

CT1100: Computer Systems

Topic 4: ggplot2 part 2

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Topic 4 – Using aesthetics and facets in ggplot2

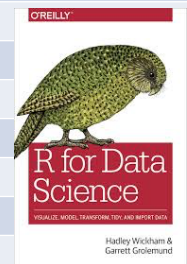
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Topics to be Covered (R)

Topic	Description
1	Introduction to R and R Studio Cloud
2	A program in R
3	The tibble – a way of storing information
4	Data Visualisation I
5	Data Transformation I
6	Running a Script in R
7	Data Visualisation II
8	Data Transformation II
9	Exploring Data
10	Communicating Results



<https://r4ds.had.co.nz>



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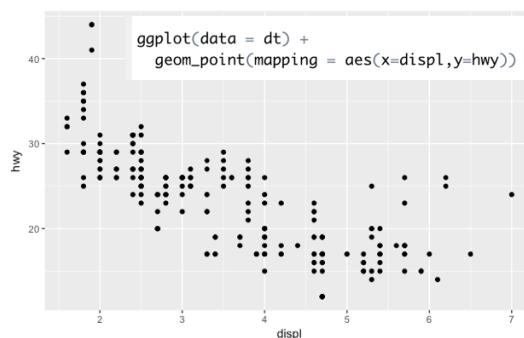
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Summary of last week...

```
> dt
# A tibble: 234 x 11
  manufacturer model displ year cyl trans drv cty hwy fl class
  <chr>         <chr> <dbl> <int> <int> <chr> <chr> <int> <int> <chr> <chr>
1 audi         a4      1.8  1999   4 auto(l5) f  18  29 p compact
2 audi         a4      1.8  1999   4 manual(m5) f  21  29 p compact
3 audi         a4      2.0  2008   4 manual(m6) f  20  31 p compact
4 audi         a4      2.0  2008   4 auto(av) f  21  30 p compact
5 audi         a4      2.8  1999   6 auto(l5) f  16  26 p compact
```



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(1) Aesthetic Mappings

“The greatest value of a picture is when it forces us to notice what we never expected to see” – John Tukey

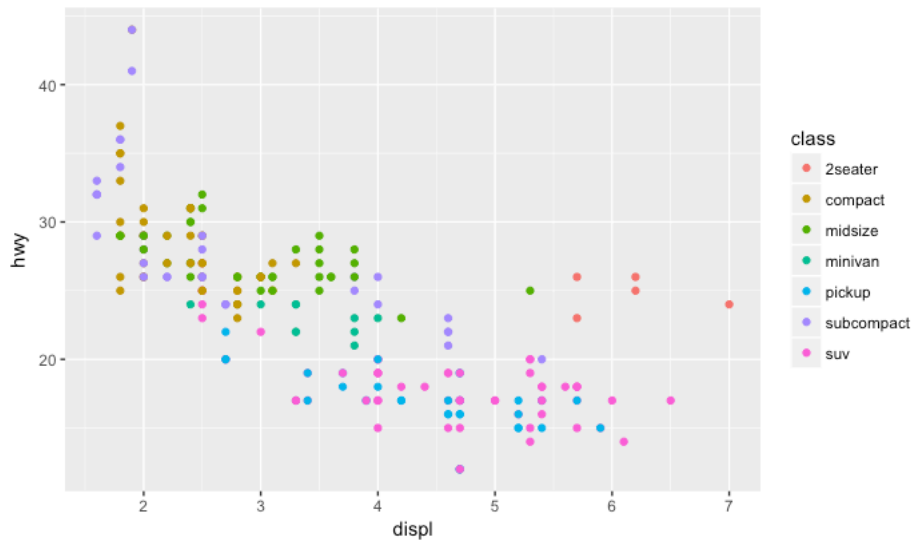
```
> unique(dt$class)
[1] "compact" "midsize" "suv" "2seater" "minivan"
[6] "pickup" "subcompact"
```

- A third variable can be added to a 2-D plot by mapping it to an aesthetic.
- An aesthetic is a visual property of the plot's objects.
- An aesthetic's *level* could be:
 - colour
 - size
 - shape.



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```
ggplot(data = dt) +  
  geom_point(mapping = aes(x=displ,y=hwy,colour=class))
```



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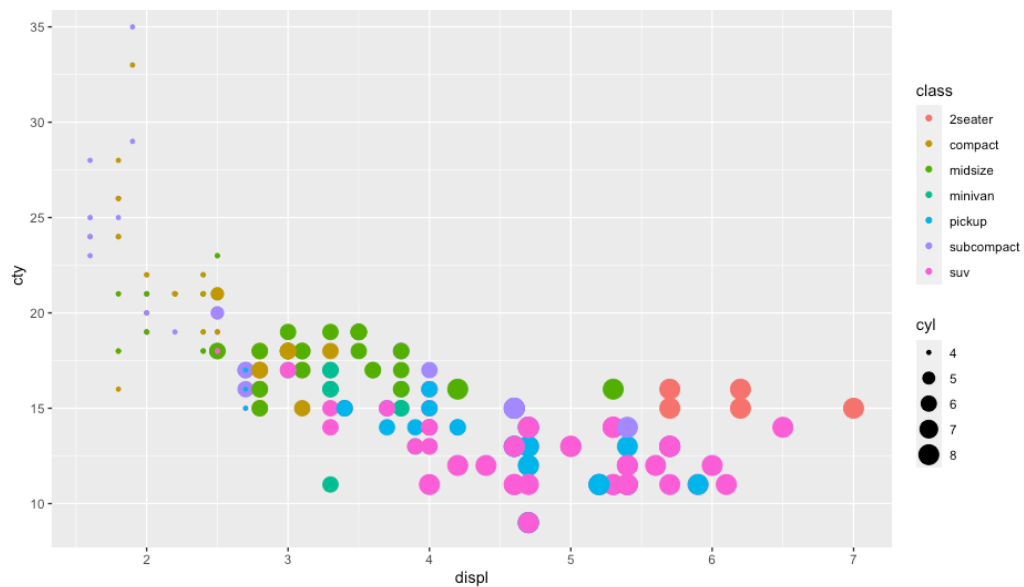
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```
ggplot(data=mpg, aes(x=displ,y=cty,colour=class,size=cyl))+  
  geom_point()
```



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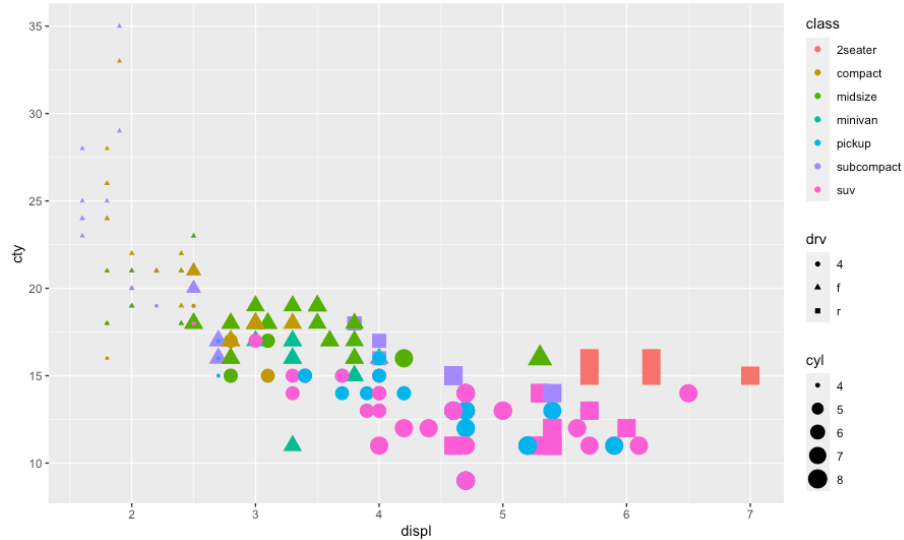
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```
ggplot(data=mpg, aes(x=displ,y=cty,colour=class,size=cyl,shape=drv))+
  geom_point()
```



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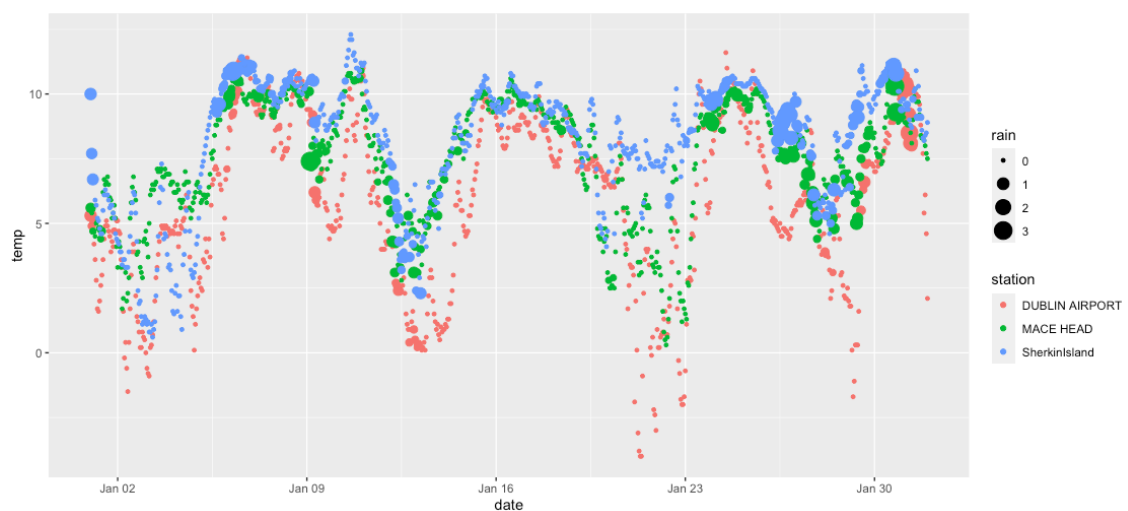
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Challenge 4.1

- Generate the following graph from aimsir17.



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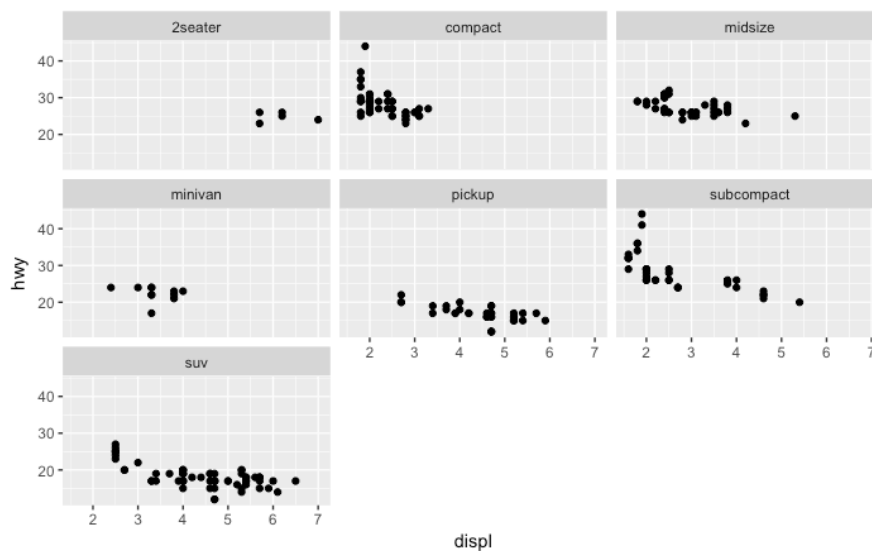
(2) Facets

- Another way to add categorical variables is to split a plot into facets, subplots that display one subset of the data.
- To facet your plot by a single variable, use `facet_wrap()`
- To facet your plot by two variable use `facet_grid()`



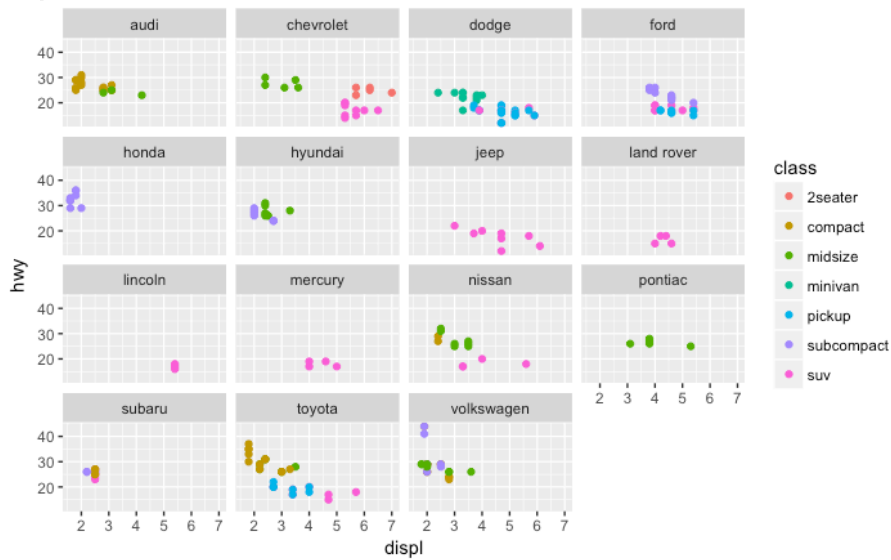
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```
ggplot(data = dt) +  
  geom_point(mapping = aes(x=displ,y=hwy)) + facet_wrap(~class)
```



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```
ggplot(data = dt) +
  geom_point(mapping = aes(x=displ,y=hwy,colour=class)) +
  facet_wrap(~manufacturer)
```



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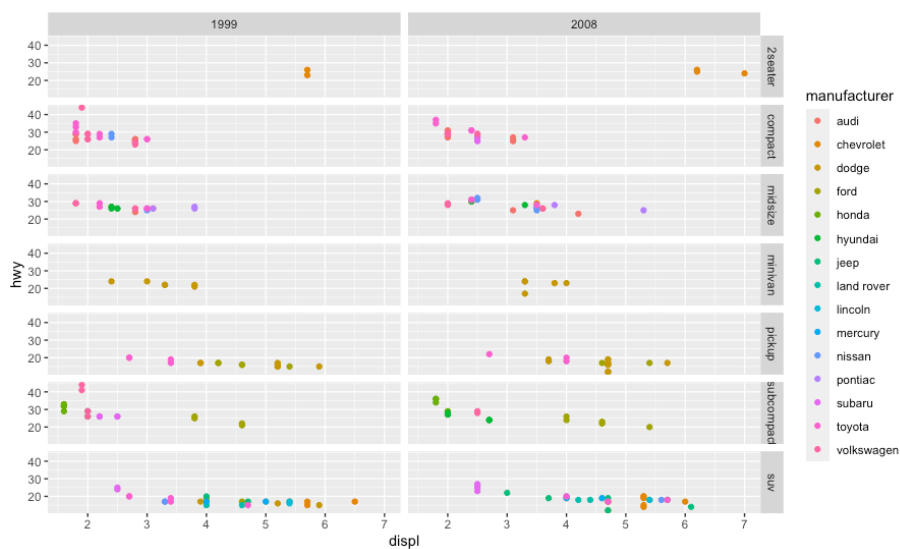
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```
ggplot(data=mpg, aes(x=displ,y=hwy,colour=manufacturer))+
  geom_point()+facet_grid(class~year)
```



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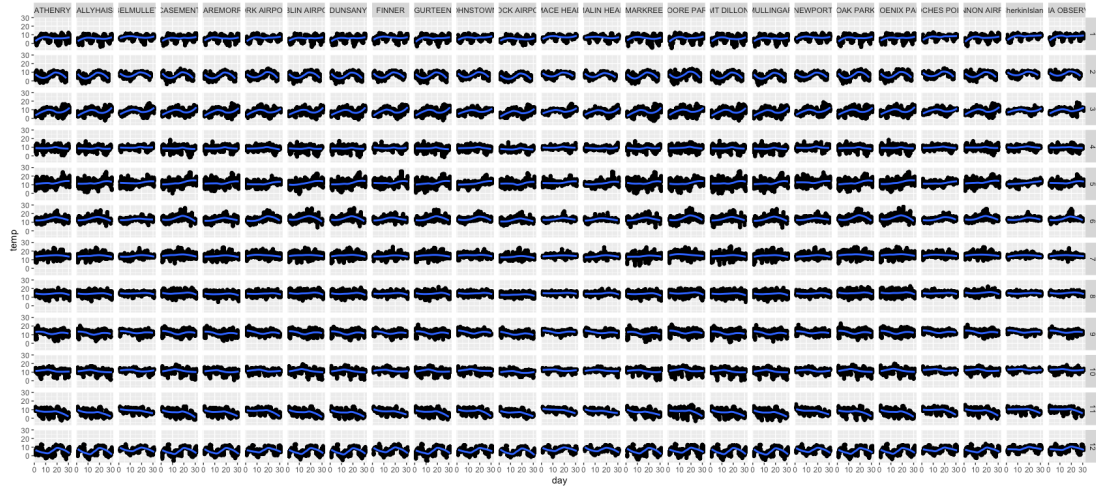
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Challenge 4.2

Generate the following graph from aimsir17.



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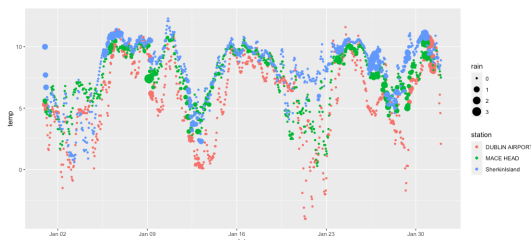
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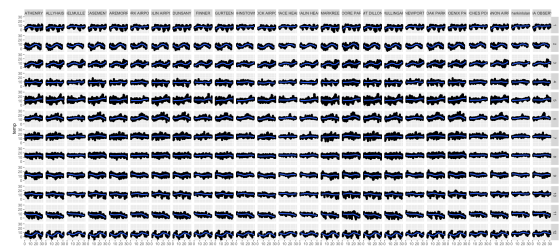
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Lecture 4 - Summary

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- Adding colour, size, shapes to data points
- Using facet feature: wrap and grid



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