LEAFLET

FOR INTERACTIVE MAPS

Shiny from RStudio™

OUTLINE

- Motivation
- Shapefiles in R
- Leaflet
  - Basemaps
  - Lines
  - Points
  - Shapes
  - Legends & Colors
  - Heatmaps

Motivation

"'I have the same problem' is a famous last post in many forum-threads on the esri forum."
–sebastian

"R and Leaflet are free and open-source, ArcMap is very much not."

–Geoffrey Arnold

Shapefiles

In R

‣ Install these packages:

    ‣ rgdal: <u>https://github.com/cran/rgdal/blob/master/inst/README</u>

    ‣ rgeos

    ‣ sp

    ‣ leaflet

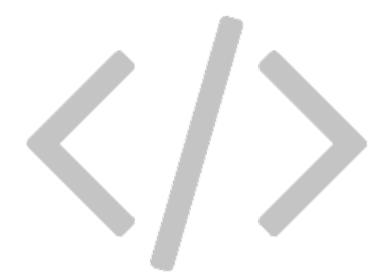   ‣ leaflet.extras

WHAT IS LEAFLET?

‣ R version of the Javavscript API of Leaflet

‣ One of the ways to get interactive maps

    ‣ Others include: tmap, mapview and plotly

‣ Documentation: https://rstudio.github.io/leaflet/

Getting spatial data loaded into R

LOADING SPATIAL DATA

‣ Sometimes your source data will be a data frame which you will need to join to spatial data, other times it will be included

‣ It may also be a CSV with coordinates, in those instances no further cleaning needs to take place

leaflet_examples.Rmd
Go to loading code chunk

‣ Create a map with layer controls

  ‣ Get baseman provider names from here: https://leaflet-extras.github.io/leaflet-providers/preview/

    ‣ Create 3 named basemap groups

    ‣ Add a layer control that has the named base groups

5m **00**s

Shapes

TYPICAL ARGUMENTS

‣ lng (if a column)

‣ lat (if a column)

‣ layerId

‣ group (for layerControls)

‣ stroke (boolean, shape outline)

‣ color (outline color, hex values)

‣ weight (outline width)

‣ opacity (alpha of the line)

‣ fill (boolean)

‣ fillColor (hex color)

‣ fillOpacity (alpha of fill)

‣ And more!

DEMO

leaflet_examples.Rmd
Go to polygon code chunk

- palette (color brewer palette)

- domain (values to be colored)

- na.color

- alpha

- reverse (values of palette)

- bins

- pretty

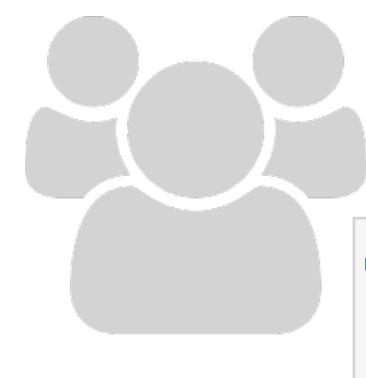- right (for cutting)

- n (number of quanitites)

- probs

- levels

- ordered

- position ("bottomright" etc…)

- pal (palette from colorBrewer)

- values (domain from data)

- na.labels

- bins (buckets)

- colors

- labFormat (separate function labelFormat)

- title

- className (for custom CSS to apply)

- layerId (for input usage)

- group (for layerControls)

- digits

- big.mark

- transform (function to be applied to labels)

‣ Choropleth Polygon map with

  ‣ Create a color palette for Life Expectancy at Birth (years) column in the merged Congressional District data.

    ‣ addPolygons to a leaflet map and apply palette to column

      ‣ Add a legend

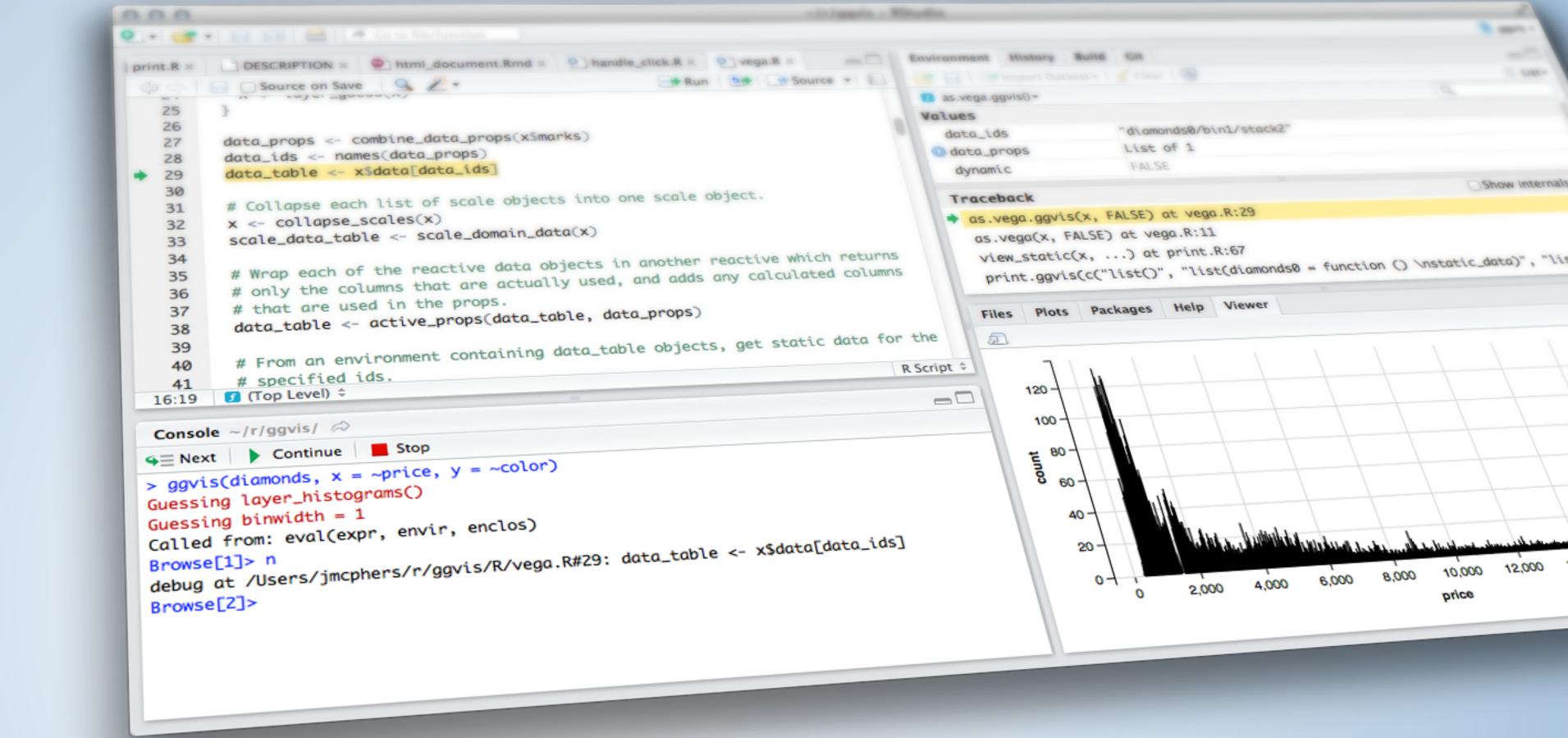5m 00s

Hint: https://rstudio.github.io/leaflet/choropleths.html

leaflet_examples.Rmd
Go to polygon code chunk

‣ Go to leaflet_exercises.Rmd clusters code chunk

  ‣ Use 311 data to create a cluster map

    ‣ Create a factor palette

      ‣ Create a legend

        ‣ Make sure to include a basemap

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Hint: https://rstudio.github.io/leaflet/markers.html

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Homework 2