

# GGPlot2 ch 3 Powerpoint

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9/18/2021

## Layers: Introduction

- ▶ Based on the Grammar of Graphics, GGplot2 encourages you to build plots in a structured manner building upon on your plots with various layers.
- ▶ The purposes of the layers are:
- ▶ to display the **data**.
- ▶ to display a **statistical summary** of the data.
- ▶ to add **metadata** such as context, annotations or references to your plot.

## Layers: Chapters

The section on layers is broken up into the following chapters:

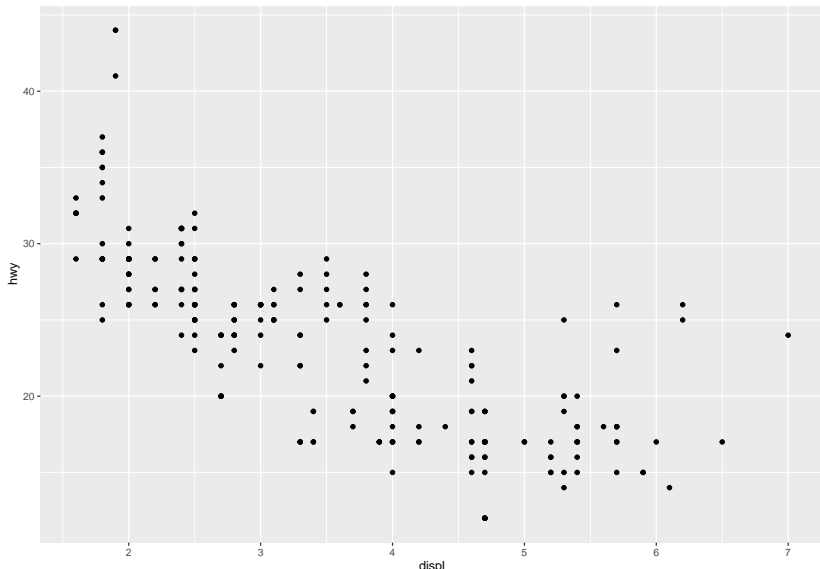
- ▶ Chapter 3. Individual Geoms
- ▶ Chapter 4. Collective geoms
- ▶ Chapter 5. Statistical Summaries
- ▶ Chapter 6. Maps
- ▶ Chapter 7. Networks
- ▶ Chapter 8. Annotations
- ▶ Chapter 9. Arranging plots

## Chapter 3: Individual geoms

- ▶ Geoms are the fundamental building blocks of ggplot2.
- ▶ Most of the geoms are associated with a named plot.
- ▶ Some geoms can be added on to low-level geoms to create more complex plots.
- ▶ To find out more about individual geoms see their documentation.

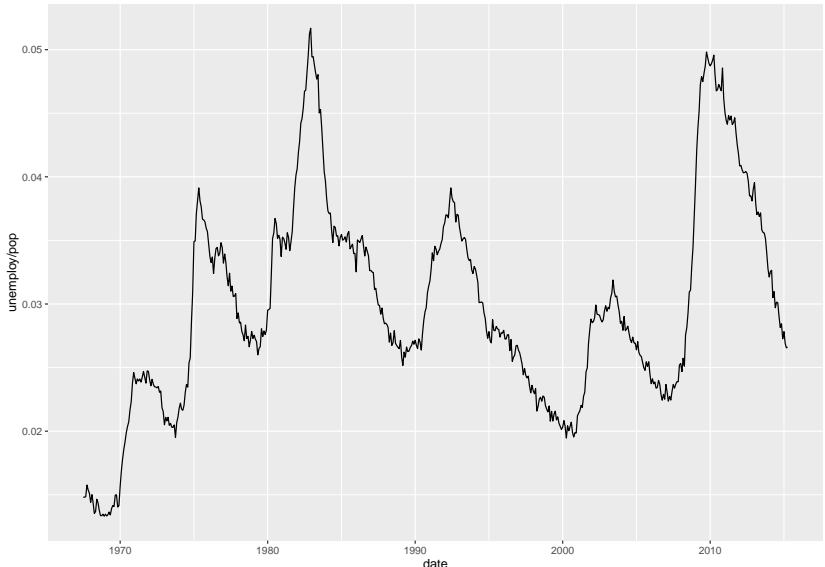
## Scatterplot:

```
ggplot(mpg, aes(x = displ, y = hwy)) +  
  geom_point()
```



## Line plot:

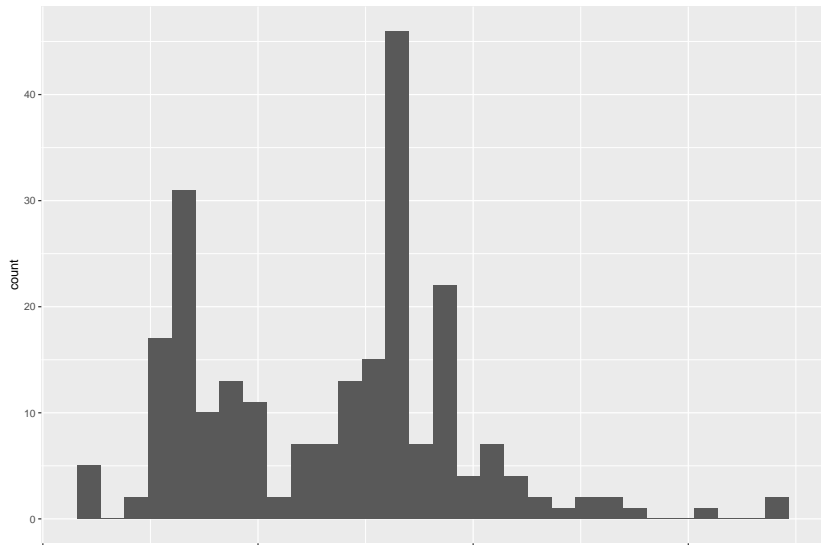
```
ggplot(economics, aes(date, unemploy / pop)) +  
  geom_line()
```



## Histogram:

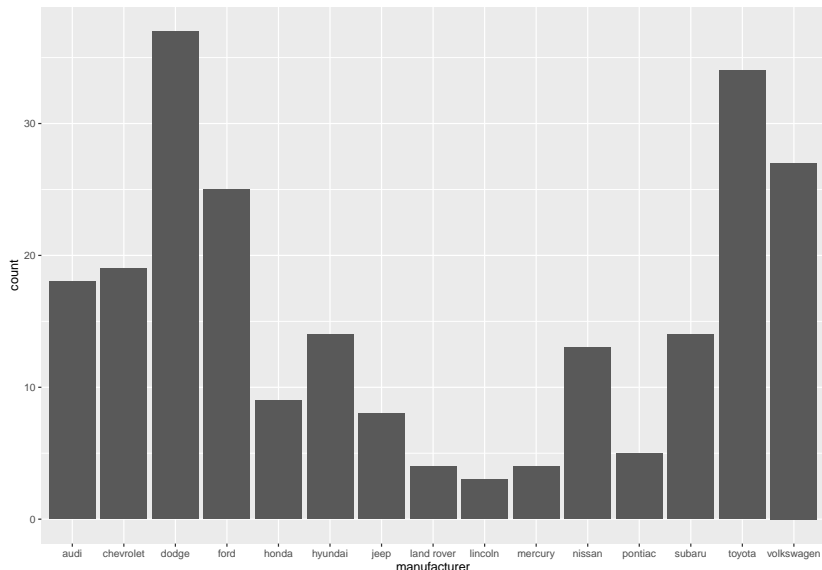
```
ggplot(mpg, aes(hwy)) + geom_histogram()
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `
```



## Bar chart

```
ggplot(mpg, aes(manufacturer)) +  
  geom_bar()
```

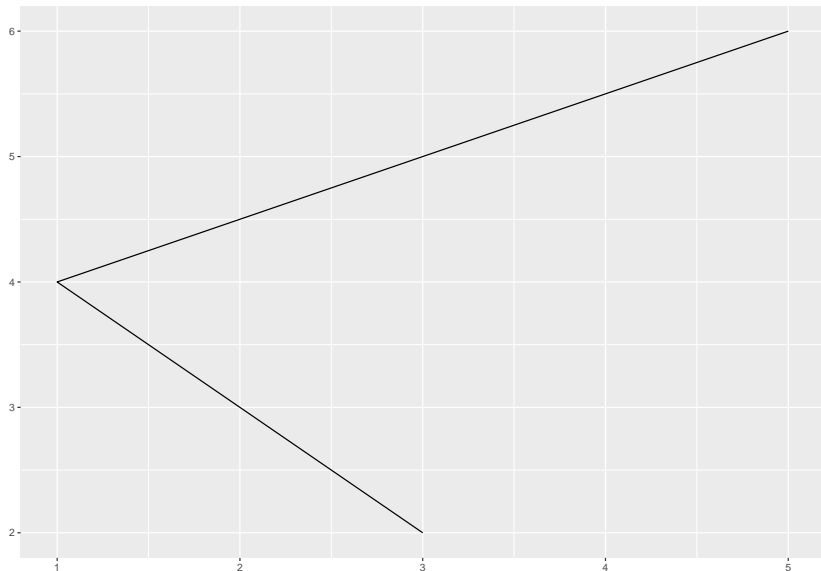




## Pie chart

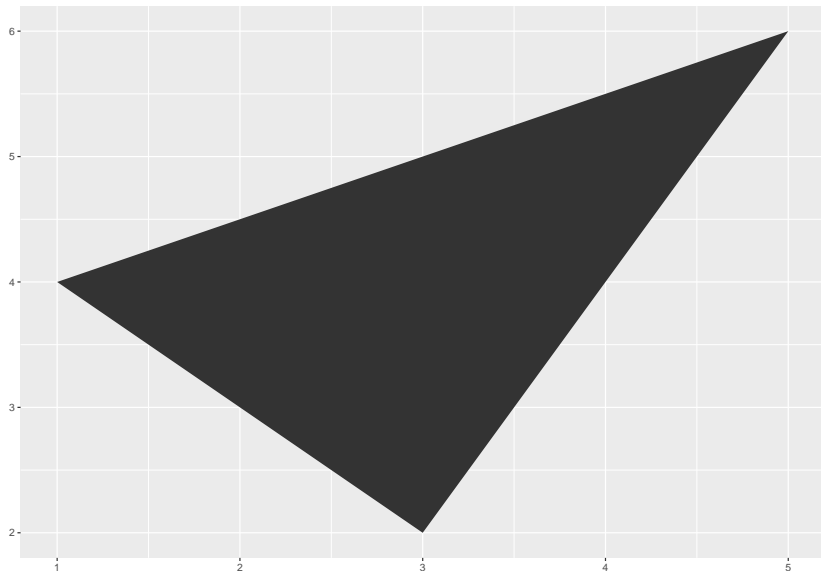
`geom_path()` connects points in order of appearance.

```
p + geom_path()
```



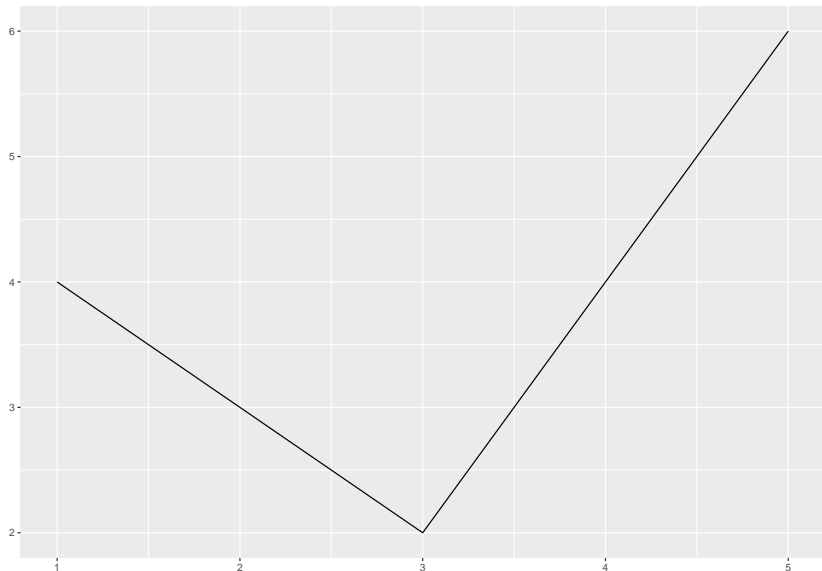
`geom_polygon()` draws polygons which are filled paths.

```
p + geom_polygon()
```



`geom_line()` connects points from left to right.

```
p + geom_line()
```

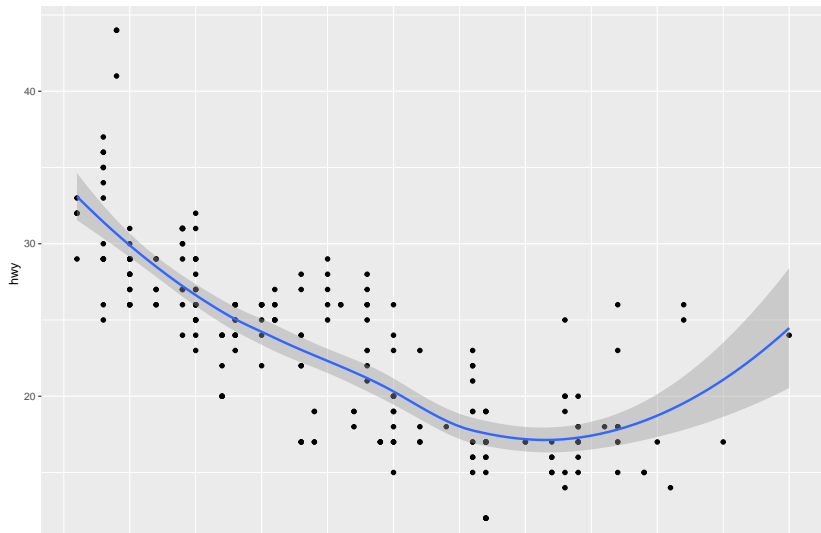


## What low-level geoms are used to draw `geom_smooth()`?

`Geom_smooth()` fits a smoother to data, displaying the smooth and its standard error, allowing you to see a dominant pattern within a scatterplot with a lot of “noise”. The low level geom for `geom_smooth()` is `geom_point()`.

```
ggplot(mpg, aes(displ, hwy)) +  
  geom_point() +  
  geom_smooth()
```

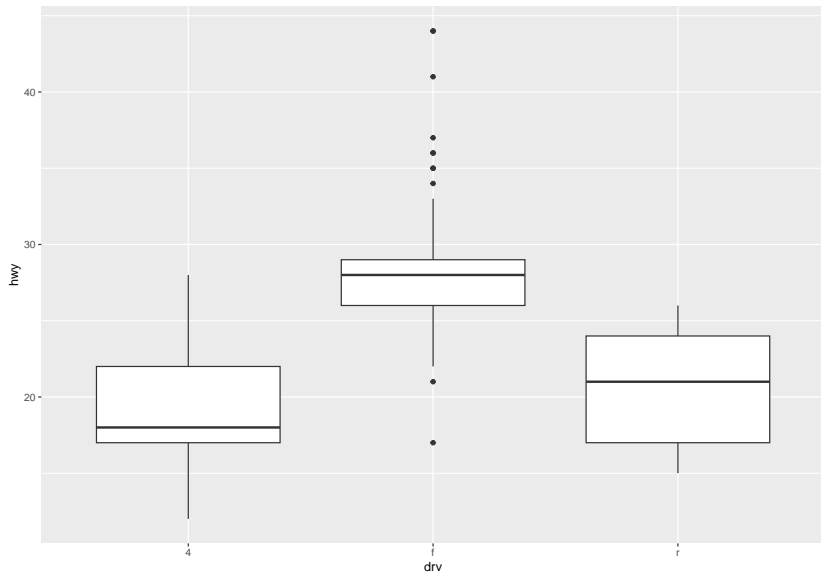
## `geom\_smooth()` using method = 'loess' and formula = 'y



What low-level geoms are used to draw `geom_boxplot()`?

Box plots are used to summarize the distribution of a set of points using summary statistics. The low level geom for `geom_boxplot()` is `geom_point()`.

```
ggplot(mpg, aes(drv, hwy)) + geom_boxplot()
```





What low-level geoms are used to draw `geom_violin()`?

Violin plots show a compact representation of the density of the distribution highlighting the areas where most of the points are found. The low level geom for `geom_violin()` is `geom_point()`.

```
ggplot(mpg, aes(drv, hwy)) + geom_violin()
```

