Useful Links and Librarys

Rstudio cheatsheets

Quick references for common packages. See more cheatsheets here

- dplyr
- Rmarkdown
- shiny
- ggplot
- base R

Useful Libraries for Visualization

ComplexHeatmap

- Non-ggplot based package for plotting Heatmaps.
- Heatmaps are usefult visualizations for showing subpopulations in clustered data
- Has extensive documentation and is extremelt flexible.

ComplexUpset

- Non-ggplot based package for ploting upset plots
- upset plots are useful for visualizing interactions between sets

DT

- Create interactive data tables in Rmarkdown and Shiny

RColorBrewer

- create diverse color palettes for plots. Can generate both discrete and continous palettes

circlize

- Create circos plots and circular color scales

dplyr

- an *excellent* toolbox for cleaning and manipulating data

flextable

- create precisely formatted tables when using Rmarkdown to generate `.docx` files

gapminder

- load thes `gapminder` dataset as a `data.frame`, and contains information about population, life expectancy and GDP.
- Use data set for testing out plots

ggalluvial

- Generate Alluvial plots using ggplot syntax
- alluvial plots are useful for visualizing subsets in categorical data, or changes in composition of catogorical data over time

gganimate

- Turn (almost) any ggplot into an animated figure.

gghalves

- Plot half geoms(violin/boxplot/points)
- useful for showing changes between two similar conditions

ggiraph

- Uses ggplot syntax to add interactivity to plots by adding tooltip(show info when hovering mouse over position)

ggpattern

- Add shading patterns to ggplots

ggplot2

- The best plotting library in R. uses the Grammar of Graphic(gg) to define a concises syntax for generating plots
- `ggplots` are copmosed of several key components
    - `ggplot(data)` - create a new blank plot
    - `geom_...` - add some sort of visualization(points, boxplots, etc), and
    - `aes()` - generate and aesthetic mapping between columns in `data` and visual aesthtics in `geom_...`
    - save plots using `ggplot::ggsave`

ggplotify

- Convert any plot generated in R into a `ggplot` object.
- This allows plots generated from non-gpglot based libraries to be merged with other plots through `patchwork`, or saved using `ggplot::ggsave`

ggpubr

- an alternative plotting package that provides simpler functions for generating plots, and provides fucntions for for may

ggrepel

- generate text and labels on `ggplots` that *repel* from each other, so they don't crowd each other, or other elements in the plot

ggridges

- create ridge plots in `ggplot`.
- ridge plots are usful for visualizing continuous distributions across many variables

ggsci

- provides alternative color palettes that are inspired by plots from different scientific journals

ggspatial

- an extension to ggplot for plotting map data.
- uses spatial data defined by the `sf` pacakge

ggthemes

- a collection of themes and color palettes inspired by popular websites

ggtree

- an extension to `ggplot` for visualizing trees and dendrograms

kableExtra - An extension to `Rmarkdown` that allows you to better format tables

knitr

- the core library behind `Rmarkdown`
- use knitr to control `Rmarkdown` and create high-quality reports and documents with embedded code

maps - provides spatial info for common maps(world, USA, etc)

pals

- a comprehensive set of colot palettes for R
- in my opinion, the best package for generating color palettes

patchwork - a useful library for asselmbing multiple `ggplots` into a single figure - combine plots with intuitive operators like `+`, `/` and , `|`, as well as specify custom layouts

plotly

- a feature-rich library for making interactive visualizations that can be embedding in `Rmarkdown` reports or `shiny` apps

redoc

- seamlessly(ish) move between Rmarkdown <==> Microsoft Word

sf

- a package for working with geospatial data in R

shiny

- the core package for interactive visualizations in R.
- Build fast and dynamic webapps that can be hosted locally or on a webserver

tidyverse

- an *amazing* collection of packages for data science in R.
  - tibble: a new data type analogous to a `data.frame`, but with more consistent indexing, and no type coercion
  - dplyr: a series of functions for subsetting, filtering, changing, and summarizing dataframes/tibbles
  - tidyr: functions for tidying data(more on that later)
  - stringr: library for efficiently working with strings
  - readr: efficiently read/write data
  - forcats: library for efficiently working with factors
  - purrr: adds common programming methods from other languages into
  - using `library(tidyverse)` makes it easy to load these all at once; but you can load them individually if you choose