ~residual_sugar, y = ~fixed_acidity) %>%  
  add_markers()
```

Opacity



```
winequality %>%  
  plot_ly(x = ~residual_sugar, y = ~fixed_acidity) %>%  
  add_markers(marker = list(opacity = 0.2))           # Adjust opacity
```

Symbols



```
winequality %>%  
  plot_ly(x = ~residual_sugar, y = ~fixed_acidity) %>%  
  add_markers(marker = list(symbol = "circle-open")) # Change symbol
```

Marker options

- `opacity`
- `color`
- `symbol` (scatter/box)
- `size` (scatter)
- `width` (bar/histogram)

Let's practice!

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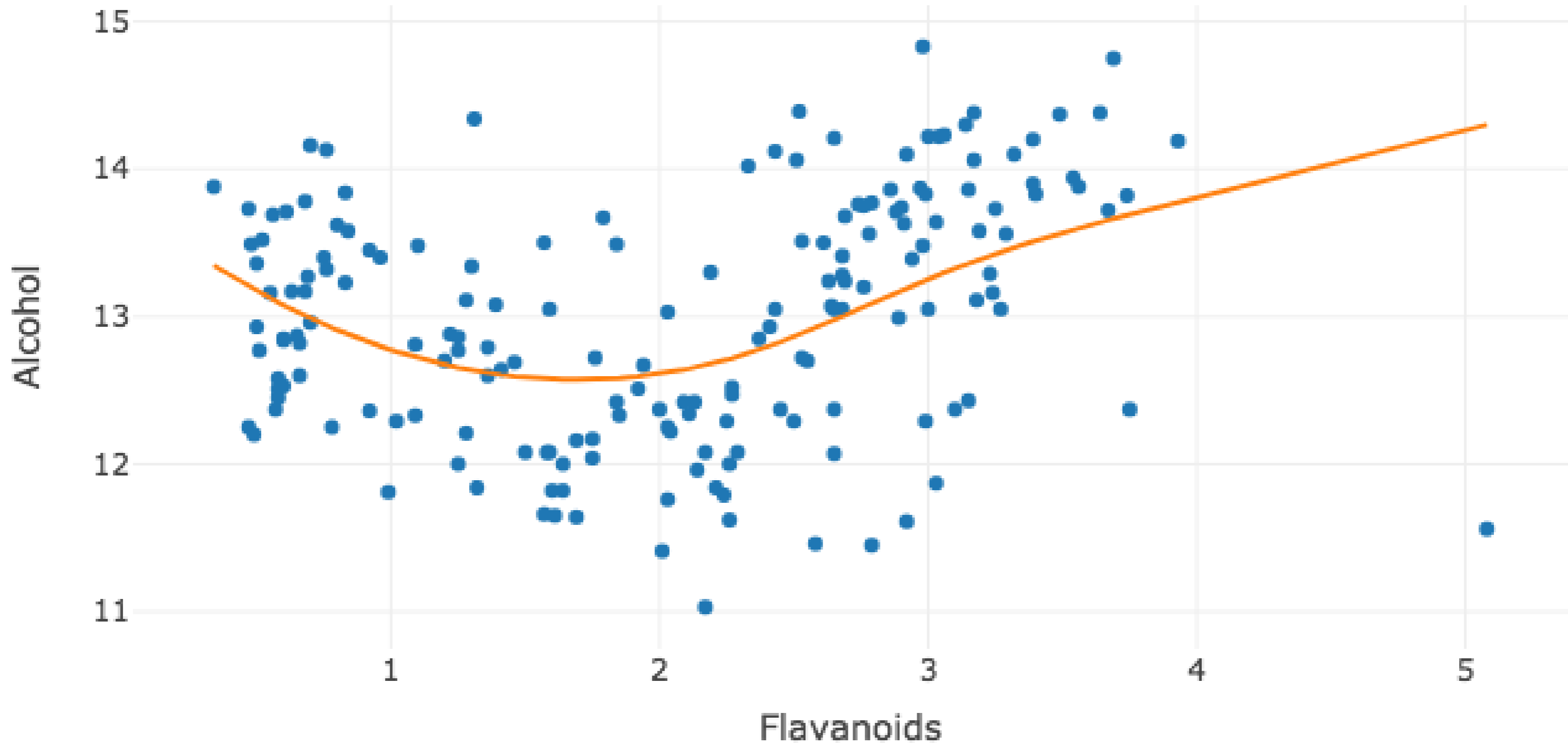
Thoughtful use of color

INTERACTIVE DATA VISUALIZATION WITH PLOTLY IN R

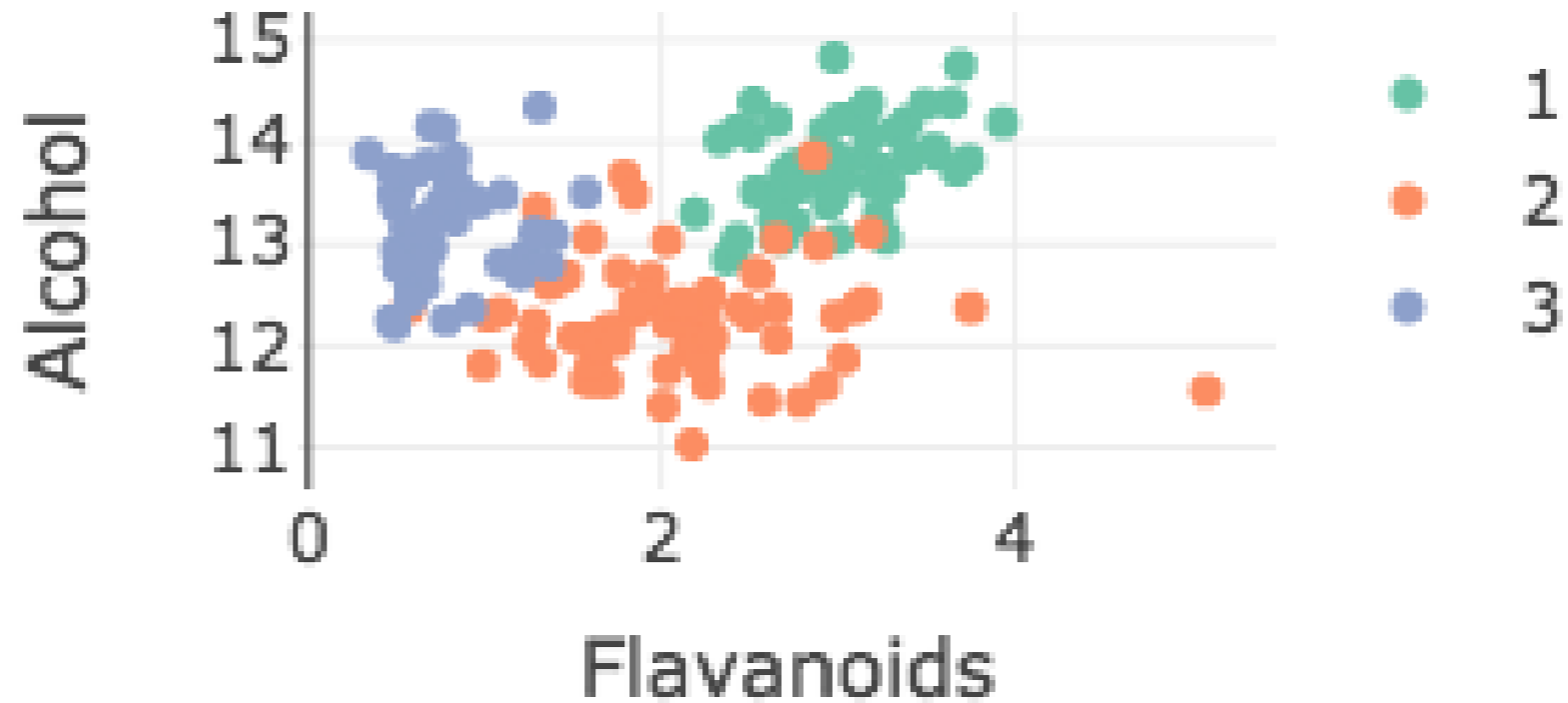


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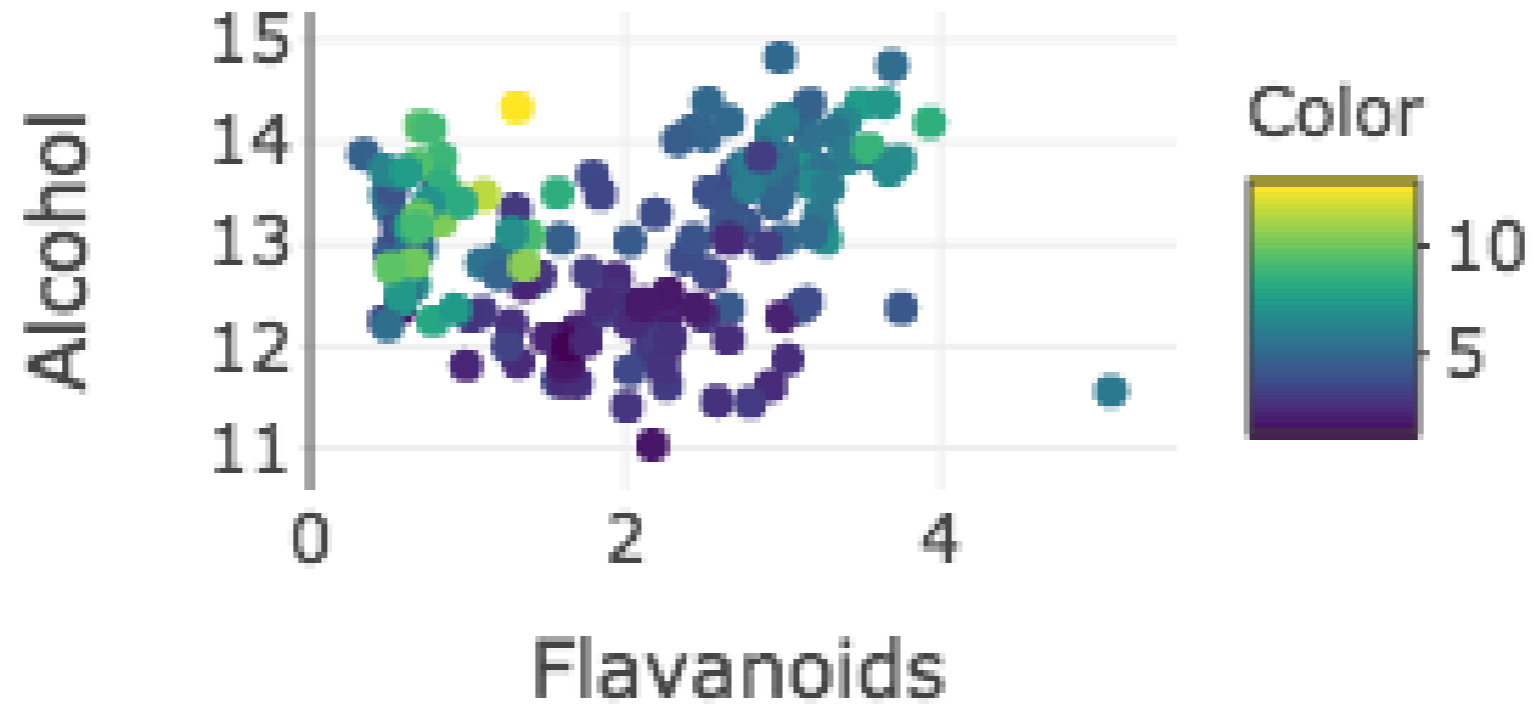


Adding a third variable



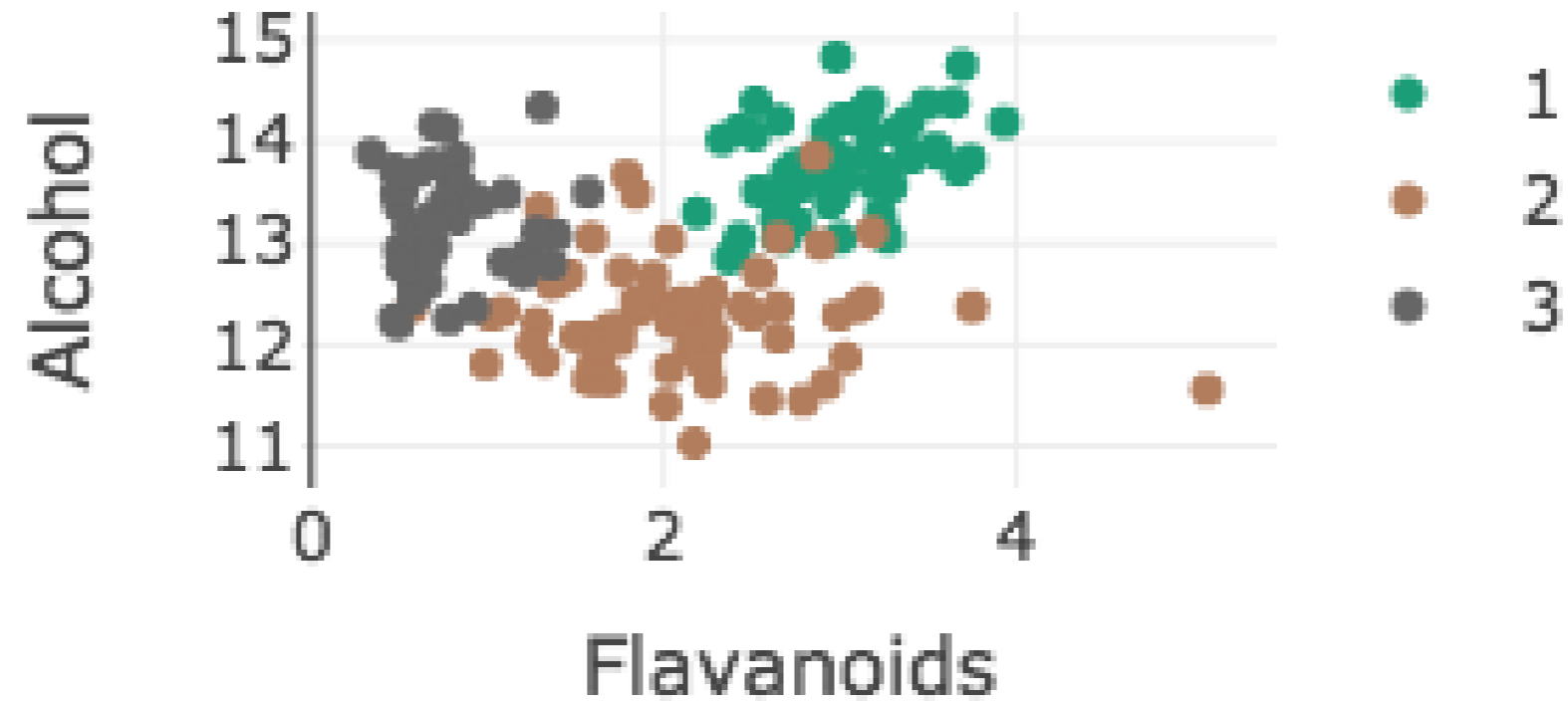
```
wine %>%  
  plot_ly(x = ~Flavanoids, y = ~Alcohol, color = ~Type) %>%  
  add_markers()
```

Adding a quantitative variable



```
wine %>%  
  plot_ly(x = ~Flavanoids, y = ~Alcohol, color = ~Color) %>%  
  add_markers()
```

RColorBrewer palettes

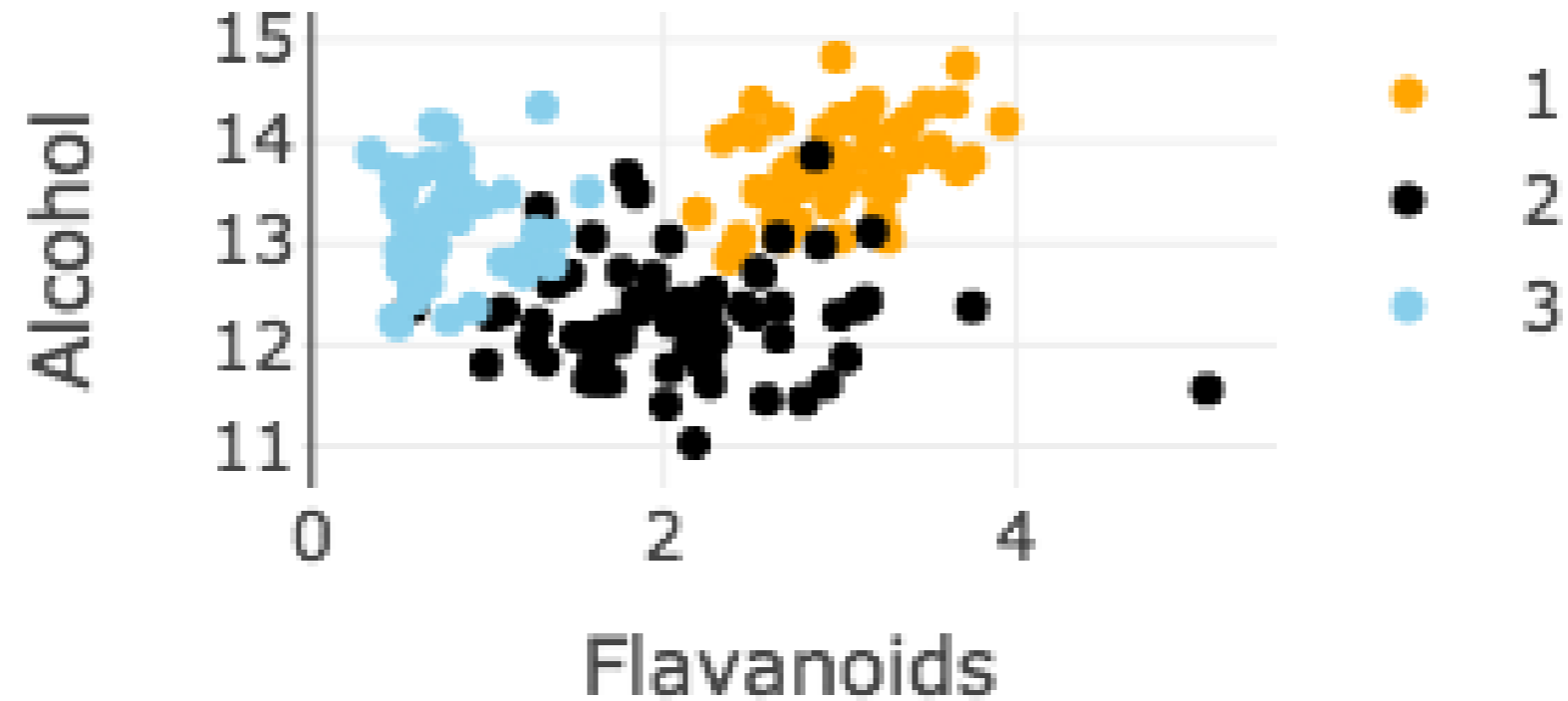


```
wine %>%
```

```
  plot_ly(x = ~Flavanoids, y = ~Alcohol, color = ~Type) %>%
```

```
  add_markers(colors = "Dark2")
```

Manual palettes



```
wine %>%  
  plot_ly(x = ~Flavanoids, y = ~Alcohol, color = ~Type) %>%
```

```
  add_markers(colors = c("orange", "black", "skyblue"))
```

Let's practice!

INTERACTIVE DATA VISUALIZATION WITH PLOTLY IN R

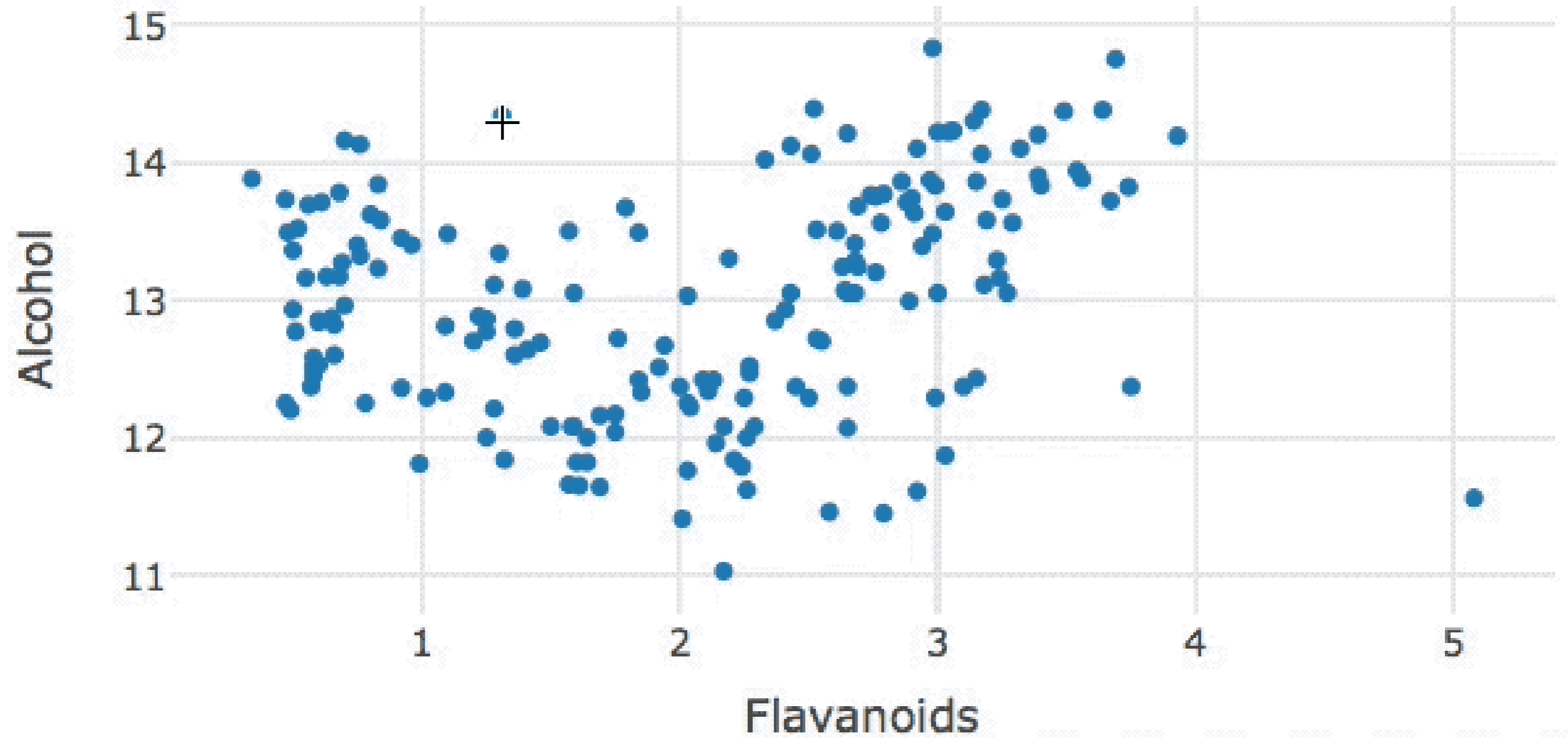
Labeling your data

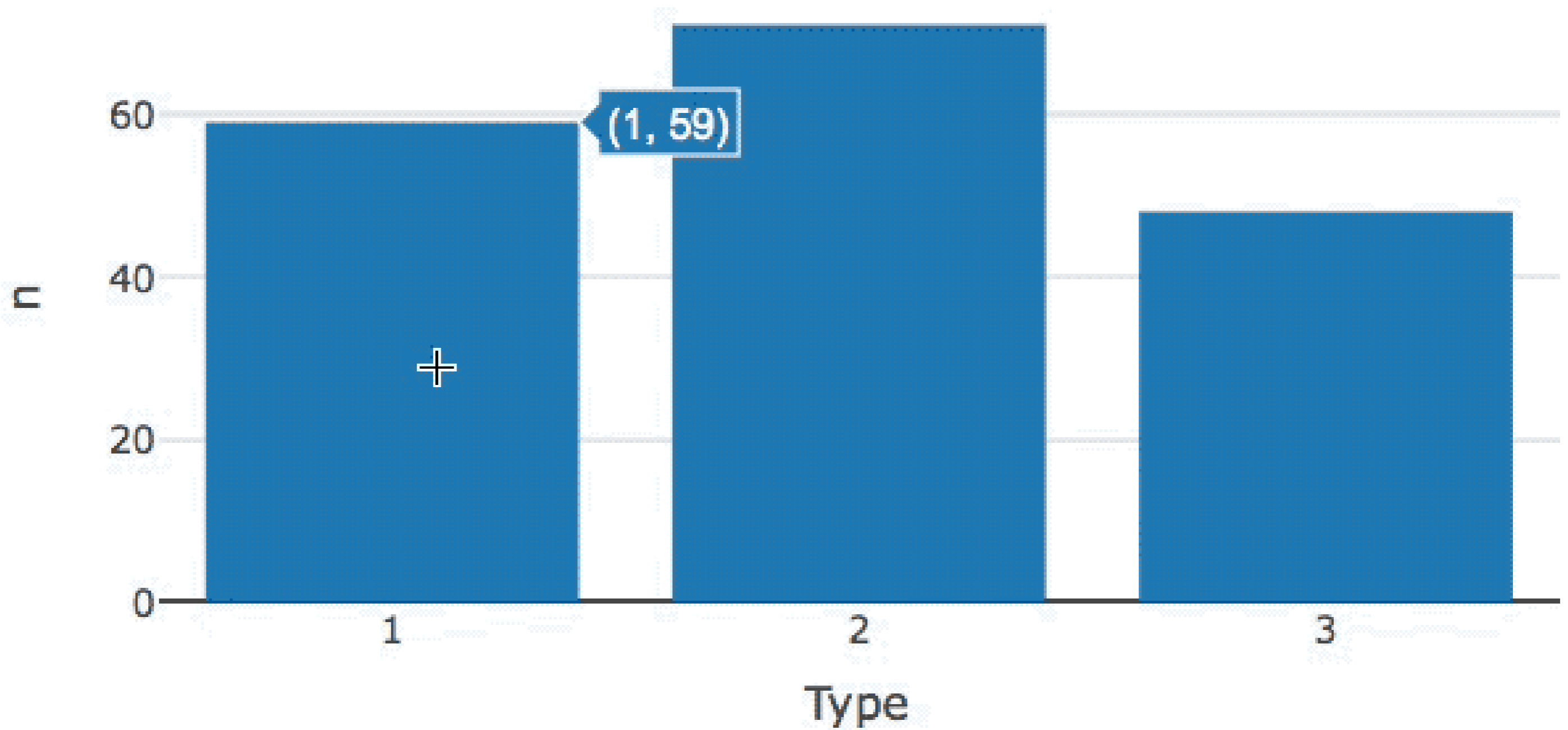
INTERACTIVE DATA VISUALIZATION WITH PLOTLY IN R

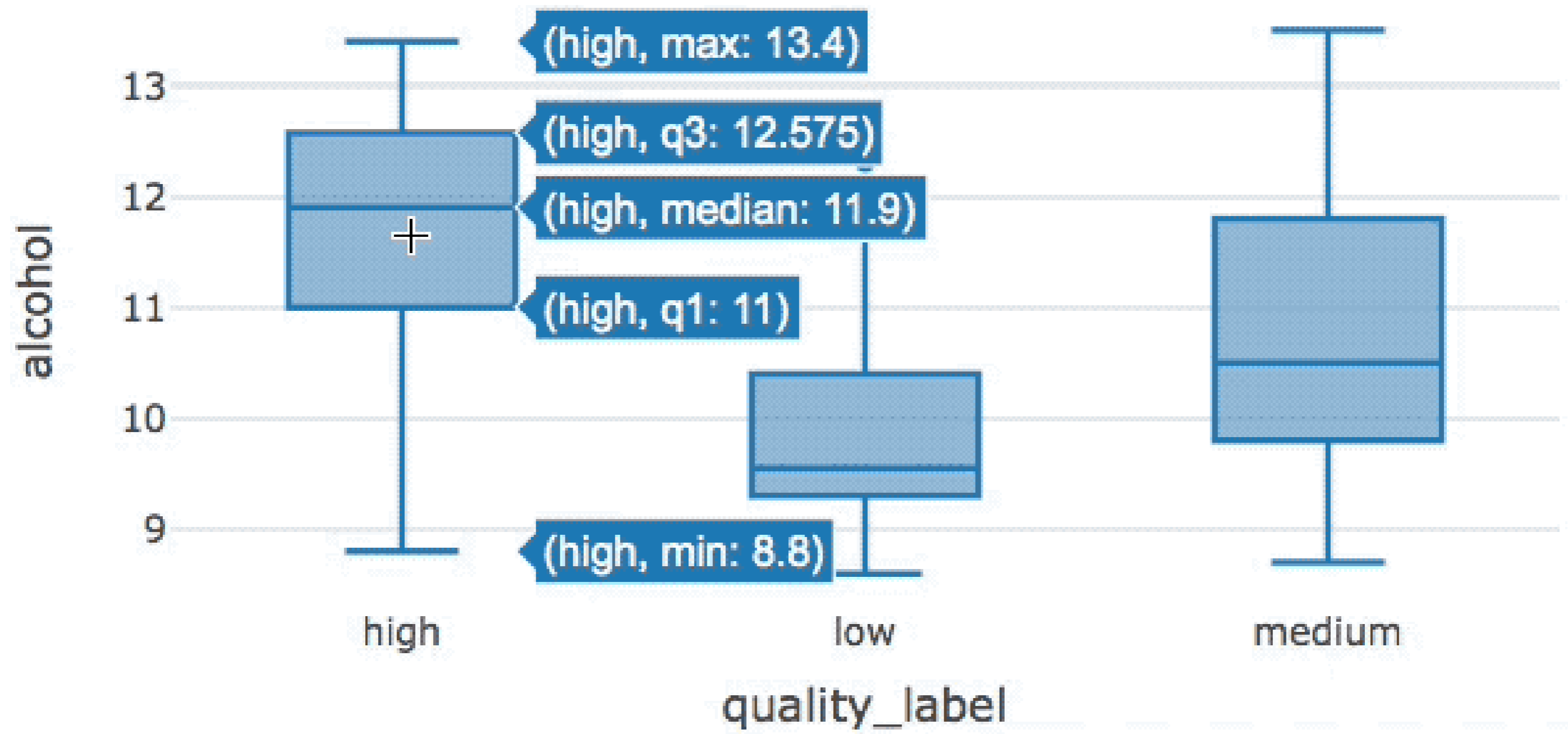


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Changing the default

```
wine %>%  
  count(Type) %>%  
  plot_ly(x = ~Type, y = ~n,  
          # Changing the default info displayed  
          hoverinfo = "y"  
  ) %>%  
  add_bars()
```

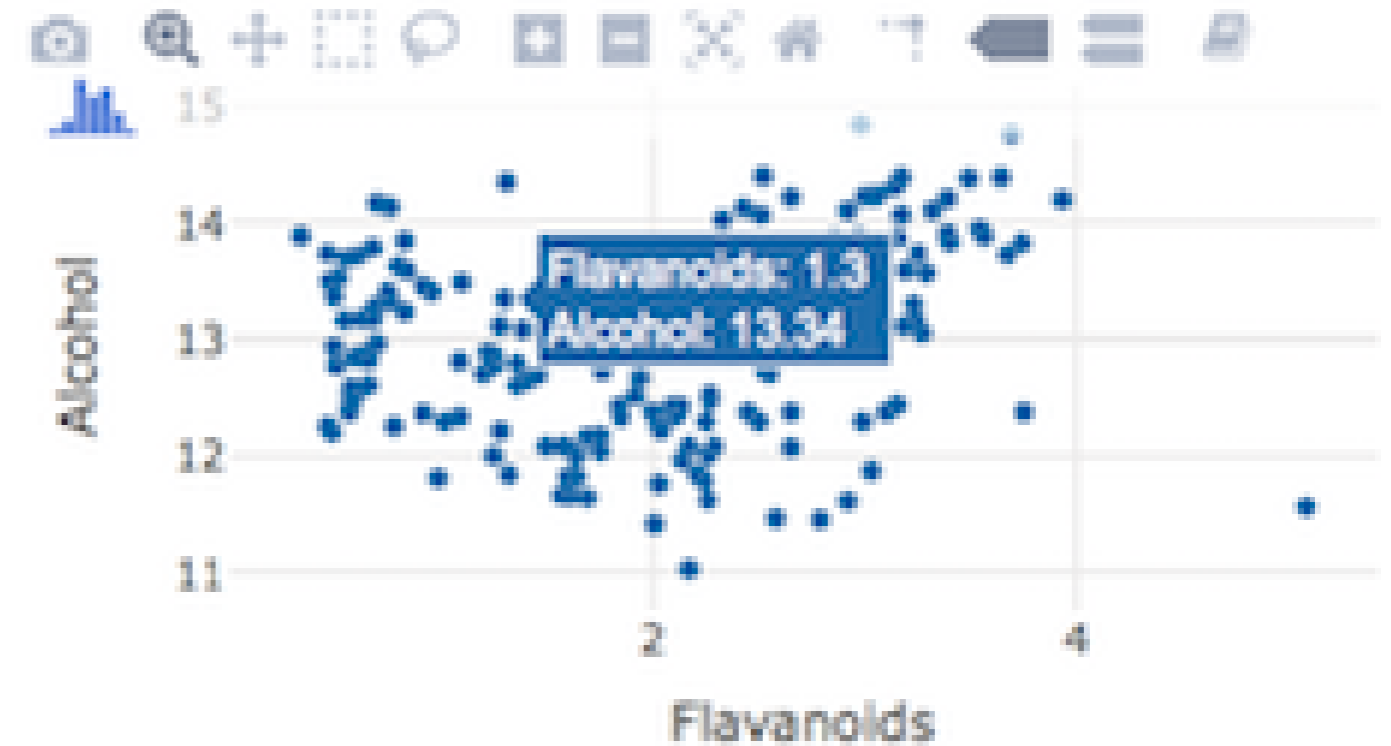
hoverinfo =

- "all"
- "x"
- "y"
- "x+y"
- "x+y+z"

Custom hover text

```
wine %>%  
  plot_ly(x = ~Flavanoids, y = ~Alcohol,  
    hoverinfo = "text",  
    text = ~paste("Flavanoids:", Flavanoids, "<br>",  
                  "Alcohol:", Alcohol)  
  ) %>%  
  add_markers()
```

- tilde, `~`, to map columns to aesthetic parameters



Let's practice!

INTERACTIVE DATA VISUALIZATION WITH PLOTLY IN R

Customizing your layout

INTERACTIVE DATA VISUALIZATION WITH PLOTLY IN R



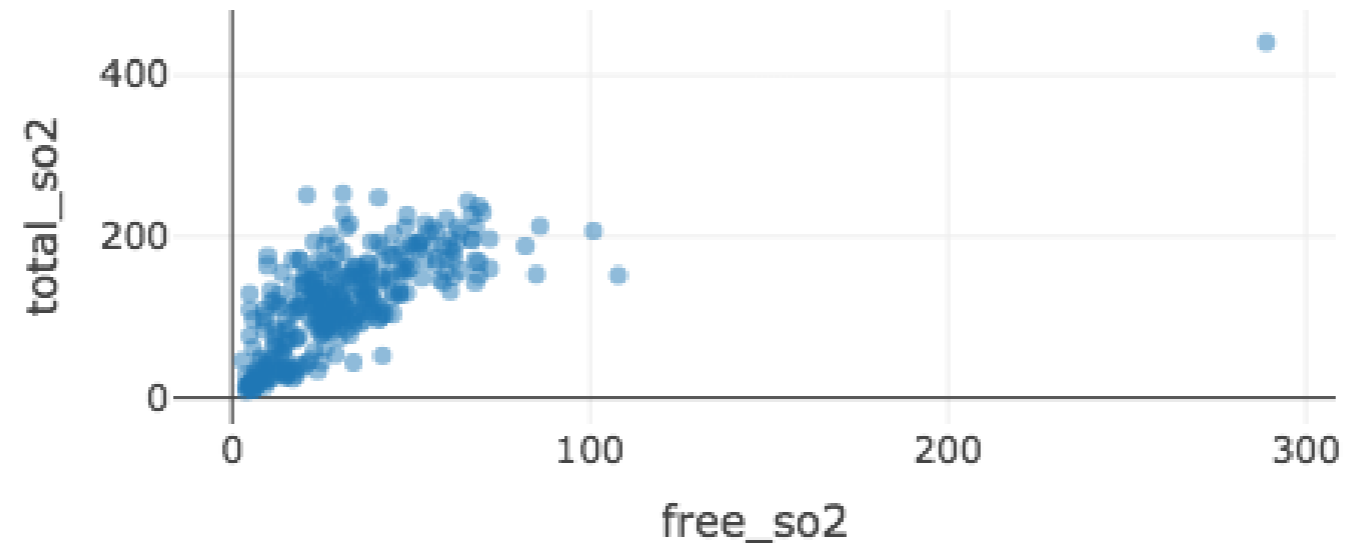
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layout()

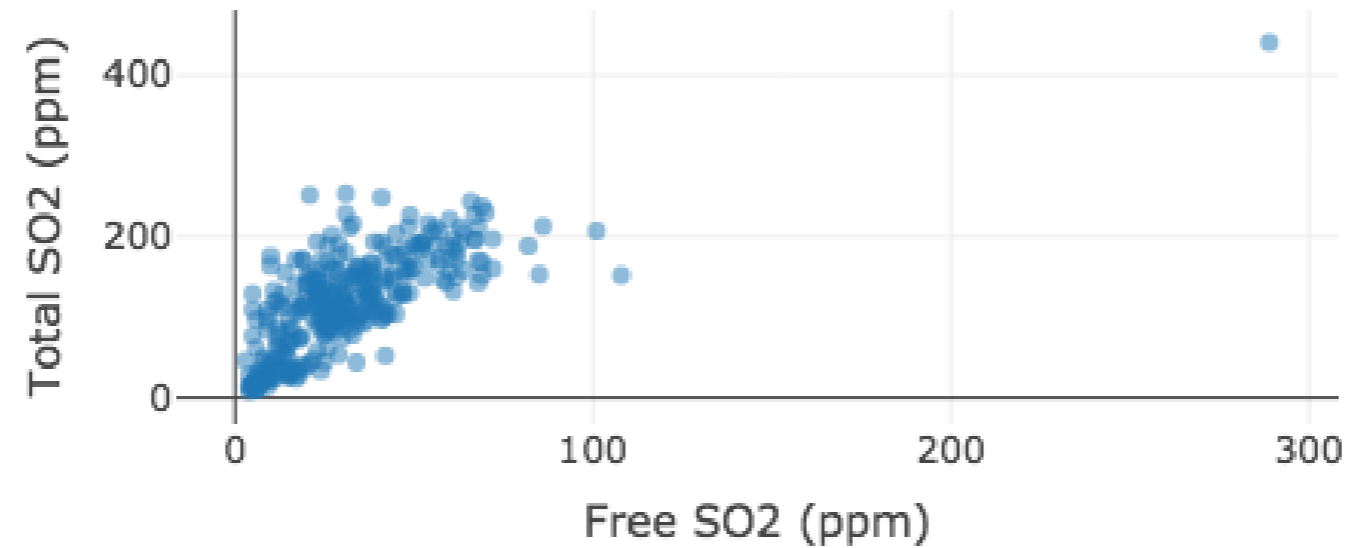
- **axes:** type, labels, tick marks, transformations, etc.
- **legend:** position
- **canvas:** grid lines, background color
- **size:** height, width, margins

Axis labels



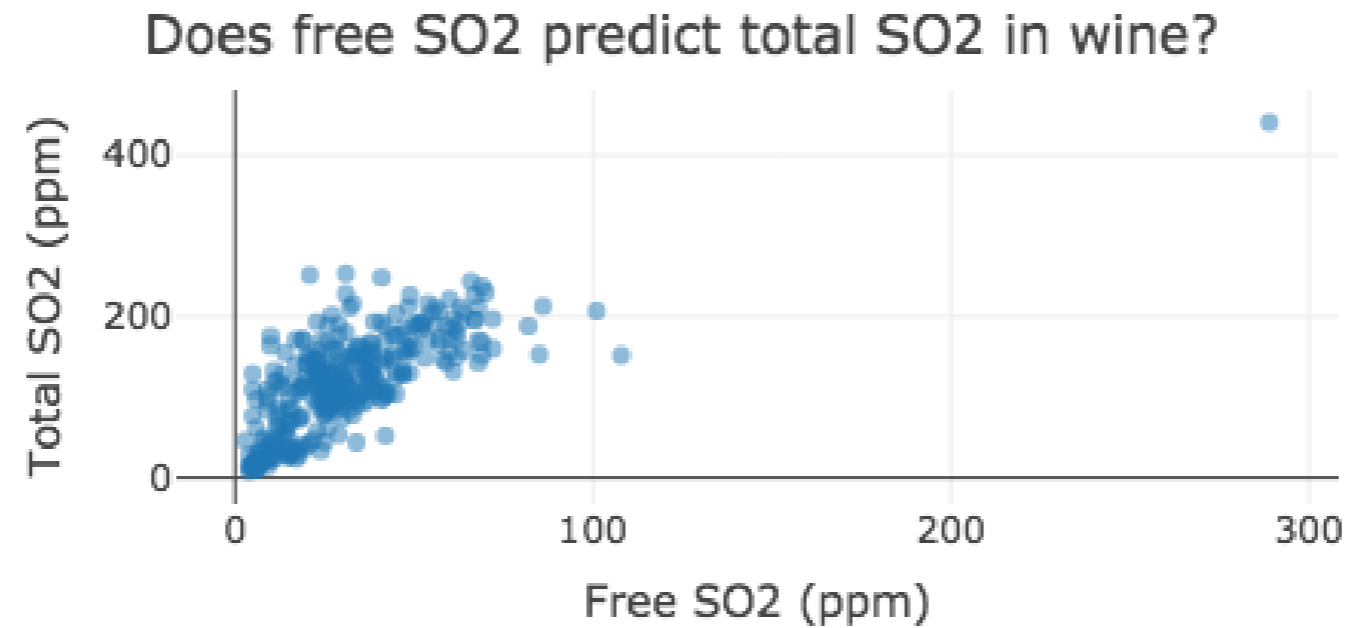
```
winequality %>%  
  plot_ly(x = ~free_so2, y = ~total_so2) %>%  
  add_markers(marker = list(opacity = 0.2))
```

Axis labels



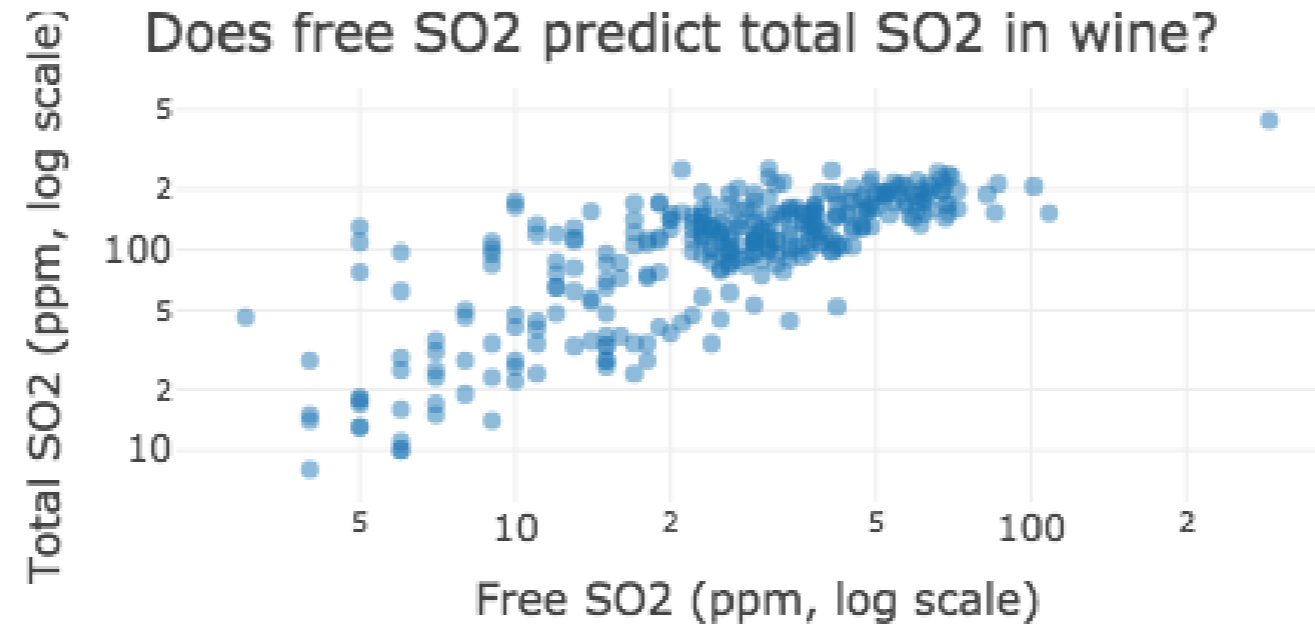
```
winequality %>%  
  plot_ly(x = ~free_so2, y = ~total_so2) %>%  
  add_markers(marker = list(opacity = 0.2)) %>%  
  layout(xaxis = list(title = "Free SO2 (ppm)"),  
         yaxis = list(title = "Total SO2 (ppm)"))
```

Titles



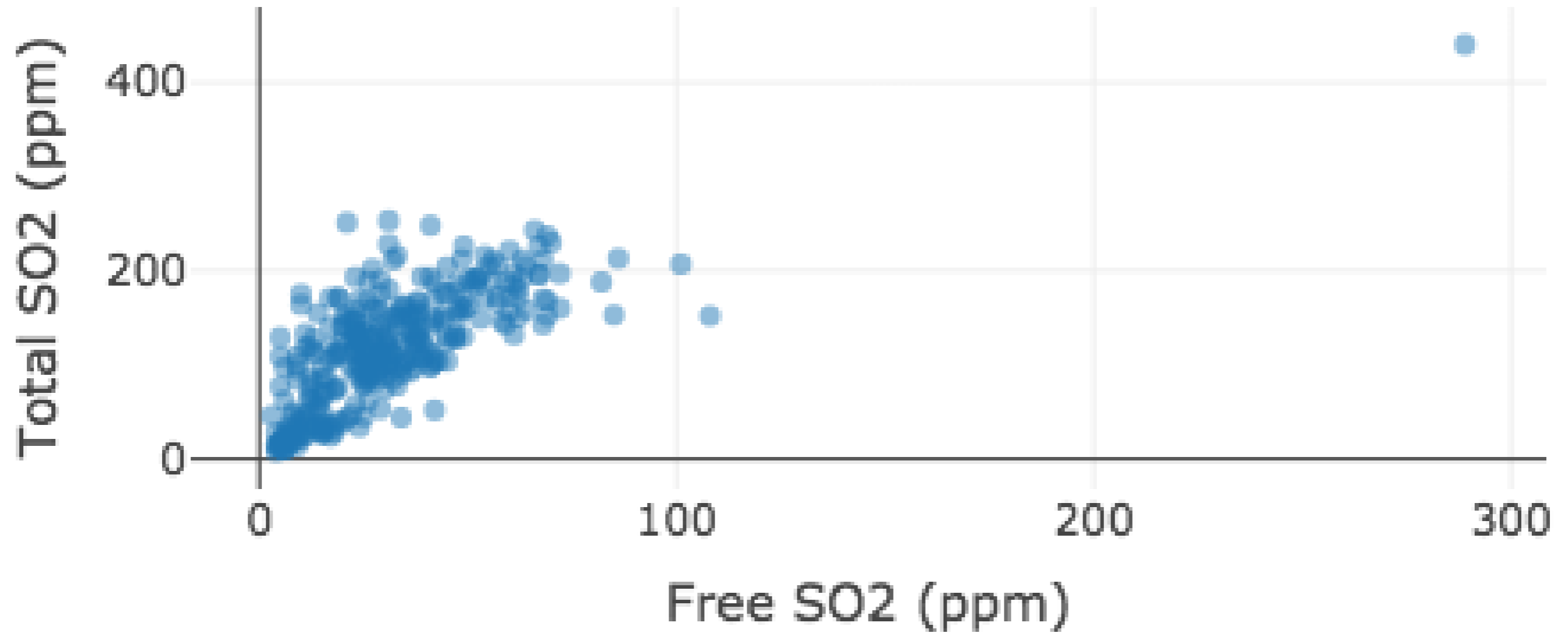
```
winequality %>%  
  plot_ly(x = ~free_so2, y = ~total_so2) %>%  
  add_markers(marker = list(opacity = 0.2)) %>%  
  layout(xaxis = list(title = "Free SO2 (ppm)"),  
         yaxis = list(title = "Total SO2 (ppm)"),  
         title = "Does free SO2 predict total SO2 in wine?")
```

Transforming axes

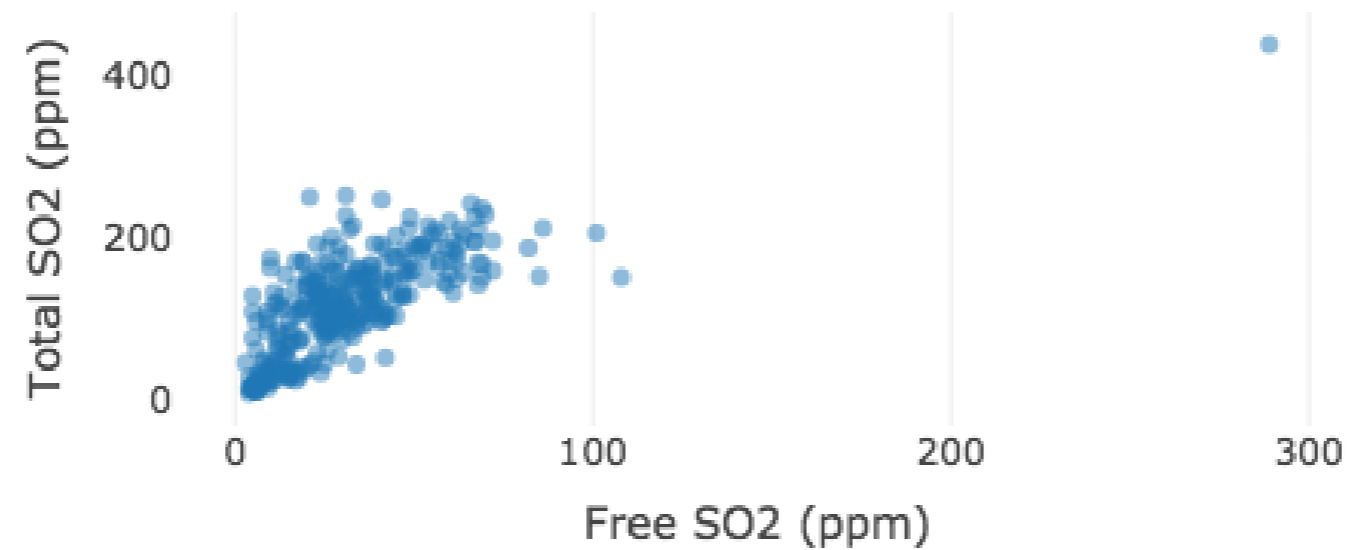


```
winequality %>%  
  plot_ly(x = ~free_so2, y = ~total_so2) %>%  
  add_markers(marker = list(opacity = 0.2)) %>%  
  layout(xaxis = list(title = "Free SO2 (ppm, log scale)", type = "log"),  
         yaxis = list(title = "Total SO2 (ppm, log scale)", type = "log"),  
         title = "Does free SO2 predict total SO2 in wine?")
```

Customizing the grid

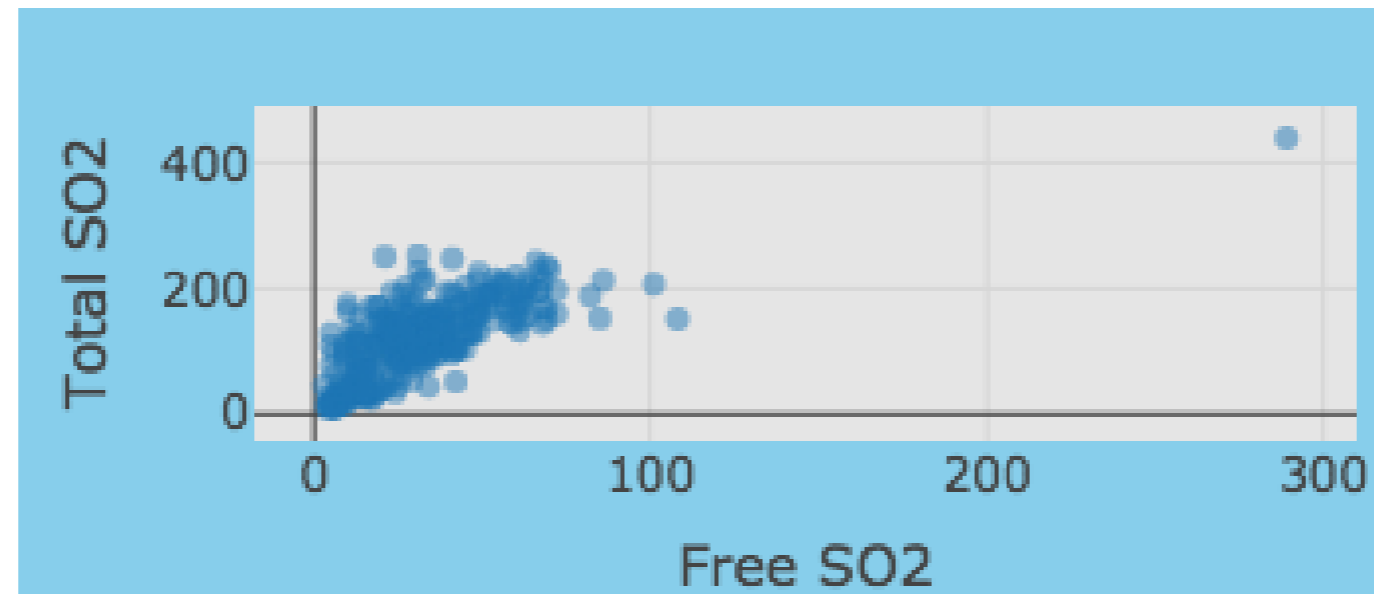


Customizing the grid



```
winequality %>%  
  plot_ly(x = ~free_so2, y = ~total_so2) %>%  
  add_markers(marker = list(opacity = 0.5)) %>%  
  layout(xaxis = list(title = "Free SO2 (ppm)", zeroline = FALSE),  
         yaxis = list(title = "Total SO2 (ppm)", zeroline = FALSE,  
                       showgrid = FALSE))
```

Customizing the canvas



```
winequality %>%  
  plot_ly(x = ~free_so2, y = ~total_so2) %>%  
  add_markers(marker = list(opacity = 0.5)) %>%  
  layout(xaxis = list(title = "Free SO2 (ppm)"),  
         yaxis = list(title = "Total SO2 (ppm)"),
```

```
      plot_bgcolor = toRGB("gray90"),  
      paper_bgcolor = toRGB("skyblue"))
```


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