hw6

2023-05-11

```
library(tidyverse)

## ── Attaching core tidyverse packages ───────────────────────── tidyverse
2.0.0 ──
## ✓ dplyr     1.1.2     ✓ readr     2.1.4
## ✓ forcats   1.0.0     ✓ stringr   1.5.0
## ✓ ggplot2   3.4.2     ✓ tibble    3.2.1
## ✓ lubridate 1.9.2     ✓ tidyr     1.3.0
## ✓ purrr     1.0.1
## ── Conflicts ──────────────────────────────────────────────
tidyverse_conflicts() ──
## ✗ dplyr::filter() masks stats::filter()
## ✗ dplyr::lag()    masks stats::lag()
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all
conflicts to become errors

library(ggpubr)
library(rstatix)

##
## Attaching package: 'rstatix'
##
## The following object is masked from 'package:stats':
##
##     filter
```

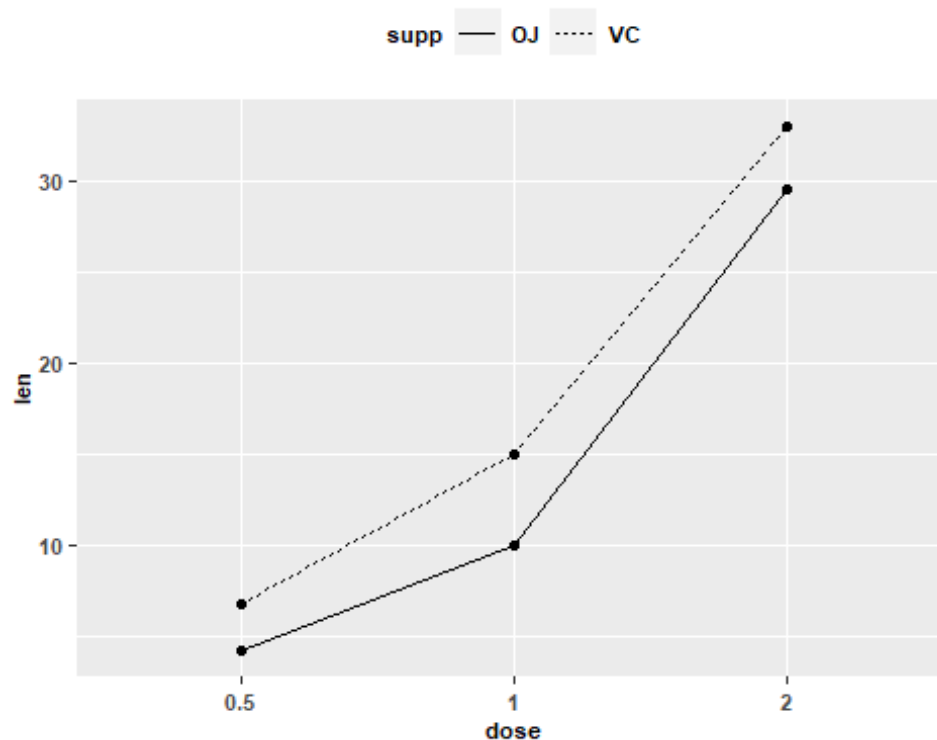## Question 1

```
df2 <- data.frame(supp=rep(c("VC", "OJ"), each=3),
                  dose=rep(c("0.5", "1", "2"),2),
                  len=c(6.8, 15, 33, 4.2, 10, 29.5))
head(df2)

##   supp dose  len
## 1   VC  0.5  6.8
## 2   VC    1 15.0
## 3   VC    2 33.0
## 4   OJ  0.5  4.2
## 5   OJ    1 10.0
## 6   OJ    2 29.5

ggplot(df2, aes(x=dose, y=len, group=supp)) + geom_line(aes(linetype=supp)) +
  geom_point() + theme(legend.position="top", axis.title = element_text(face
= "bold", size=8), axis.text = element_text(face = "bold", size=8),
```

```
legend.title=element_text(face = "bold",
size=8),legend.text=element_text(face = "bold", size = 8))
```

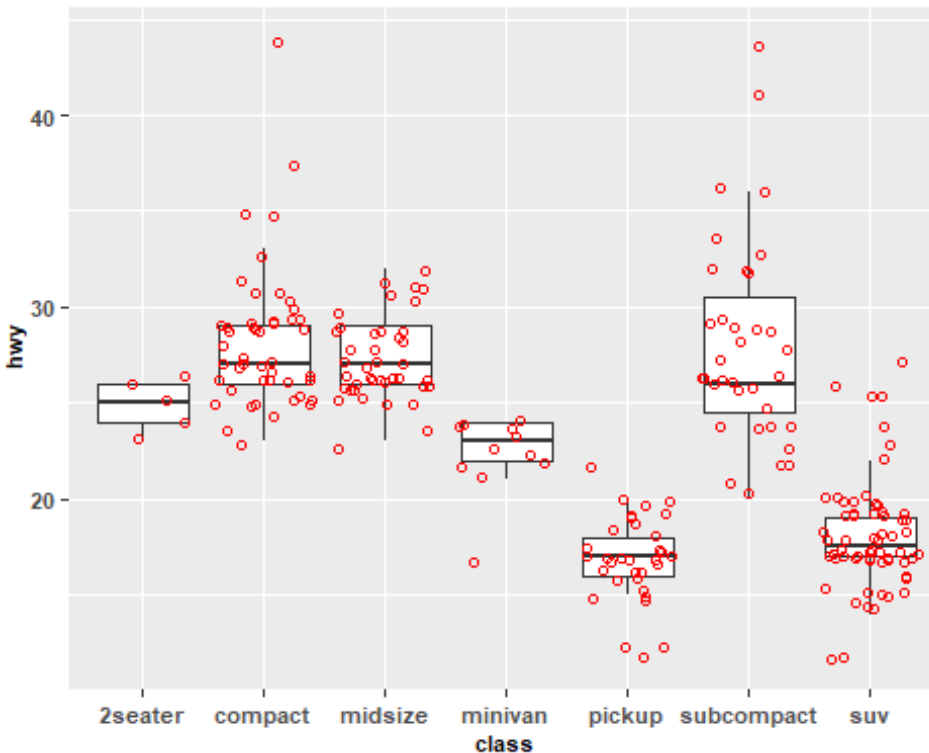*#changed legend text from blank, changed the postion and adjusted axis text size*

Question 2
```
glimpse(mpg)

## Rows: 234
## Columns: 11
## $ manufacturer <chr> "audi", "audi", "audi", "audi", "audi", "audi",
"audi", "…
## $ model        <chr> "a4", "a4", "a4", "a4", "a4", "a4", "a4", "a4
quattro", "…
## $ displ        <dbl> 1.8, 1.8, 2.0, 2.0, 2.8, 2.8, 3.1, 1.8, 1.8, 2.0,
2.0, 2.…
## $ year         <int> 1999, 1999, 2008, 2008, 1999, 1999, 2008, 1999, 1999,
200…
## $ cyl          <int> 4, 4, 4, 4, 6, 6, 6, 4, 4, 4, 4, 6, 6, 6, 6, 6, 6, 8,
8, …
## $ trans        <chr> "auto(l5)", "manual(m5)", "manual(m6)", "auto(av)",
"auto…
## $ drv          <chr> "f", "f", "f", "f", "f", "f", "f", "4", "4", "4",
"4", "4…
## $ cty          <int> 18, 21, 20, 21, 16, 18, 18, 18, 16, 20, 19, 15, 17,
17, 1…
```

```
## $ hwy          <int> 29, 29, 31, 30, 26, 26, 27, 26, 25, 28, 27, 25, 25,
25, 2…
## $ fl           <chr> "p", "p", "p", "p", "p", "p", "p", "p", "p", "p",
"p", "p…
## $ class        <chr> "compact", "compact", "compact", "compact",
"compact", "c…
```

```
ggplot(mpg, aes(class, hwy)) + geom_boxplot(outlier.shape = NA) +
geom_jitter(shape=1,color='red') + theme(axis.title = element_text(face =
"bold", size=8), axis.text = element_text(face = "bold", size=8))
```


*#changed geom_point to geom_jitter, changed text size,along with outlier
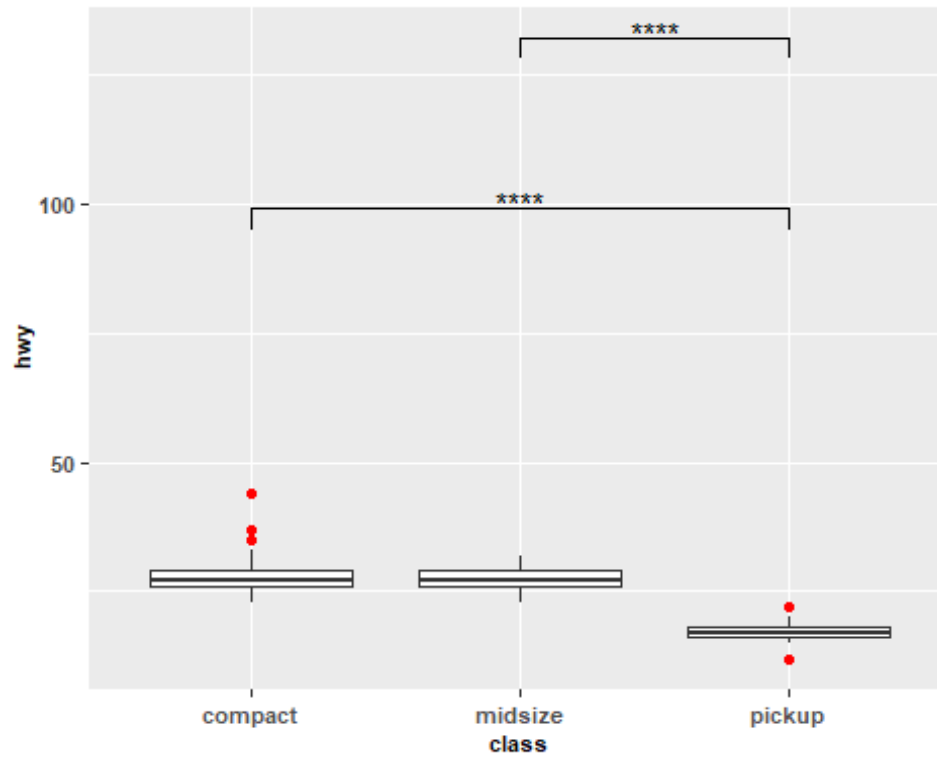shape and color for geom_box plot*

Question 3

```
mpg_sub=mpg %>% filter(class %in% c("compact", "midsize", "pickup"))

mpgsub <- mpg_sub %>%
  pairwise_t_test(
    hwy ~ class, pool.sd = FALSE,
    p.adjust.method = "bonferroni"

  )

mpgsub <- mpgsub %>% add_xy_position(x = "class", step.increase = 1)
```

```
mpg_sub %>% ggplot(aes(class, hwy)) + geom_boxplot(outlier.color="red") +
theme(axis.title = element_text(face = "bold", size=8), axis.text =
element_text(face = "bold", size=8)) +
stat_pvalue_manual(mpgsub,label="p.adj.signif", hide.ns = TRUE)
```


*#added   stat_pvalue_manual to ggplot, changed ttest to paired ttest and made
x=class*