STOR 320 Data Visualization

Lecture 1

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Why are We Here?

- To Install Some Key R Packages
  - Tidyverse
- To Practice Coding via R Scripts
- To Learn Elements of ggplot2
- Practice Making Visually Stunning Pictures

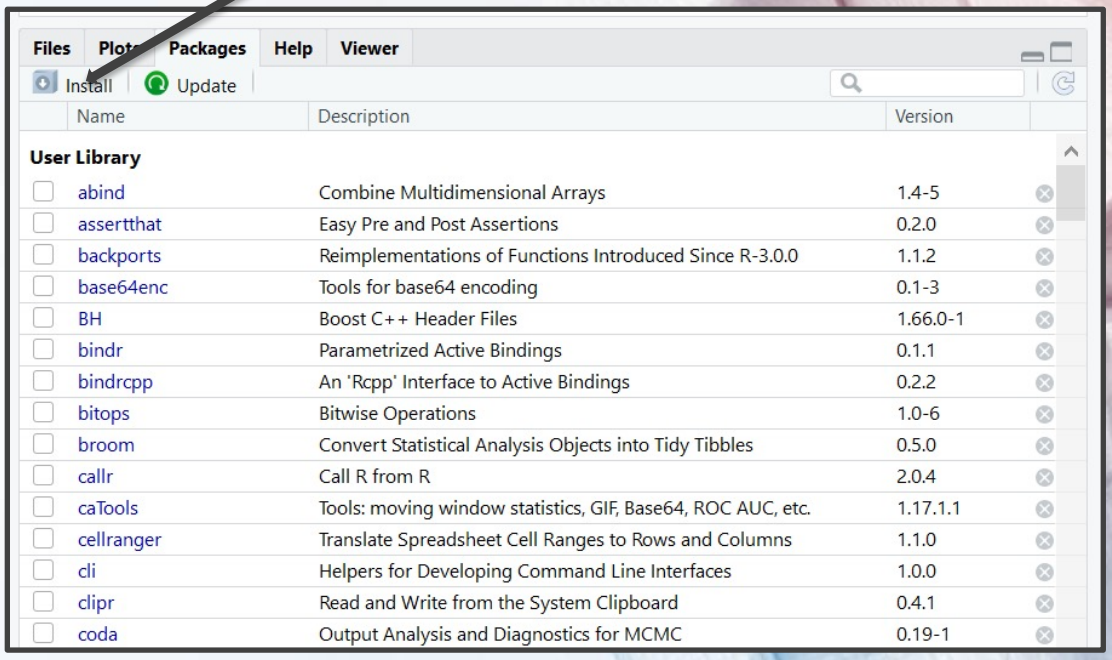
Initial Steps in RStudios

- Install Tidyverse Package

```
> install.packages("tidyverse")
```

- Other Packages To Be Installed
  - RColorBrewer
  - Rmarkdown

Select Install and Search on CRAN

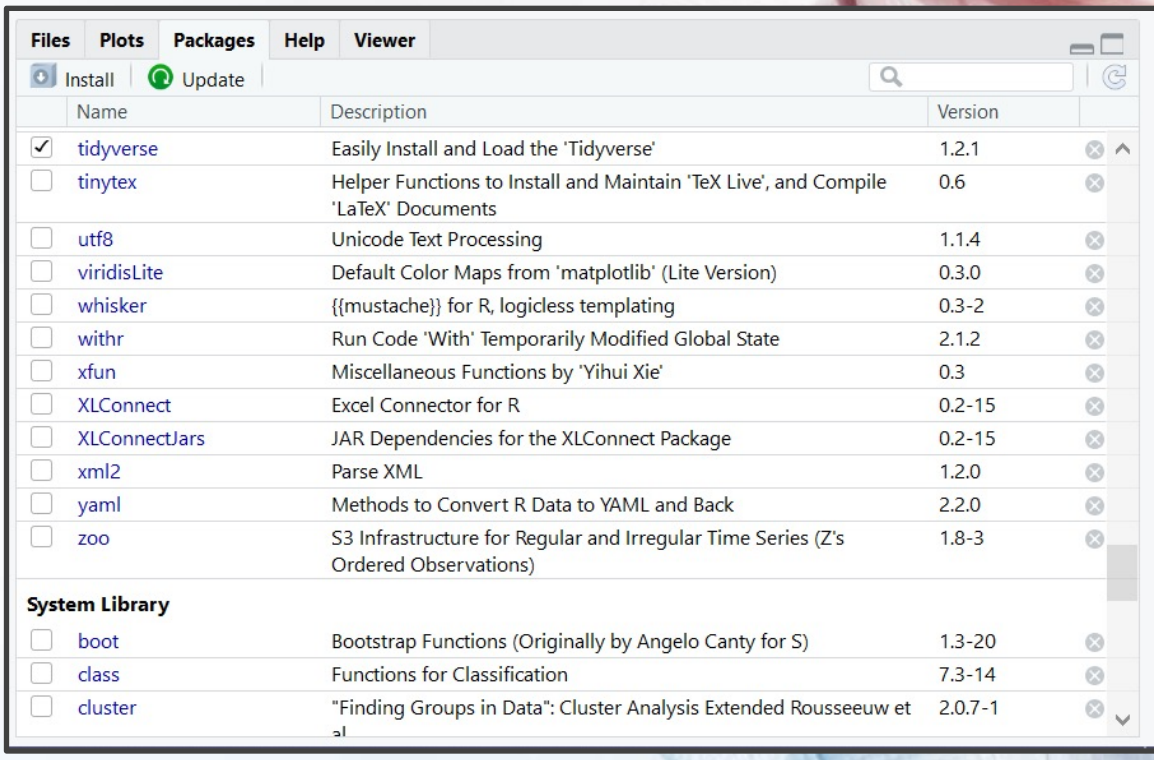


Initial Steps in RStudios

- To Use the Package
  - Code

```
> library("tidyverse")
```

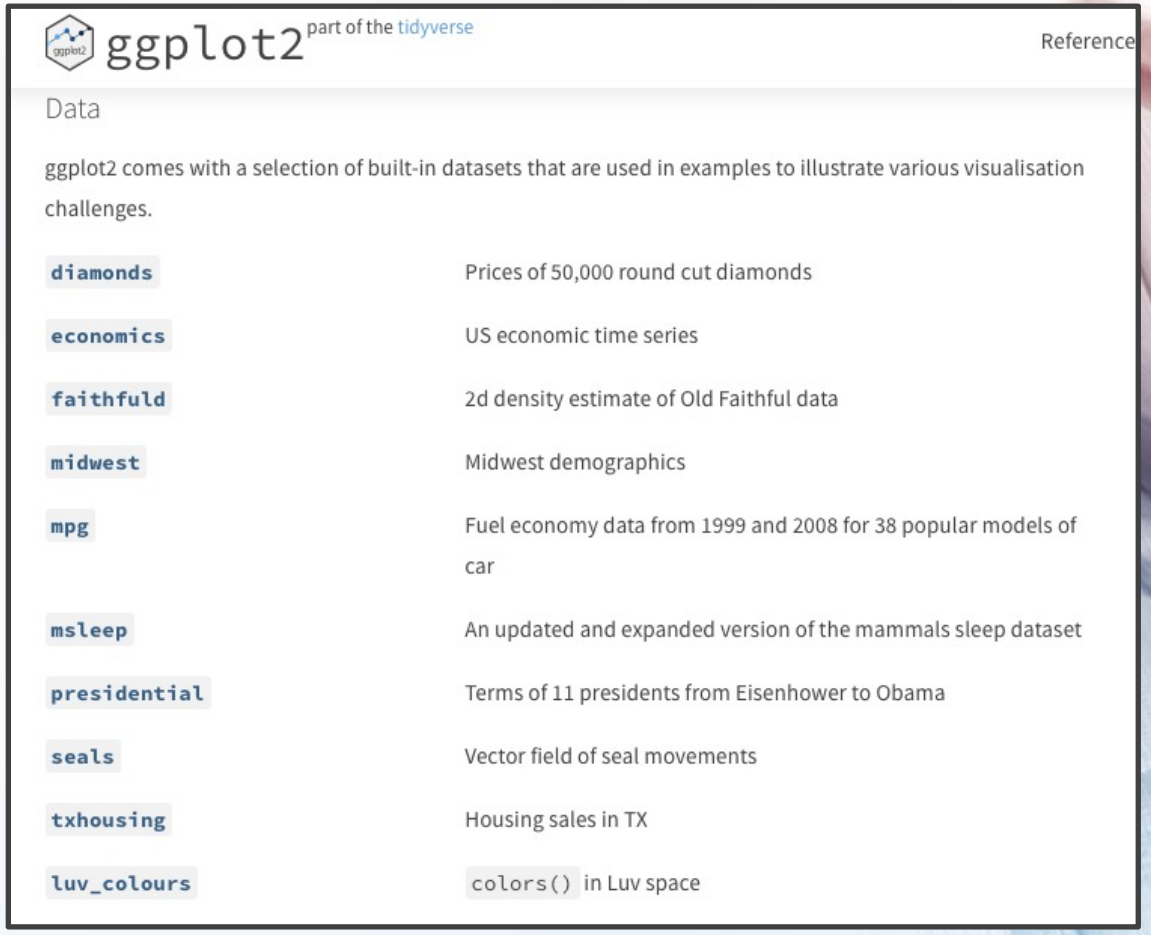
- Check Box for Tidyverse



ggplot2

- Help Page: Link

- Comes with Preloaded Datasets



ggplot2 part of the tidyverse Reference

Data

ggplot2 comes with a selection of built-in datasets that are used in examples to illustrate various visualisation challenges.

`diamonds`	Prices of 50,000 round cut diamonds
`economics`	US economic time series
`faithfuld`	2d density estimate of Old Faithful data
`midwest`	Midwest demographics
`mpg`	Fuel economy data from 1999 and 2008 for 38 popular models of car
`msleep`	An updated and expanded version of the mammals sleep dataset
`presidential`	Terms of 11 presidents from Eisenhower to Obama
`seals`	Vector field of seal movements
`txhousing`	Housing sales in TX
`luv_colours`	`colors()` in Luv space

ggplot2 Cheat Sheet

- Many Useful Plots and Charts Provided
  - See Cheat Sheet: Link

    (Also on Course Website)
  - Called Geoms (Geometric Objects)
  - The Geom you choose Must Comply with the Type of Variables You are Analyzing

- Organized by Type of Data
  - Univariate
  - Bivariate
  - Mixtures of Categorical and Numeric

ggplot2 General Form

- ggplot2 General Form

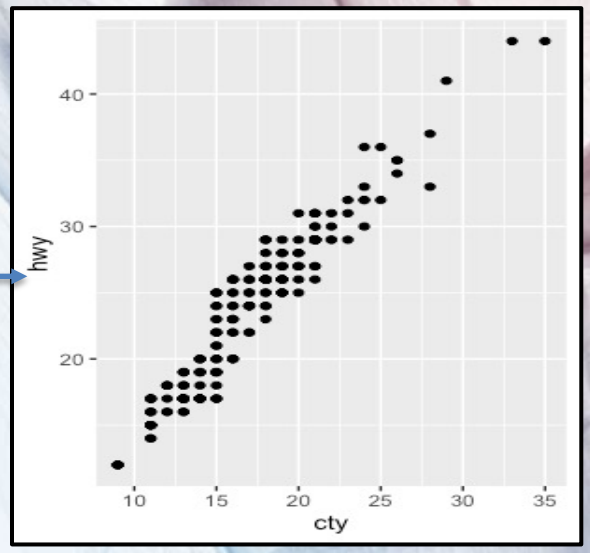
Fill in Blank With Name of Data in R

```
> ggplot(data=_____) +
    geom_TYPE(mapping=aes(x=___,y=____, etc.))
```

- Example:

Fill in Blanks from Variables in Data

```
> ggplot(data=mpg) +
    geom_point(mapping=aes(x=cty,y=hwy))
```



Tutorial

- Locate Tutorial 1 on Course Website
- Download Rmd File
- Open Rmd File on Computer
- Knit the Rmd File to HTML format
- View Graphs with Me