

Data Visualization

Tyler Kephart

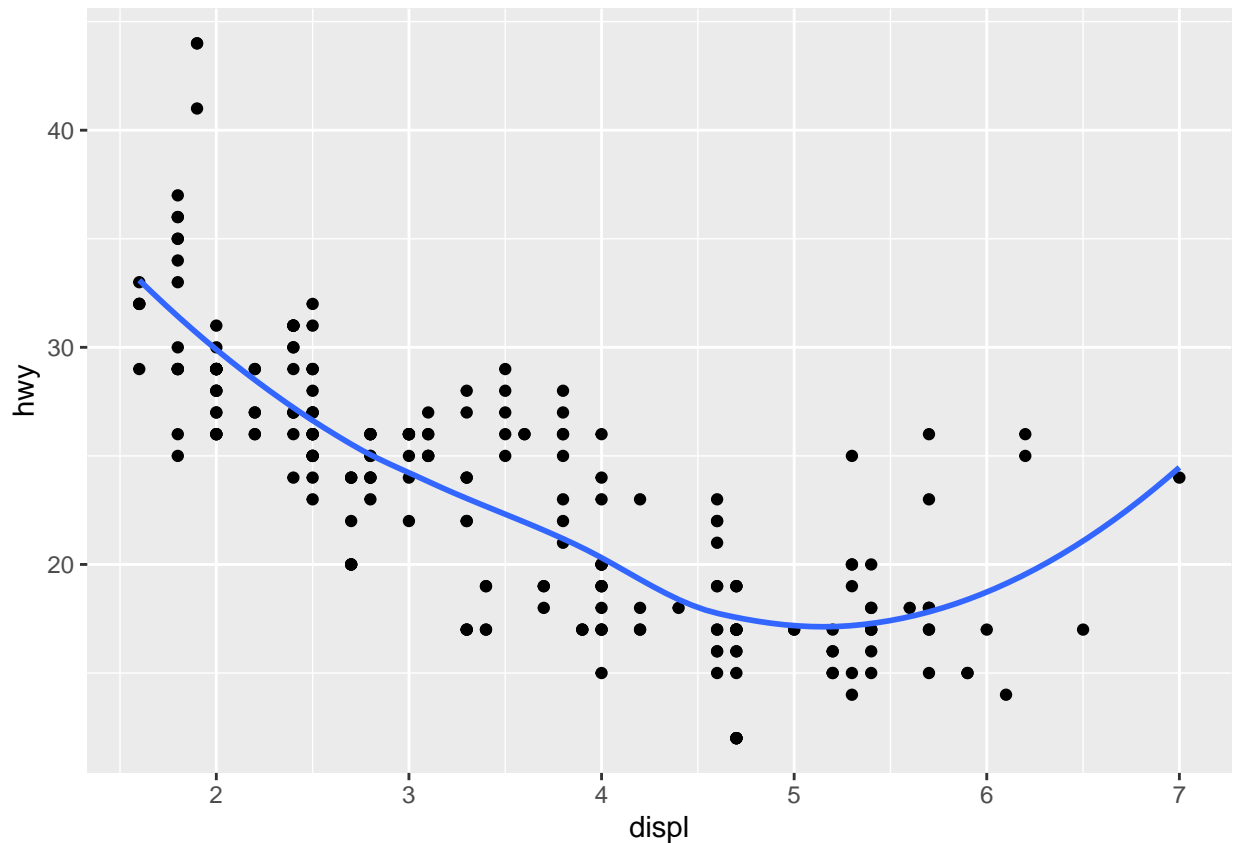
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The instructions say to use the *mtcars* dataset but the graphs show the data and labels from the *mpg* dataset. Therefore, I will use *mpg* dataset to best match the graphs provided in the instructions.

Question 1. Using the ~~mtcars~~ *mpg* data set and ggplot2, recreate the following graph.

```
# name plot of displ to hwy to reuse in q2 and q3, hence name q123
q123 <- ggplot(data = mpg, mapping = aes(x = displ, y = hwy))
# adding plot points and smoothed mean line without confidence interval (se)
q123 + geom_point() + geom_smooth(se = FALSE)
```

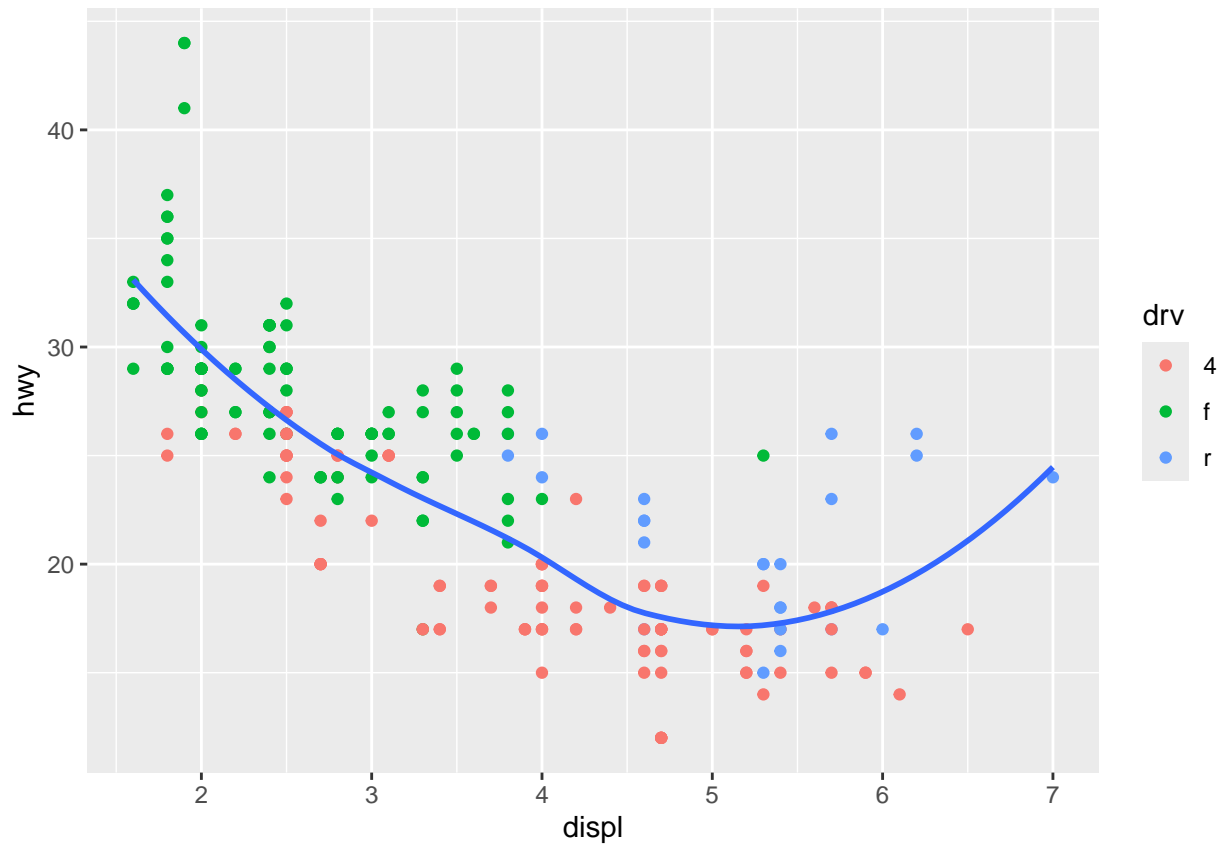
```
## 'geom_smooth()' using method = 'loess' and formula = 'y ~ x'
```



Question 2. Using the `mtcars` `mpg` data set and `ggplot2`, recreate the following graph.

```
# same plot from q1 but with color mapped to drv
q123 + geom_point(mapping = aes(color = drv)) +
  geom_smooth(se = FALSE)
```

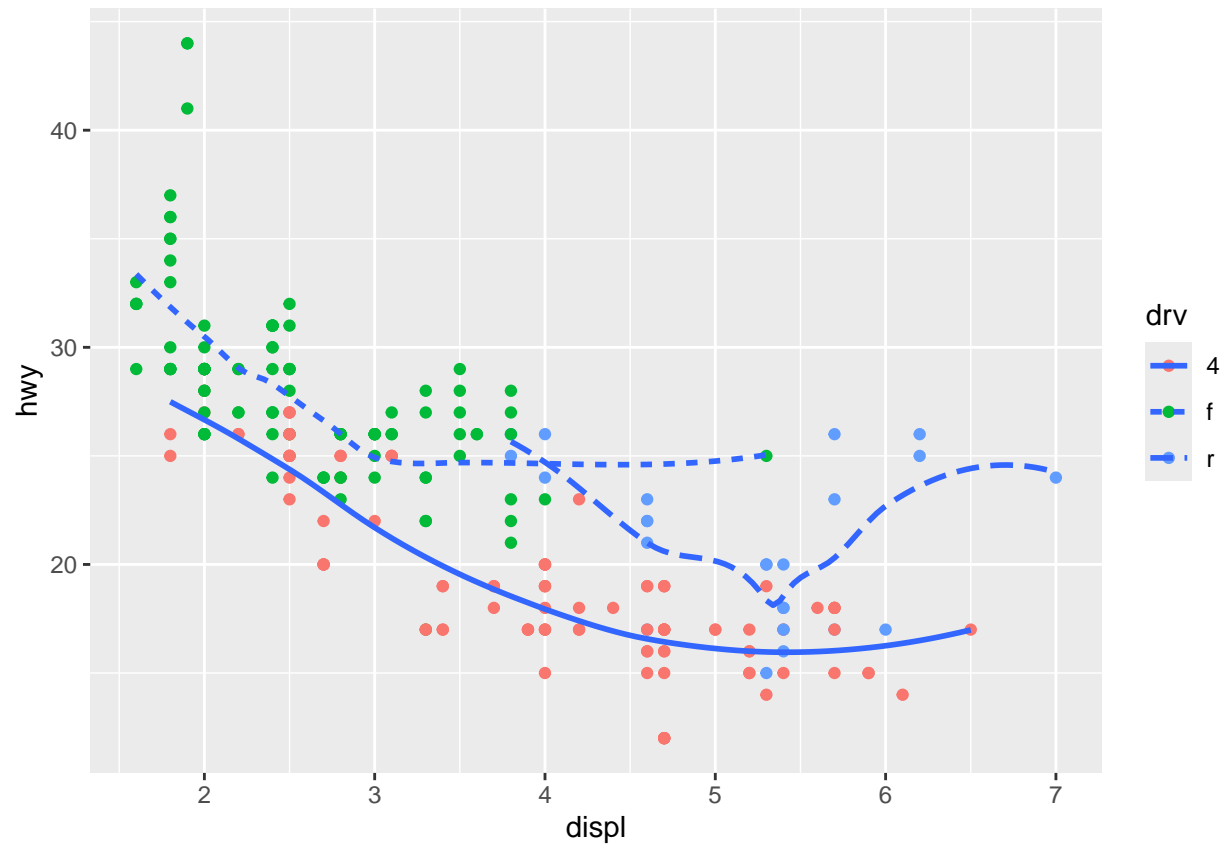
```
## 'geom_smooth()' using method = 'loess' and formula = 'y ~ x'
```



Question 3. Using the `mtcars` `mpg` data set and `ggplot2`, recreate the following graph.

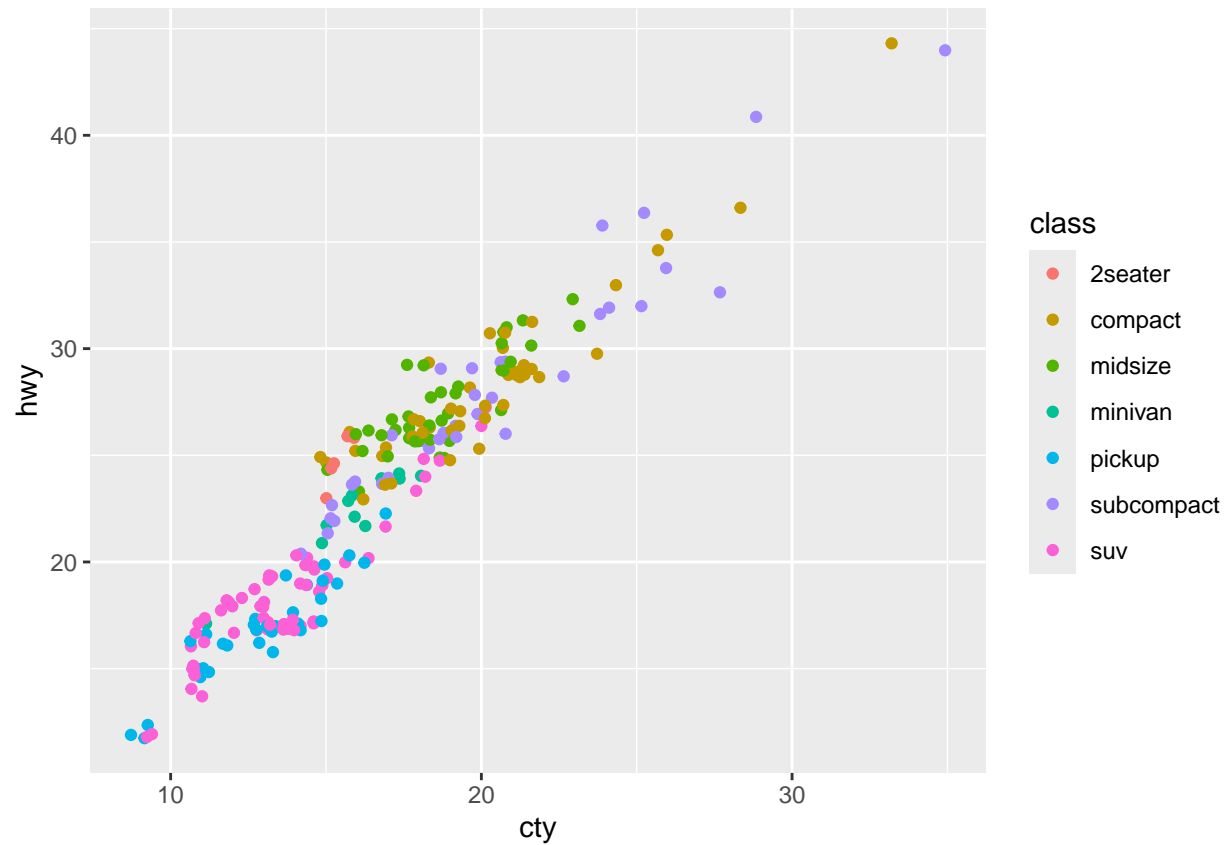
```
# same plot as q2 but with linetypes for drv
q123 + geom_point(mapping = aes(color = drv)) +
  geom_smooth(mapping = aes(linetype = drv), se = FALSE)
```

```
## 'geom_smooth()' using method = 'loess' and formula = 'y ~ x'
```



Question 4. Using the `mtcars` `mpg` data set and `ggplot2`, recreate the following graph.

```
# plot cty to hwy mileage points and color on class and jitter them
ggplot(data = mpg, mapping = aes(x = cty, y = hwy)) +
  geom_point(mapping = aes(color = class), position = "jitter")
```



Question 5. Using the `mtcars` `mpg` data set and `ggplot2`, recreate the following graph.

```
# plot hwy to cyl points as orange triangles and facet on class into 3 rows
ggplot(data = mpg, mapping = aes(x = hwy, y = cyl)) +
  geom_point(shape = 17, color = "orange") +
  facet_wrap(~class, nrow=3)
```

