Cheatography

Data Visualization in R through ggplot2 Cheat Sheet

by Astha Nihar (AsthaNihar) via cheatography.com/126454/cs/24474/

Prerequisites

install.packages("tidyverse")

library("ggplot2")

The ggplot2 packages are included in a popular collection of packages called “the tidyverse”.

Basics

ggplot2 is based on the grammar of graphics, the idea that you can build every graph from the same components: a data set, a coordinate system, and geoms—-visual marks that represent data points.

To display data values, map variables in the data set to aesthetic properties of the geom like size, color, and x and y locations.

Create a graph using ggplot() or qplot()

qplot(x = cty, y = hwy, color = cyl, data = mpg, geom = "point") Creates a complete plot with given data, geom, and mappings. Supplies many useful defaults.

ggplot(data = mpg, aes(x = cty, y = hwy)) Begins a plot that you finish by adding layers to. Add one geom function per layer.

Add a new layer to a plot with a geom_*() or stat_*() function. Each provides a geom, a set of aesthetic mappings, and a default stat and position adjustment.

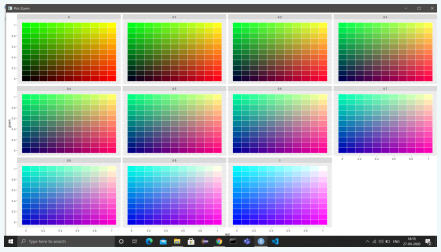
Labels

t + labs(x = "New x axis label", y = "New y axis label", title ="Add a title above the plot", subtitle = "Add a subtitle below title", caption = "Add a caption below plot", <aes> = "New <aes> legend title") t + annotate(geom = "-text", x = 8, y = 9, label = "A")

Red Greeb Blue (RGB) Color Space

RGB is the built-in colour space. Instead of "manually" creating a #RRGGBB colour string, a colour can be specified using R's rgb() function that takes three arguments: red, green, and blue (which, by default, all have a range of [0, 1]).

RGB Color Space



> ggplot() + + facet_wrap(~b) + + scale_x_-continuous(name="red", breaks=seq(0.05, 1.05, 0.2), labels=seq(0, 1, 0.2)) + + scale_-y_continuous(name="green", breaks=seq-(0.05, 1.05, 0.2), labels=seq(0, 1, 0.2)) + + scale_fill_identity() + + geom_rect(data=d, mapping=aes(xmin=r, xmax=r+resolution(r), ymin=g, ymax=g+resolution(g), fill=rgb(-r,g,b)), color="white", size=0.1)

Legends:

n + theme(-leg-end.po-sition = "-bottom") Place legend at "bottom", "top", "-lef", or "-right"

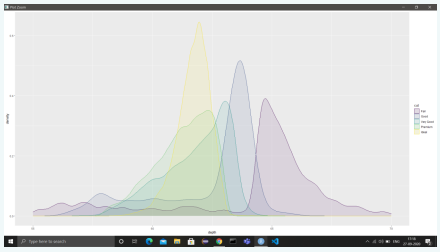
n + guides-(fill = "non-e") Set legend type for each aesthetic: colorbar, legend, or none (no legend)

n + scale_fill_d-iscrete(name = "Title", labels = c("A", "B", "C", "D", "E")) Set legend title and labels with a scale function.

One Variable graphs

ggplot(df, aes(x=weight, fill=sex)) + + geom_area(stat ="bin")

geom_density



ggplot(diamonds, aes(depth, fill = cut, colour = cut)) + + geom_density(alpha = 0.1) xlim(55, 70)

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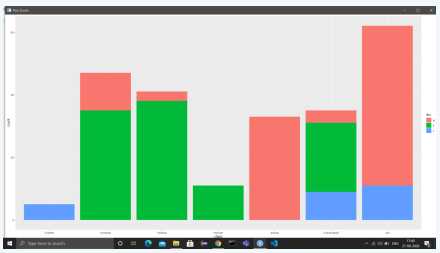
geom_bar

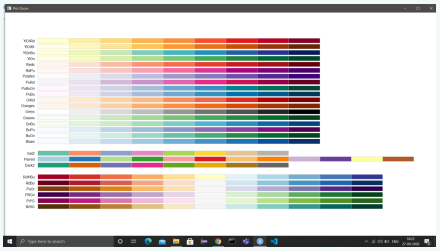


> g <- ggplot(mpg, aes(class)) > g + geom_bar(aes(fill = drv))

geom_dotplot

ggplot(mtcars, aes(x = mpg, fill = factor(cyl))) + geom_dotplot(stackgroups = TRUE, binwidth = 1, method = "histodot")

Color Blind Friendly brewer palettes:

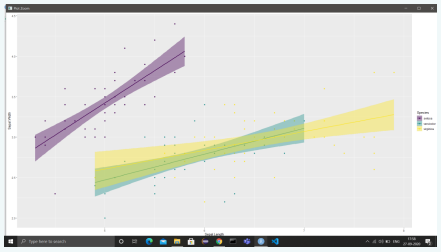


library(RColorBrewer) display.brewer.all(colorblindFriendly = TRUE)

Line Types:

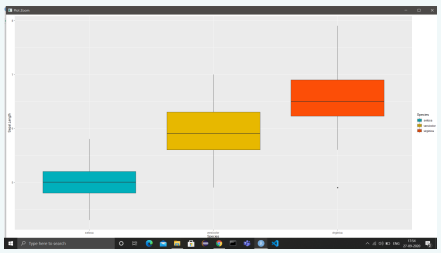
ggpubr::show_line_types()+ theme_gray()

Two Variable graphs



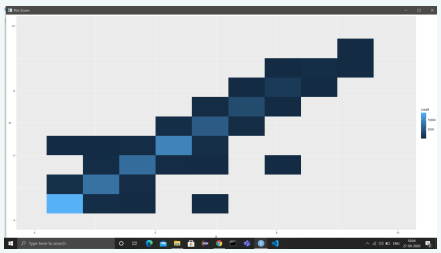
ggplot(iris, aes(Sepal.Length, Sepal.Width))+ + geom_point(aes(color = Species)) + + geom_smooth(aes(color = Species, fill = Species), method = "lm") + + scale_color_viridis(discrete = TRUE, option = "D")+ + scale_fill_viridis(discrete = TRUE)

geom_boxplot



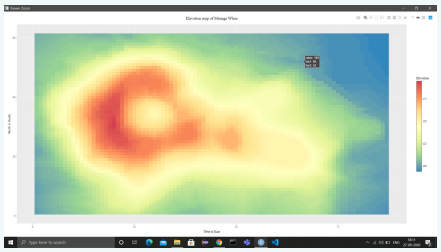
bp <- bp + geom_boxplot(aes(fill = Species)) > bp + scale_fill_manual(values = c("#00AFBB", "#E7B800", "#FC4E07"))

geom_bind2d



> d <- ggplot(diamonds, aes(x, y)) + xlim(4, 10) + ylim(4, 10) > d + geom_bin2d(bins = 10)

Three Variable graphs



df <- melt(volcano) > > p <- ggplot(df, aes(Var1, Var2)) + + geom_raster(aes(fill=-value)) + + scale_fill_distiller(palette = "Spectral", direction = -1) + + labs(x="West to East", + y="North to South", + title = "Elevation map of Maunga Whau", + fill = "Elevation") + + theme(text = element_text(family = 'Fira Sans'), + plot.title = element_text(hjust = 0.5)) > > ggplotly(p)

Shapes:

> ggplot() + scale_y_continuous(name="") + scale_x_continuous(name="") + scale_shape_identity() + geom_point(data=d, mapping=aes(x=p-%%16, y=p%/%16, shape=p), size=5, fill="red")+geom_text(data=d, mapping=aes(x=p%%16, y=p%/%16+0.25, label=p), size=3)

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