

# Intro to DataViz w/ R

September 17, 2024

# Intro to DataViz w/ R

**Today's Co-organizer:**

Kewalin Samart

kewalin.samart@cuanschultz.edu

**Event Co-leaders:**

Caroline Reges and Shelby Anderson

**Helper:**

Laura Leaton

**Volunteer signup:**

<https://bit.ly/RLA-fall24volunteer>

**Today's sponsor:**

JRavi Lab, DBMI



# Who We R!?



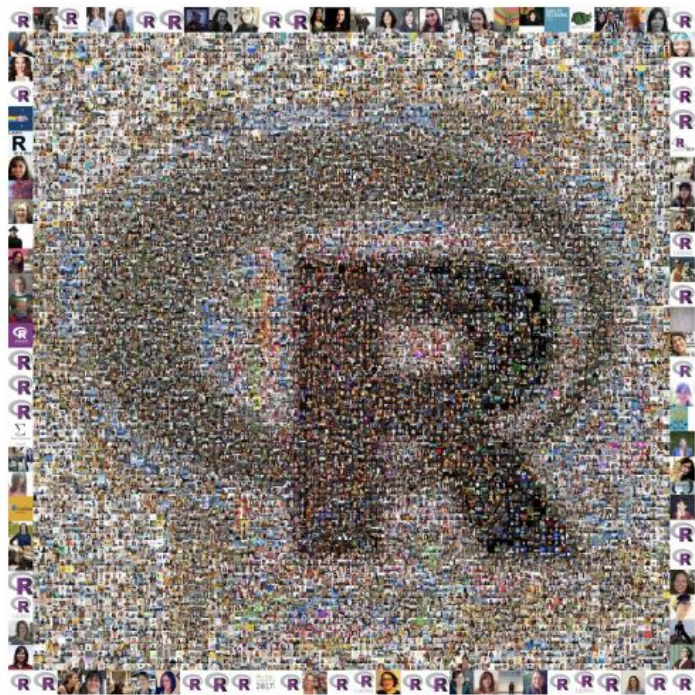
R-Ladies Kick-off Event on Jul 25, 2024




RLA Co-organizer team: Jade, Keenan, Janani, Kewalin, Stacey (left to right)




Worldwide organization that promotes **gender diversity** in the **#rstats** community via meetups and mentorship in a **friendly** and **safe** environment







Part of **R-Ladies - 240 groups**

## R-Ladies Aurora

 Aurora, CO, USA

 69 members · Public group

 Organized by **R-Ladies Global** and **4 others**

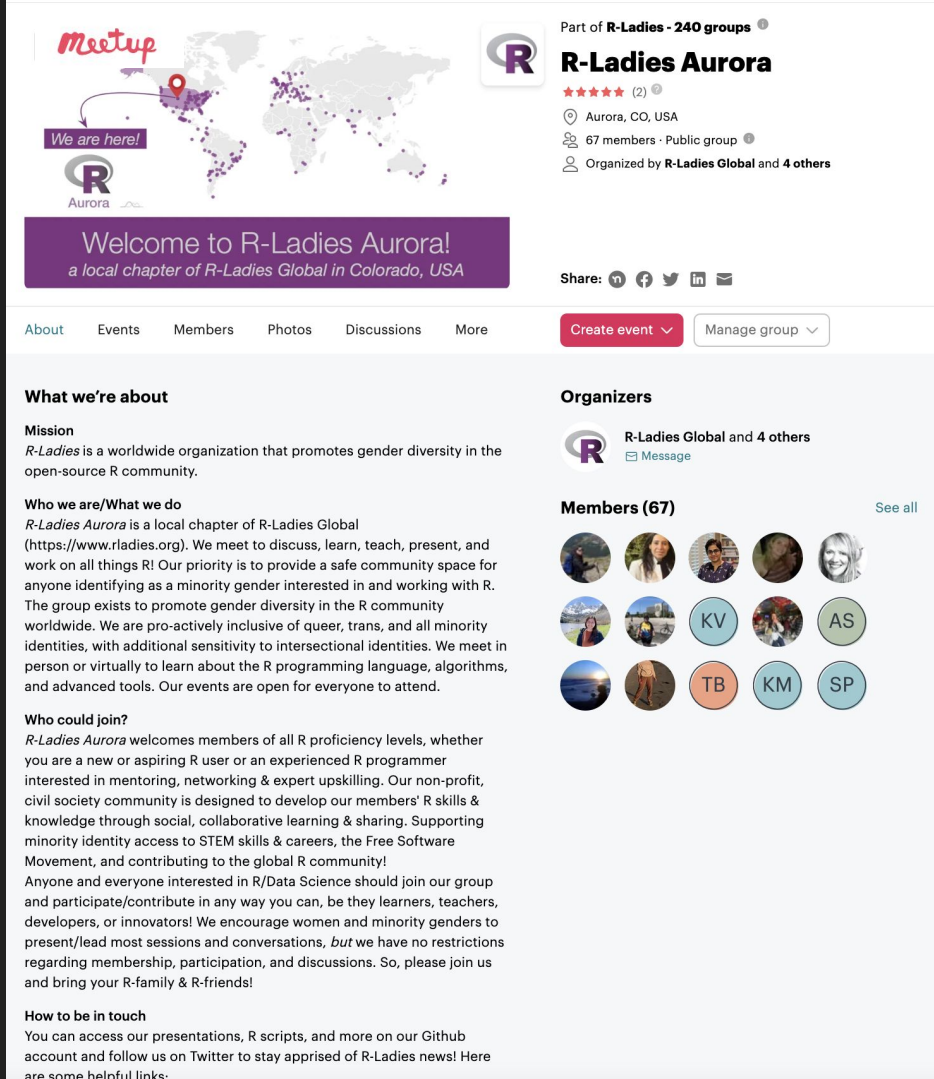
# New Members?

1. Join us, RSVP for events on **Meetup**

<https://www.meetup.com/rladies-aurora/>

2. Join our discussion forum on **Discord**

<https://discord.gg/EXKYNCsFBk>



The screenshot shows the Meetup page for R-Ladies Aurora. At the top, there's a Meetup logo and a world map with a red pin in the USA and the text "We are here!". Below this is a purple banner that says "Welcome to R-Ladies Aurora! a local chapter of R-Ladies Global in Colorado, USA". To the right, the group name "R-Ladies Aurora" is displayed with a 5-star rating and 2 reviews. It also shows the location "Aurora, CO, USA", "67 members · Public group", and "Organized by R-Ladies Global and 4 others". There are social media share buttons for Facebook, Twitter, LinkedIn, and Email. Below the banner, there's a navigation bar with links for "About", "Events", "Members", "Photos", "Discussions", and "More". On the right side of the navigation bar, there are buttons for "Create event" and "Manage group". The main content area is divided into two columns. The left column has a section titled "What we're about" with a "Mission" paragraph, a "Who we are/What we do" paragraph, and a "Who could join?" paragraph. The right column has a section titled "Organizers" showing the R-Ladies Global logo and a "Message" button, and a section titled "Members (67)" showing a grid of member profile pictures. A "See all" link is next to the members section.

Part of **R-Ladies - 240 groups**

## R-Ladies Aurora

★★★★★ (2)

Aurora, CO, USA

67 members · Public group

Organized by **R-Ladies Global** and 4 others

Share:

[About](#) [Events](#) [Members](#) [Photos](#) [Discussions](#) [More](#)

[Create event](#) [Manage group](#)

### What we're about

#### Mission

R-Ladies is a worldwide organization that promotes gender diversity in the open-source R community.

#### Who we are/What we do

R-Ladies Aurora is a local chapter of R-Ladies Global (<https://www.rladies.org>). We meet to discuss, learn, teach, present, and work on all things R! Our priority is to provide a safe community space for anyone identifying as a minority gender interested in and working with R. The group exists to promote gender diversity in the R community worldwide. We are pro-actively inclusive of queer, trans, and all minority identities, with additional sensitivity to intersectional identities. We meet in person or virtually to learn about the R programming language, algorithms, and advanced tools. Our events are open for everyone to attend.

#### Who could join?

R-Ladies Aurora welcomes members of all R proficiency levels, whether you are a new or aspiring R user or an experienced R programmer interested in mentoring, networking & expert upskilling. Our non-profit, civil society community is designed to develop our members' R skills & knowledge through social, collaborative learning & sharing. Supporting minority identity access to STEM skills & careers, the Free Software Movement, and contributing to the global R community! Anyone and everyone interested in R/Data Science should join our group and participate/contribute in any way you can, be they learners, teachers, developers, or innovators! We encourage women and minority genders to present/lead most sessions and conversations, *but* we have no restrictions regarding membership, participation, and discussions. So, please join us and bring your R-family & R-friends!

#### How to be in touch

You can access our presentations, R scripts, and more on our Github account and follow us on Twitter to stay apprised of R-Ladies news! Here are some helpful links:

### Organizers

R-Ladies Global and 4 others

[Message](#)

### Members (67)

[See all](#)

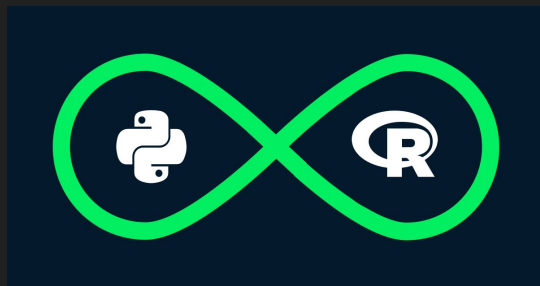
Grid of member profile pictures: 12 circular images showing various members, some with labels like KV, AS, TB, KM, SP.



# Upcoming Workshops

## Fall' 24 R-Ladies Aurora Series:

- Intro to R Functions
- DataViz 2.0
- R Package Development
- Presenting to Non-Scientific Audiences
- Python in R



# Today! Sept 17, 2024

## TOPICS

- Intro to DataViz
- ggplot

Ping us on Discord with any Questions



from Data to Viz

MENU

What kind of data do you have? Pick the main type using the buttons below. Then let the decision tree guide you toward your graphic possibilities.

Numeric

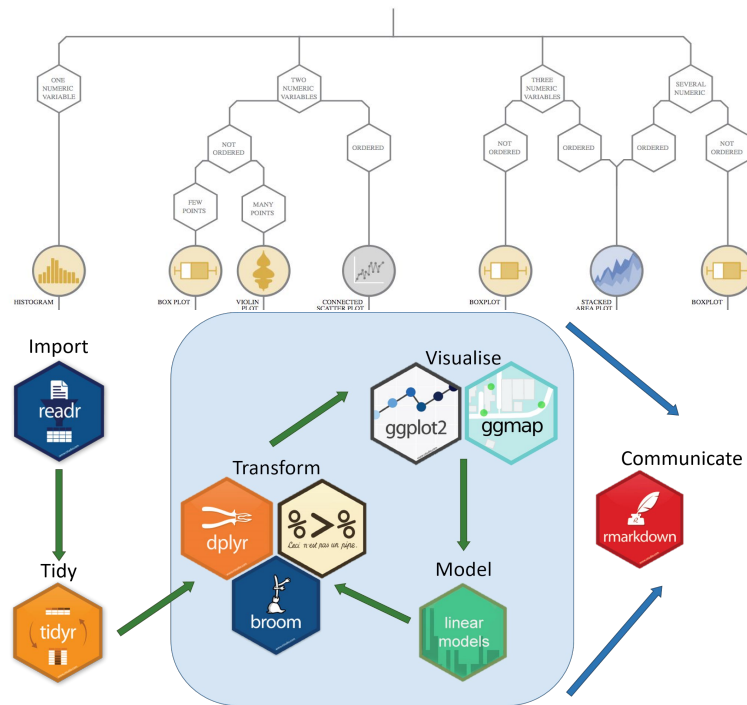
Categoric

Num & Cat

Maps

Network


Time series



DENDROGRAM


# Presentation Materials

<https://github.com/rladies-aurora>

 rladies-aurora

Search Type to search

[Overview](#) [Repositories 5](#) [Discussions](#) [Projects](#) [Packages](#) [Teams](#) [People 4](#) [Settings](#)



## R-Ladies Aurora







12 followers <https://github.com/rladies-aurora> <https://meetup.com/rladies-aurora> <https://bit.ly/rladies-aurora-discord>

### Repositories

Find a repository... Type Language Sort New







**202409-dataviz\_intro** Public

Forked from [rladies-eastlansing/2019-workshop-dataviz](#)  
Intro to Data Visualization w/ R | Sep 17, 2024 @RLadiesAurora







 0  0  MIT  2  0  0 Updated now

**202410-dataviz2.0** Public


Forked from [rladies-eastlansing/2020-dataviz2.0](#)  
DataViz 2.0 | Fall 2024 workshop | @RLadiesAurora

 HTML  0  MIT  1  0  0 Updated 18 hours ago

**20240725-kickoff** Public

 HTML  0  MIT  0  0  0 Updated on Jul 25

# Intro | Meet & Greet

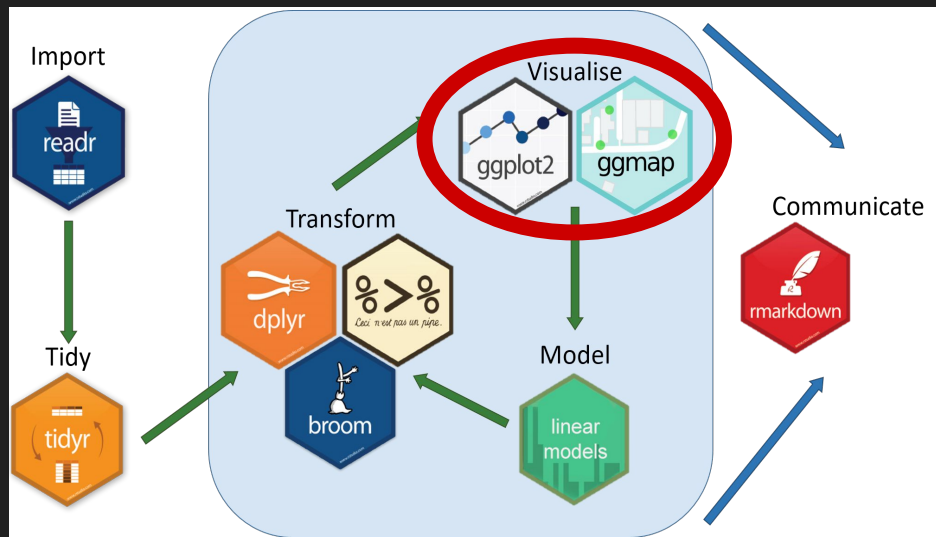
- Pizza + Sign-up 
- Familiar w/ R and ggplot? → *Shuffle*
- Introduce yourself to your neighbor
- Who you are | Name, affiliation
- Do you have the same version of R (4.0+), RStudio & Tidyverse?
  - NO? Installation time!
    - <https://rstudio-education.github.io/hopr/starting.html>
- Need help? **Red sticky up! All set: Green!**





# Tidy Data → Data Viz

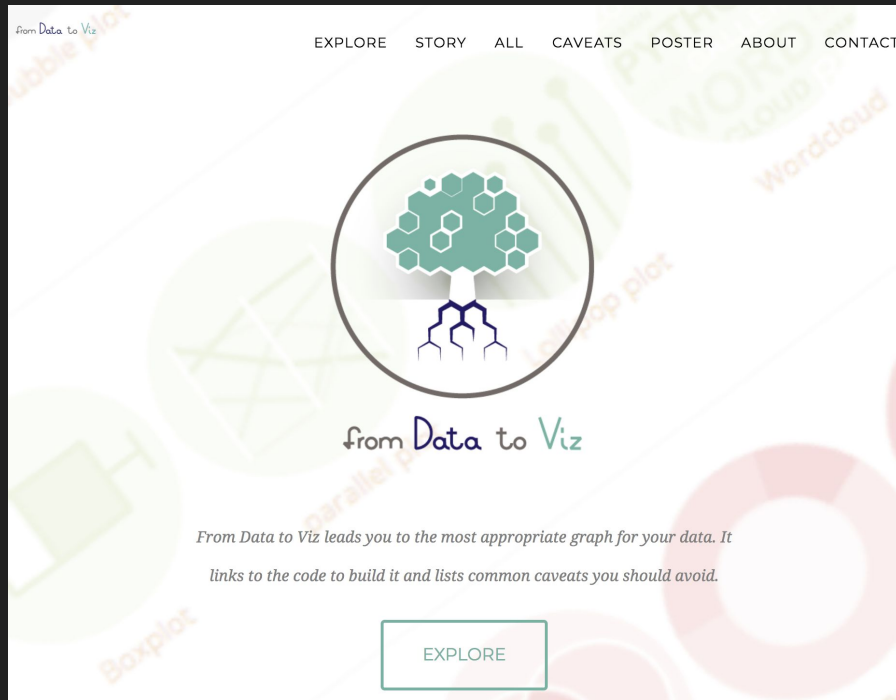
- Install Tidyverse
  - Book by Wickham & Grolemund, R4DS
    - Chapter 3 on DataViz
- <https://r4ds.had.co.nz/>



# #1: Data to Viz

[data-to-viz.com](https://data-to-viz.com)

*Identify the most appropriate graph for your data!*



# #1: Data to Viz | Pick your data type

[data-to-viz.com](https://data-to-viz.com)

What kind of data do you have? Pick the main type using the buttons below.

Then let the decision tree guide you toward your graphic possibilities.

Numeric

Categoric

Num & Cat

Maps

Network

Time series

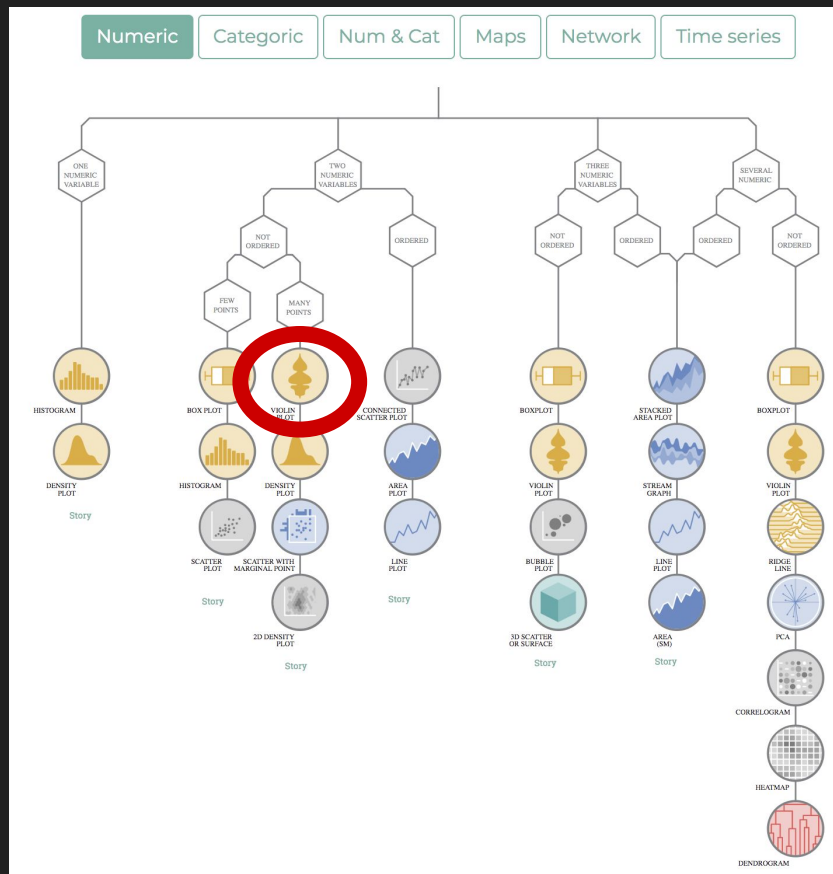


# #1: Data to Viz | Identify your plot

[data-to-viz.com](https://data-to-viz.com)

e.g. Numeric

- Variables?
- Ordered?
- Number of data points?



# #1: Data to Viz

[data-to-viz.com](https://data-to-viz.com)

- Description
- Appropriateness
- Common mistakes
- Sample code



## VIOLIN

*An alternative to boxplot to compare the distribution of several groups.*

### About

Violinplots allow to visualize the distribution of a numeric variable for one or several groups. It is really close from a [boxplot](#), but allows a deeper understanding of the distribution.

Violins are particularly adapted when the amount of data is huge and showing individual observations gets impossible.

### Common Mistakes

- If you have just a few groups, you are probably interested by [ridgeline charts](#).
- If you compare groups with very different sample size, [show it](#).
- [Ordering groups](#) by median value makes the chart more insightful.

### Code

[R graph gallery](#)

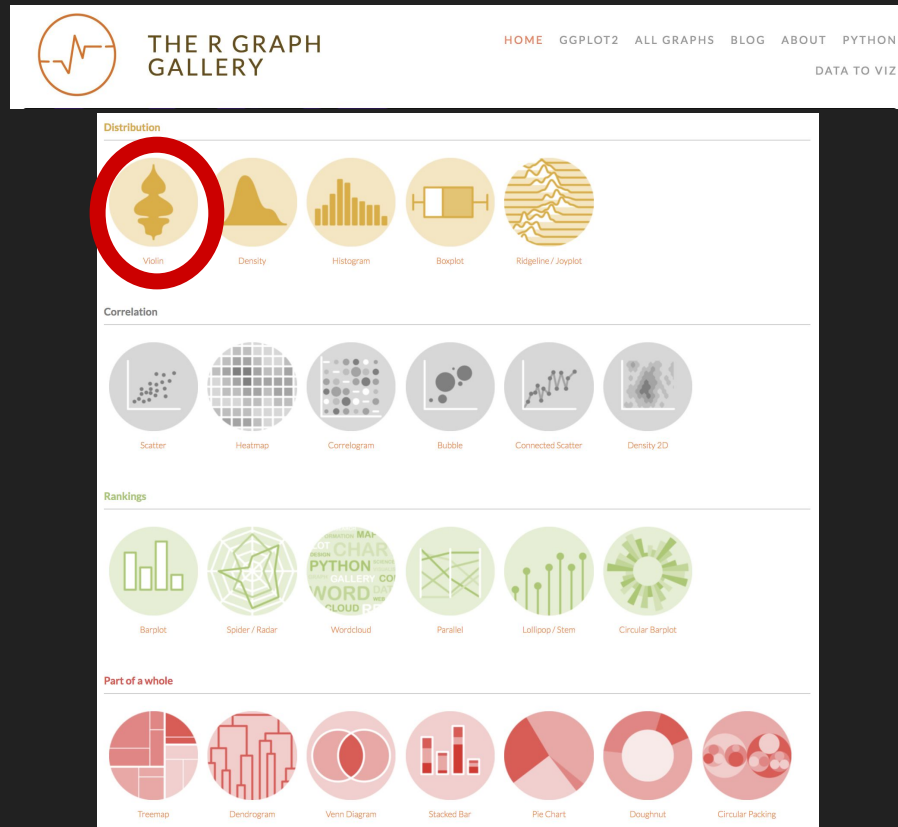
[Python gallery](#)



# #2: R Graph Gallery

[r-graph-gallery.com](http://r-graph-gallery.com)

- Sample codes, plots w/ customizations
- Caveats & pointers





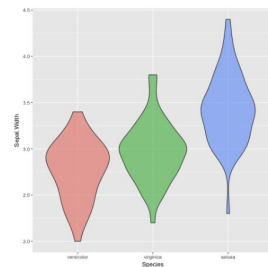
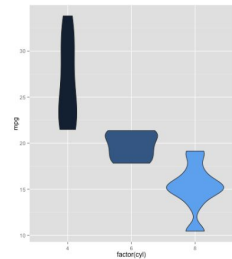
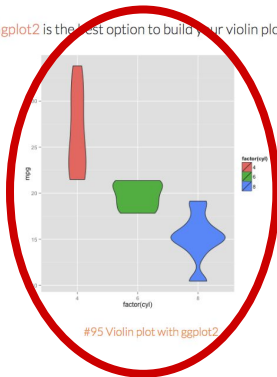
# #2: R Graph Gallery

[r-graph-gallery.com](http://r-graph-gallery.com)

- Sample codes, plots w/ customizations
- Caveats & pointers

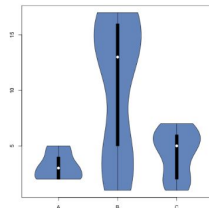
## Ggplot2

Ggplot2 is the best option to build your violin plot. It provides the `geom_violin()` utility that automatically builds it.



## BaseR

If you want to stick to baseR, the `vioplot` library will allow you to build your violin plot.

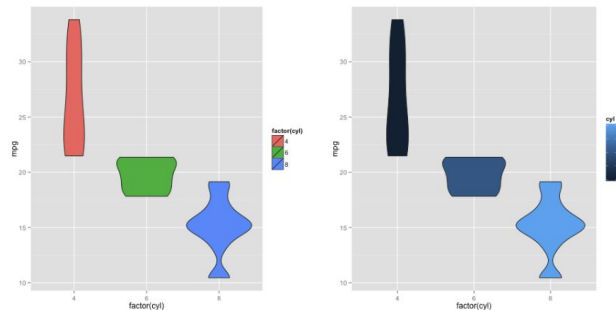


# #2: R Graph Gallery

[r-graph-gallery.com](http://r-graph-gallery.com)

- Sample codes, plots w/ customizations
- Caveats & pointers

#95 VIOLIN PLOT WITH GGPLOT2



A violin plot is a method of plotting numeric data. It is a boxplot with a rotated kernel density plot on each side.

It is also possible to draw this kind of plot without ggplot2: see the [graph #94](#) !

```
# Library
library(ggplot2)

# mtcars data
head(mtcars)

# First type of color
ggplot(mtcars, aes(factor(cyl), mpg)) +
  geom_violin(aes(fill = cyl))

# Second type
ggplot(mtcars, aes(factor(cyl), mpg)) +
  geom_violin(aes(fill = factor(cyl)))
```



# More of a Pythonista?

[python-graph-gallery.com](https://python-graph-gallery.com)



THE PYTHON  
GRAPH GALLERY



Demo time!

