

Base Visuals

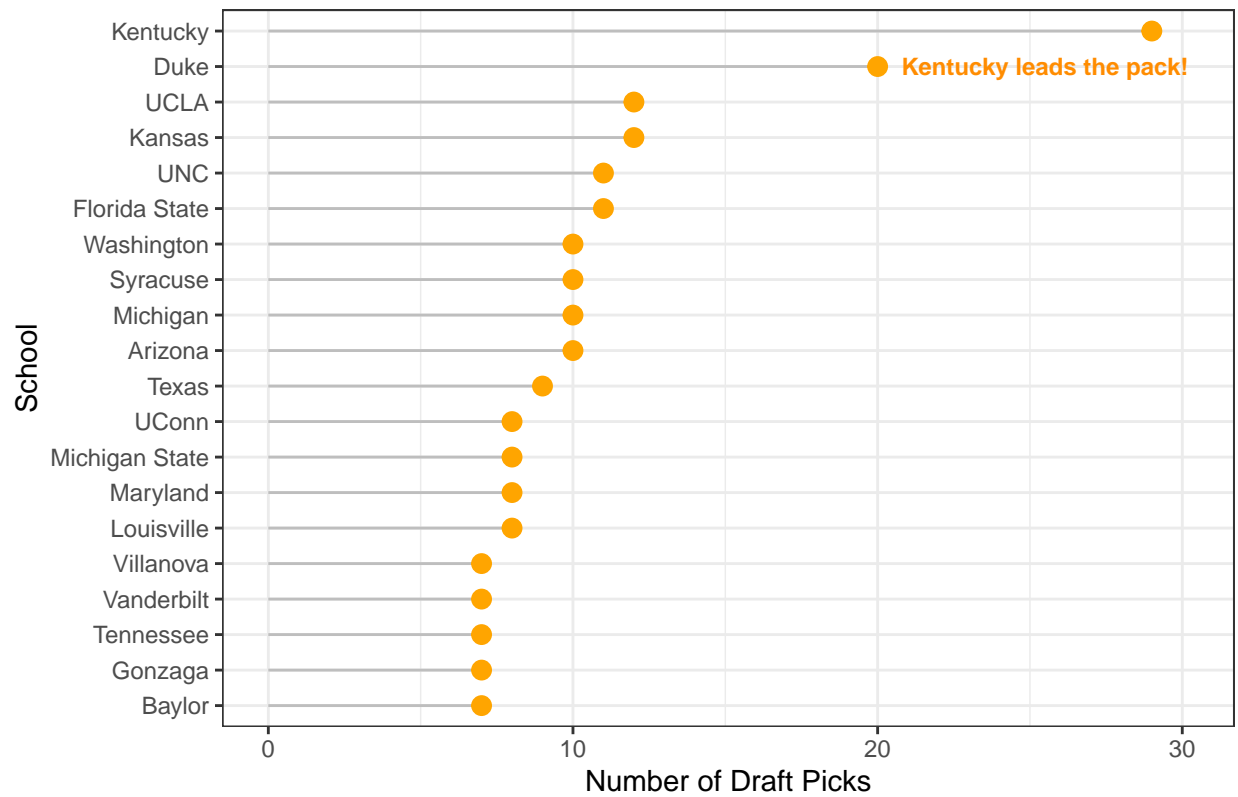
Austin Eaton

4/17/2022

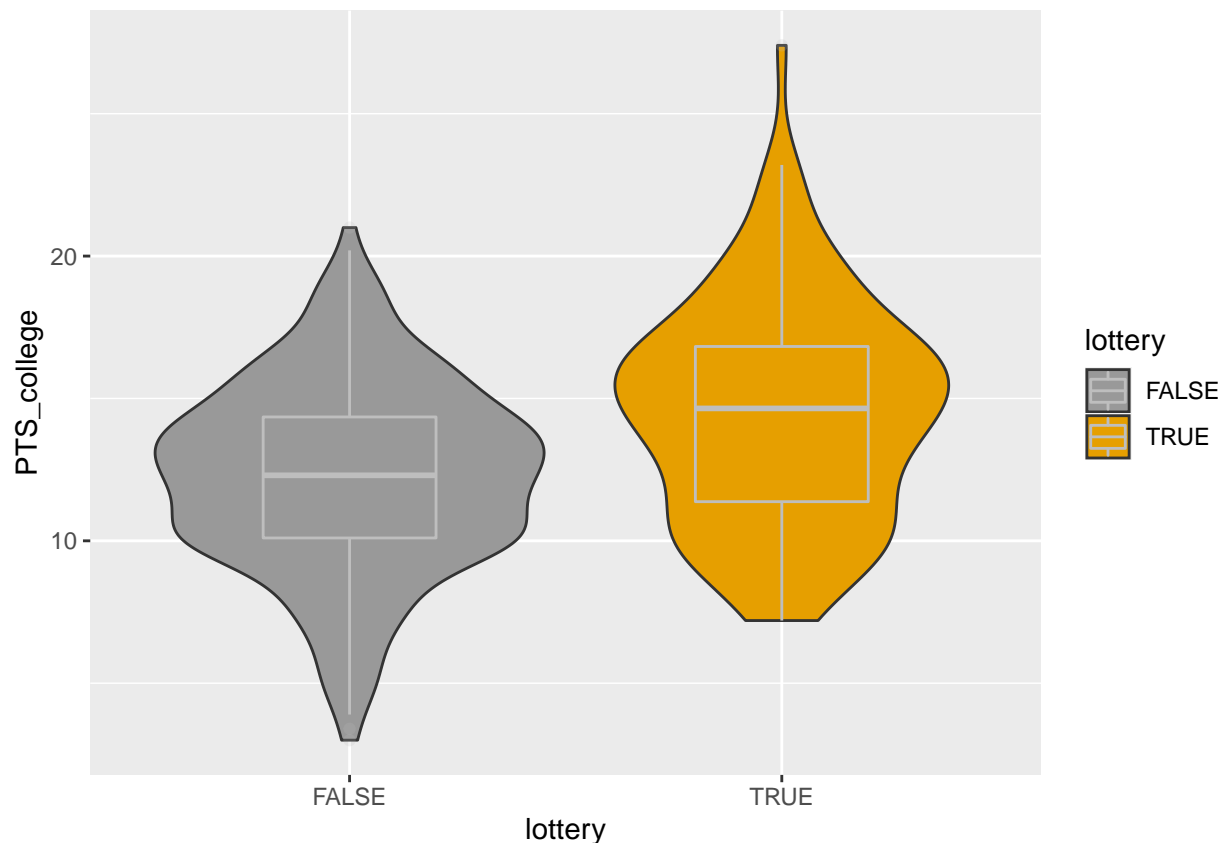
```
# import libraries
library(tidyverse)
library(plyr)
library(GGally)
# import file
df <- read_csv('../NBAdraft.csv')

## Top Schools ----
count(df, 'School') %>%
  arrange(freq) %>%
  tail(n=20) %>%
  mutate(School=factor(School, levels=School)) %>%
  ggplot( aes(x=School, y=freq)) +
  geom_segment(
    aes(x=School, xend=School, y=0, yend=freq),
    color='grey',
    # color=ifelse(School == c("Kentucky"), "orange", "grey"),
    # size=ifelse(School %in% c("Kentucky"), 1.3, 0.7)
  ) +
  geom_point(size = 3, color='orange') +
  coord_flip() +
  theme_bw() +
  xlab("School") +
  ylab("Number of Draft Picks") +
  ggtitle("Where are most draft picks coming from?") +
  annotate("text", x="Duke", y=29+1.2,
    label="Kentucky leads the pack!",
    color='darkorange', size=3, angle=0, fontface="bold", hjust=1)
```

Where are most draft picks coming from?



```
## BOX PLOTS ----
ggplot(df, aes(x=lottery, y=PTS_college, fill=lottery)) +
  geom_violin() +
  geom_boxplot(width=0.4,color="grey", alpha=0.2) +
  scale_fill_manual(values=c("#999999", "#E69F00", "#56B4E9"))
```



```
theme_bw()
```

```
## List of 93
## $ line                                :List of 6
## ..$ colour                          : chr "black"
## ..$ size                            : num 0.5
## ..$ linetype                        : num 1
## ..$ lineend                        : chr "butt"
## ..$ arrow                          : logi FALSE
## ..$ inherit.blank                  : logi TRUE
## .. attr(*, "class")= chr [1:2] "element_line" "element"
## $ rect                                :List of 5
## ..$ fill                            : chr "white"
## ..$ colour                          : chr "black"
## ..$ size                            : num 0.5
## ..$ linetype                        : num 1
## ..$ inherit.blank                  : logi TRUE
## .. attr(*, "class")= chr [1:2] "element_rect" "element"
## $ text                                :List of 11
## ..$ family                          : chr ""
## ..$ face                            : chr "plain"
## ..$ colour                          : chr "black"
## ..$ size                            : num 11
## ..$ hjust                           : num 0.5
## ..$ vjust                           : num 0.5
## ..$ angle                           : num 0
```

```

## ..$ lineheight      : num 0.9
## ..$ margin          : 'margin' num [1:4] 0points 0points 0points 0points
## .. ..- attr(*, "unit")= int 8
## ..$ debug           : logi FALSE
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ title              : NULL
## $ aspect.ratio       : NULL
## $ axis.title         : NULL
## $ axis.title.x       :List of 11
## ..$ family          : NULL
## ..$ face            : NULL
## ..$ colour          : NULL
## ..$ size            : NULL
## ..$ hjust           : NULL
## ..$ vjust           : num 1
## ..$ angle           : NULL
## ..$ lineheight      : NULL
## ..$ margin          : 'margin' num [1:4] 2.75points 0points 0points 0points
## .. ..- attr(*, "unit")= int 8
## ..$ debug           : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.title.x.top   :List of 11
## ..$ family          : NULL
## ..$ face            : NULL
## ..$ colour          : NULL
## ..$ size            : NULL
## ..$ hjust           : NULL
## ..$ vjust           : num 0
## ..$ angle           : NULL
## ..$ lineheight      : NULL
## ..$ margin          : 'margin' num [1:4] 0points 0points 2.75points 0points
## .. ..- attr(*, "unit")= int 8
## ..$ debug           : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.title.x.bottom : NULL
## $ axis.title.y       :List of 11
## ..$ family          : NULL
## ..$ face            : NULL
## ..$ colour          : NULL
## ..$ size            : NULL
## ..$ hjust           : NULL
## ..$ vjust           : num 1
## ..$ angle           : num 90
## ..$ lineheight      : NULL
## ..$ margin          : 'margin' num [1:4] 0points 2.75points 0points 0points
## .. ..- attr(*, "unit")= int 8
## ..$ debug           : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.title.y.left  : NULL
## $ axis.title.y.right :List of 11

```

```

## ..$ family      : NULL
## ..$ face        : NULL
## ..$ colour      : NULL
## ..$ size        : NULL
## ..$ hjust       : NULL
## ..$ vjust       : num 0
## ..$ angle       : num -90
## ..$ lineheight  : NULL
## ..$ margin      : 'margin' num [1:4] 0points 0points 0points 2.75points
## .. ..- attr(*, "unit")= int 8
## ..$ debug       : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.text      :List of 11
## ..$ family      : NULL
## ..$ face        : NULL
## ..$ colour      : chr "grey30"
## ..$ size        : 'rel' num 0.8
## ..$ hjust       : NULL
## ..$ vjust       : NULL
## ..$ angle       : NULL
## ..$ lineheight  : NULL
## ..$ margin      : NULL
## ..$ debug       : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.text.x    :List of 11
## ..$ family      : NULL
## ..$ face        : NULL
## ..$ colour      : NULL
## ..$ size        : NULL
## ..$ hjust       : NULL
## ..$ vjust       : num 1
## ..$ angle       : NULL
## ..$ lineheight  : NULL
## ..$ margin      : 'margin' num [1:4] 2.2points 0points 0points 0points
## .. ..- attr(*, "unit")= int 8
## ..$ debug       : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.text.x.top :List of 11
## ..$ family      : NULL
## ..$ face        : NULL
## ..$ colour      : NULL
## ..$ size        : NULL
## ..$ hjust       : NULL
## ..$ vjust       : num 0
## ..$ angle       : NULL
## ..$ lineheight  : NULL
## ..$ margin      : 'margin' num [1:4] 0points 0points 2.2points 0points
## .. ..- attr(*, "unit")= int 8
## ..$ debug       : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"

```

```

## $ axis.text.x.bottom      : NULL
## $ axis.text.y             :List of 11
##   ..$ family              : NULL
##   ..$ face                 : NULL
##   ..$ colour               : NULL
##   ..$ size                 : NULL
##   ..$ hjust                : num 1
##   ..$ vjust                : NULL
##   ..$ angle                : NULL
##   ..$ lineheight           : NULL
##   ..$ margin               : 'margin' num [1:4] 0points 2.2points 0points 0points
##   ..- attr(*, "unit")= int 8
##   ..$ debug                : NULL
##   ..$ inherit.blank: logi TRUE
##   ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.text.y.left        : NULL
## $ axis.text.y.right       :List of 11
##   ..$ family              : NULL
##   ..$ face                 : NULL
##   ..$ colour               : NULL
##   ..$ size                 : NULL
##   ..$ hjust                : num 0
##   ..$ vjust                : NULL
##   ..$ angle                : NULL
##   ..$ lineheight           : NULL
##   ..$ margin               : 'margin' num [1:4] 0points 0points 0points 2.2points
##   ..- attr(*, "unit")= int 8
##   ..$ debug                : NULL
##   ..$ inherit.blank: logi TRUE
##   ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ axis.ticks              :List of 6
##   ..$ colour               : chr "grey20"
##   ..$ size                 : NULL
##   ..$ linetype             : NULL
##   ..$ lineend              : NULL
##   ..$ arrow                : logi FALSE
##   ..$ inherit.blank: logi TRUE
##   ..- attr(*, "class")= chr [1:2] "element_line" "element"
## $ axis.ticks.x            : NULL
## $ axis.ticks.x.top         : NULL
## $ axis.ticks.x.bottom     : NULL
## $ axis.ticks.y            : NULL
## $ axis.ticks.y.left       : NULL
## $ axis.ticks.y.right      : NULL
## $ axis.ticks.length       : 'simpleUnit' num 2.75points
##   ..- attr(*, "unit")= int 8
## $ axis.ticks.length.x     : NULL
## $ axis.ticks.length.x.top : NULL
## $ axis.ticks.length.x.bottom: NULL
## $ axis.ticks.length.y     : NULL
## $ axis.ticks.length.y.left : NULL
## $ axis.ticks.length.y.right: NULL
## $ axis.line               : list()
##   ..- attr(*, "class")= chr [1:2] "element_blank" "element"

```

```

## $ axis.line.x           : NULL
## $ axis.line.x.top       : NULL
## $ axis.line.x.bottom    : NULL
## $ axis.line.y           : NULL
## $ axis.line.y.left      : NULL
## $ axis.line.y.right     : NULL
## $ legend.background     :List of 5
## ..$ fill                : NULL
## ..$ colour              : logi NA
## ..$ size                : NULL
## ..$ linetype            : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_rect" "element"
## $ legend.margin         : 'margin' num [1:4] 5.5points 5.5points 5.5points 5.5points
## ..- attr(*, "unit")= int 8
## $ legend.spacing        : 'simpleUnit' num 11points
## ..- attr(*, "unit")= int 8
## $ legend.spacing.x      : NULL
## $ legend.spacing.y      : NULL
## $ legend.key             :List of 5
## ..$ fill                : chr "white"
## ..$ colour              : logi NA
## ..$ size                : NULL
## ..$ linetype            : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_rect" "element"
## $ legend.key.size        : 'simpleUnit' num 1.2lines
## ..- attr(*, "unit")= int 3
## $ legend.key.height      : NULL
## $ legend.key.width       : NULL
## $ legend.text            :List of 11
## ..$ family              : NULL
## ..$ face                : NULL
## ..$ colour              : NULL
## ..$ size                : 'rel' num 0.8
## ..$ hjust               : NULL
## ..$ vjust               : NULL
## ..$ angle               : NULL
## ..$ lineheight          : NULL
## ..$ margin              : NULL
## ..$ debug               : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ legend.text.align      : NULL
## $ legend.title           :List of 11
## ..$ family              : NULL
## ..$ face                : NULL
## ..$ colour              : NULL
## ..$ size                : NULL
## ..$ hjust               : num 0
## ..$ vjust               : NULL
## ..$ angle               : NULL
## ..$ lineheight          : NULL
## ..$ margin              : NULL

```

```

## ..$ debug          : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ legend.title.align      : NULL
## $ legend.position         : chr "right"
## $ legend.direction        : NULL
## $ legend.justification    : chr "center"
## $ legend.box              : NULL
## $ legend.box.just         : NULL
## $ legend.box.margin       : 'margin' num [1:4] 0cm 0cm 0cm 0cm
## ..- attr(*, "unit")= int 1
## $ legend.box.background   : list()
## ..- attr(*, "class")= chr [1:2] "element_blank" "element"
## $ legend.box.spacing     : 'simpleUnit' num 11points
## ..- attr(*, "unit")= int 8
## $ panel.background        :List of 5
## ..$ fill                  : chr "white"
## ..$ colour                : logi NA
## ..$ size                  : NULL
## ..$ linetype              : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_rect" "element"
## $ panel.border            :List of 5
## ..$ fill                  : logi NA
## ..$ colour                : chr "grey20"
## ..$ size                  : NULL
## ..$ linetype              : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_rect" "element"
## $ panel.spacing          : 'simpleUnit' num 5.5points
## ..- attr(*, "unit")= int 8
## $ panel.spacing.x        : NULL
## $ panel.spacing.y        : NULL
## $ panel.grid              :List of 6
## ..$ colour                : chr "grey92"
## ..$ size                  : NULL
## ..$ linetype              : NULL
## ..$ lineend               : NULL
## ..$ arrow                 : logi FALSE
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_line" "element"
## $ panel.grid.major        : NULL
## $ panel.grid.minor        :List of 6
## ..$ colour                : NULL
## ..$ size                  : 'rel' num 0.5
## ..$ linetype              : NULL
## ..$ lineend               : NULL
## ..$ arrow                 : logi FALSE
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_line" "element"
## $ panel.grid.major.x      : NULL
## $ panel.grid.major.y      : NULL
## $ panel.grid.minor.x      : NULL
## $ panel.grid.minor.y      : NULL

```



```

## $ panel.ontop          : logi FALSE
## $ plot.background     :List of 5
## ..$ fill              : NULL
## ..$ colour            : chr "white"
## ..$ size               : NULL
## ..$ linetype           : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_rect" "element"
## $ plot.title           :List of 11
## ..$ family            : NULL
## ..$ face               : NULL
## ..$ colour            : NULL
## ..$ size               : 'rel' num 1.2
## ..$ hjust              : num 0
## ..$ vjust              : num 1
## ..$ angle              : NULL
## ..$ lineheight         : NULL
## ..$ margin             : 'margin' num [1:4] 0points 0points 5.5points 0points
## ..- attr(*, "unit")= int 8
## ..$ debug              : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ plot.title.position  : chr "panel"
## $ plot.subtitle        :List of 11
## ..$ family            : NULL
## ..$ face               : NULL
## ..$ colour            : NULL
## ..$ size               : NULL
## ..$ hjust              : num 0
## ..$ vjust              : num 1
## ..$ angle              : NULL
## ..$ lineheight         : NULL
## ..$ margin             : 'margin' num [1:4] 0points 0points 5.5points 0points
## ..- attr(*, "unit")= int 8
## ..$ debug              : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ plot.caption         :List of 11
## ..$ family            : NULL
## ..$ face               : NULL
## ..$ colour            : NULL
## ..$ size               : 'rel' num 0.8
## ..$ hjust              : num 1
## ..$ vjust              : num 1
## ..$ angle              : NULL
## ..$ lineheight         : NULL
## ..$ margin             : 'margin' num [1:4] 5.5points 0points 0points 0points
## ..- attr(*, "unit")= int 8
## ..$ debug              : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ plot.caption.position : chr "panel"
## $ plot.tag              :List of 11
## ..$ family            : NULL

```

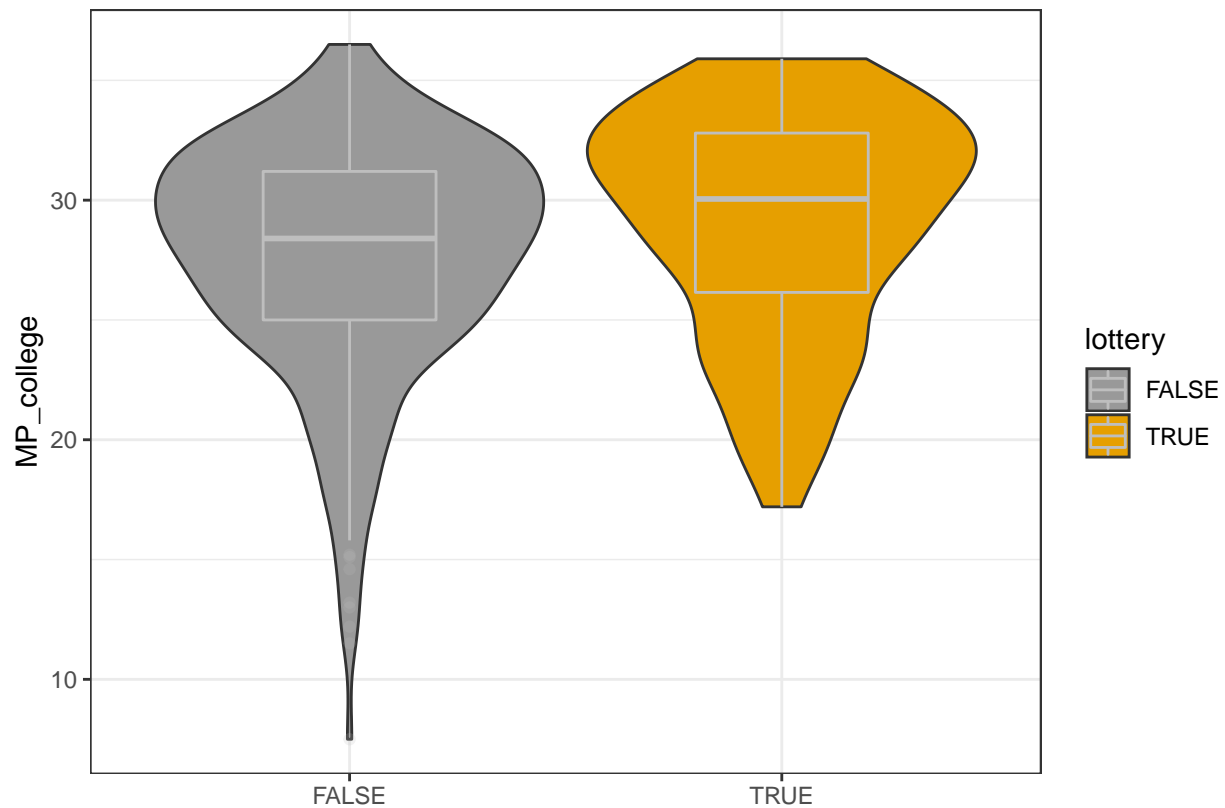
```

## ..$ face          : NULL
## ..$ colour        : NULL
## ..$ size          : 'rel' num 1.2
## ..$ hjust         : num 0.5
## ..$ vjust         : num 0.5
## ..$ angle         : NULL
## ..$ lineheight    : NULL
## ..$ margin        : NULL
## ..$ debug         : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ plot.tag.position : chr "topleft"
## $ plot.margin       : 'margin' num [1:4] 5.5points 5.5points 5.5points 5.5points
## ..- attr(*, "unit")= int 8
## $ strip.background  :List of 5
## ..$ fill           : chr "grey85"
## ..$ colour         : chr "grey20"
## ..$ size           : NULL
## ..$ linetype       : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_rect" "element"
## $ strip.background.x : NULL
## $ strip.background.y : NULL
## $ strip.placement    : chr "inside"
## $ strip.text         :List of 11
## ..$ family         : NULL
## ..$ face           : NULL
## ..$ colour         : chr "grey10"
## ..$ size           : 'rel' num 0.8
## ..$ hjust         : NULL
## ..$ vjust         : NULL
## ..$ angle         : NULL
## ..$ lineheight    : NULL
## ..$ margin        : 'margin' num [1:4] 4.4points 4.4points 4.4points 4.4points
## ..- attr(*, "unit")= int 8
## ..$ debug         : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ strip.text.x      : NULL
## $ strip.text.y      :List of 11
## ..$ family         : NULL
## ..$ face           : NULL
## ..$ colour         : NULL
## ..$ size           : NULL
## ..$ hjust         : NULL
## ..$ vjust         : NULL
## ..$ angle         : num -90
## ..$ lineheight    : NULL
## ..$ margin        : NULL
## ..$ debug         : NULL
## ..$ inherit.blank: logi TRUE
## ..- attr(*, "class")= chr [1:2] "element_text" "element"
## $ strip.switch.pad.grid : 'simpleUnit' num 2.75points
## ..- attr(*, "unit")= int 8

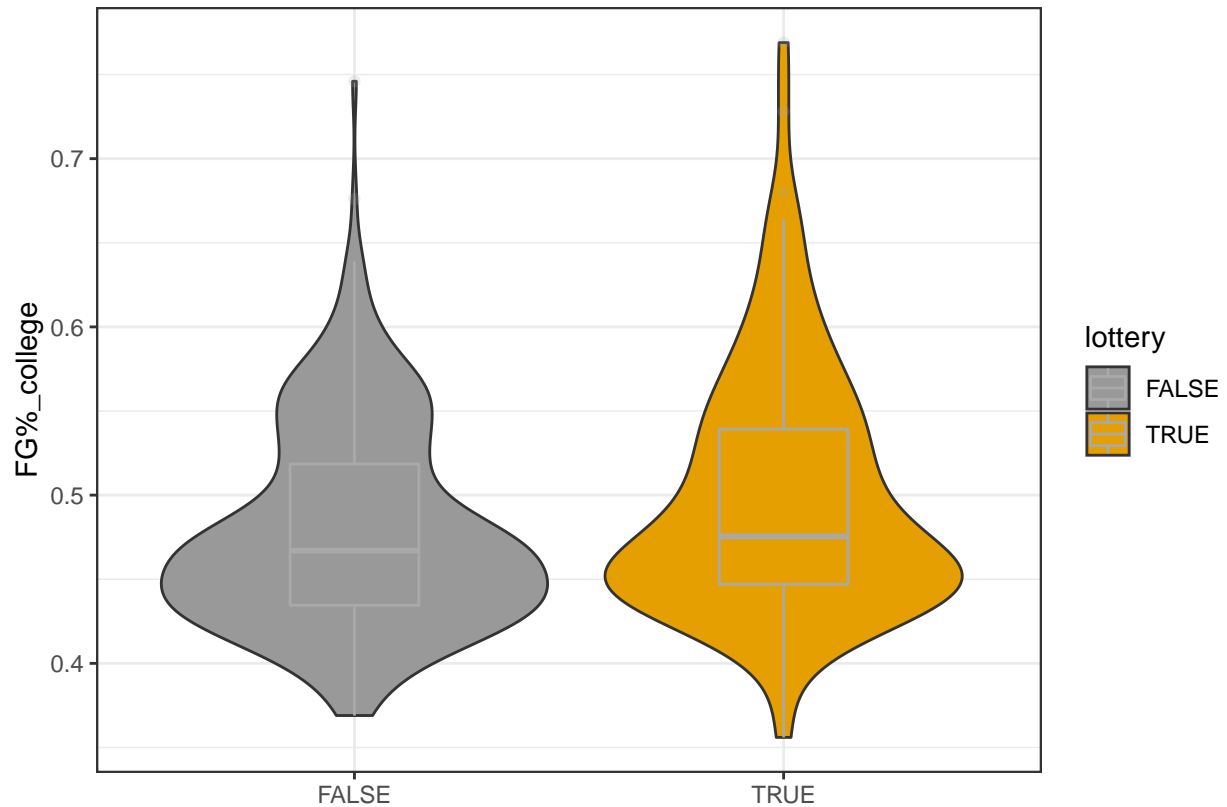
```

```
## $ strip.switch.pad.wrap      : 'simpleUnit' num 2.75points
##   .- attr(*, "unit")= int 8
## $ strip.text.y.left         :List of 11
##   ..$ family                : NULL
##   ..$ face                   : NULL
##   ..$ colour                 : NULL
##   ..$ size                   : NULL
##   ..$ hjust                  : NULL
##   ..$ vjust                  : NULL
##   ..$ angle                  : num 90
##   ..$ lineheight             : NULL
##   ..$ margin                 : NULL
##   ..$ debug                  : NULL
##   ..$ inherit.blank: logi TRUE
##   .- attr(*, "class")= chr [1:2] "element_text" "element"
## - attr(*, "class")= chr [1:2] "theme" "gg"
## - attr(*, "complete")= logi TRUE
## - attr(*, "validate")= logi TRUE
```

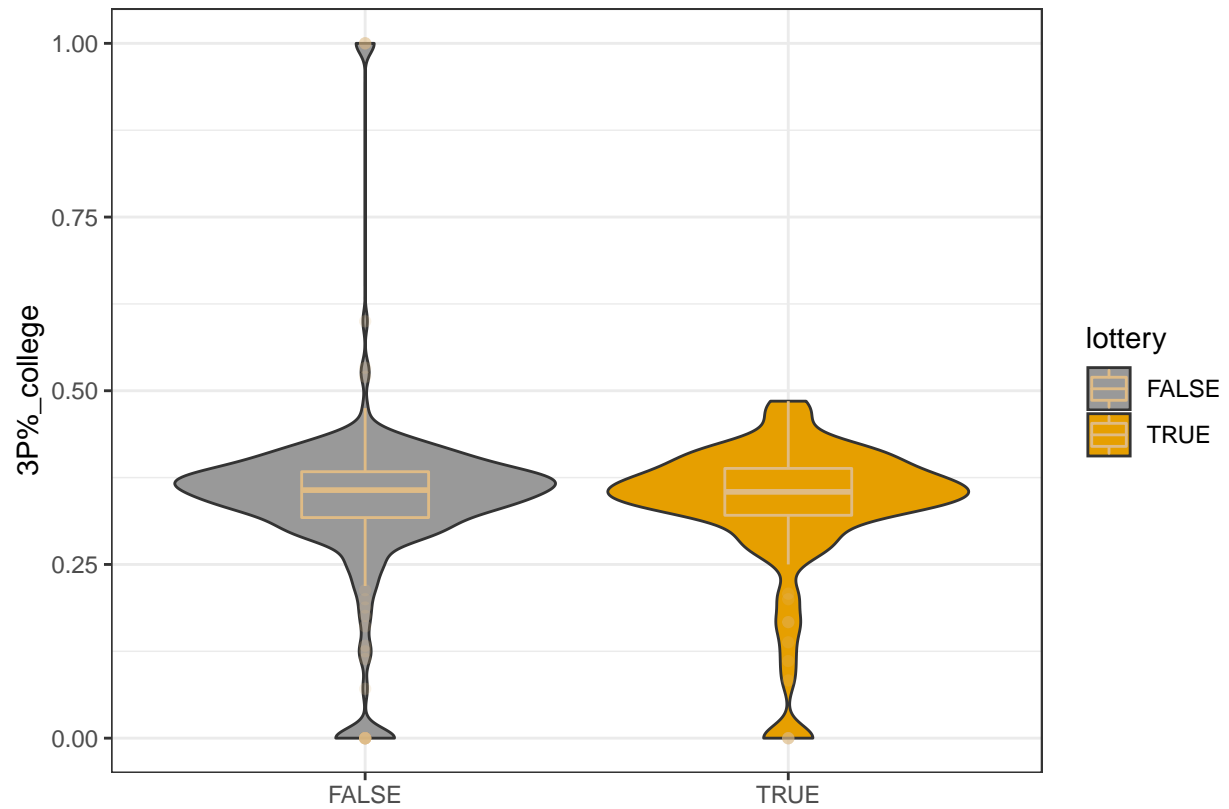
```
ggplot(df, aes(x=lottery, y=MP_college, fill=lottery)) +
  geom_violin() +
  geom_boxplot(width=0.4,color="grey", alpha=0.2) +
  scale_fill_manual(values=c("#999999", "#E69F00", "#56B4E9")) +
  theme_bw() +
  xlab("")
```



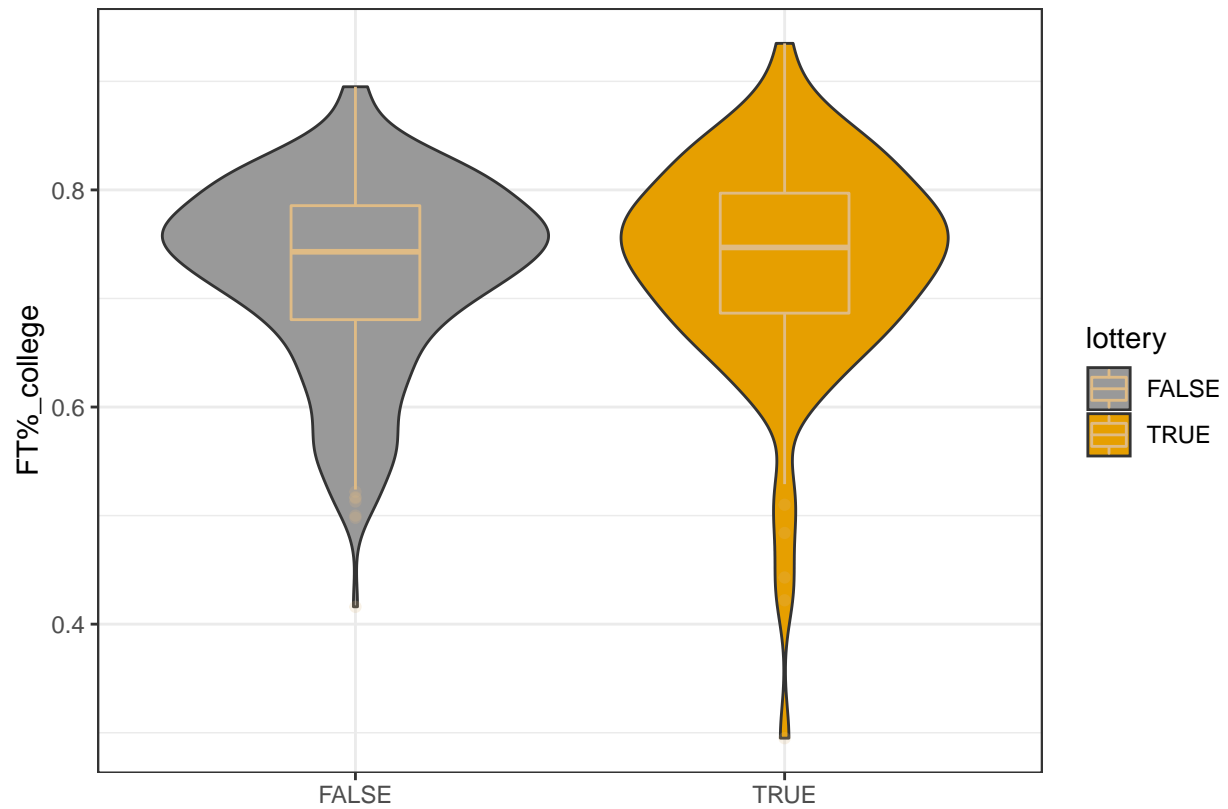
```
ggplot(df, aes(x=lottery, y=`FG%_college`, fill=lottery)) +
  geom_violin() +
  geom_boxplot(width=0.3,color="darkgrey", alpha=0.2) +
  scale_fill_manual(values=c("#999999", "#E69F00", "#56B4E9")) +
  theme_bw() +
  xlab("")
```



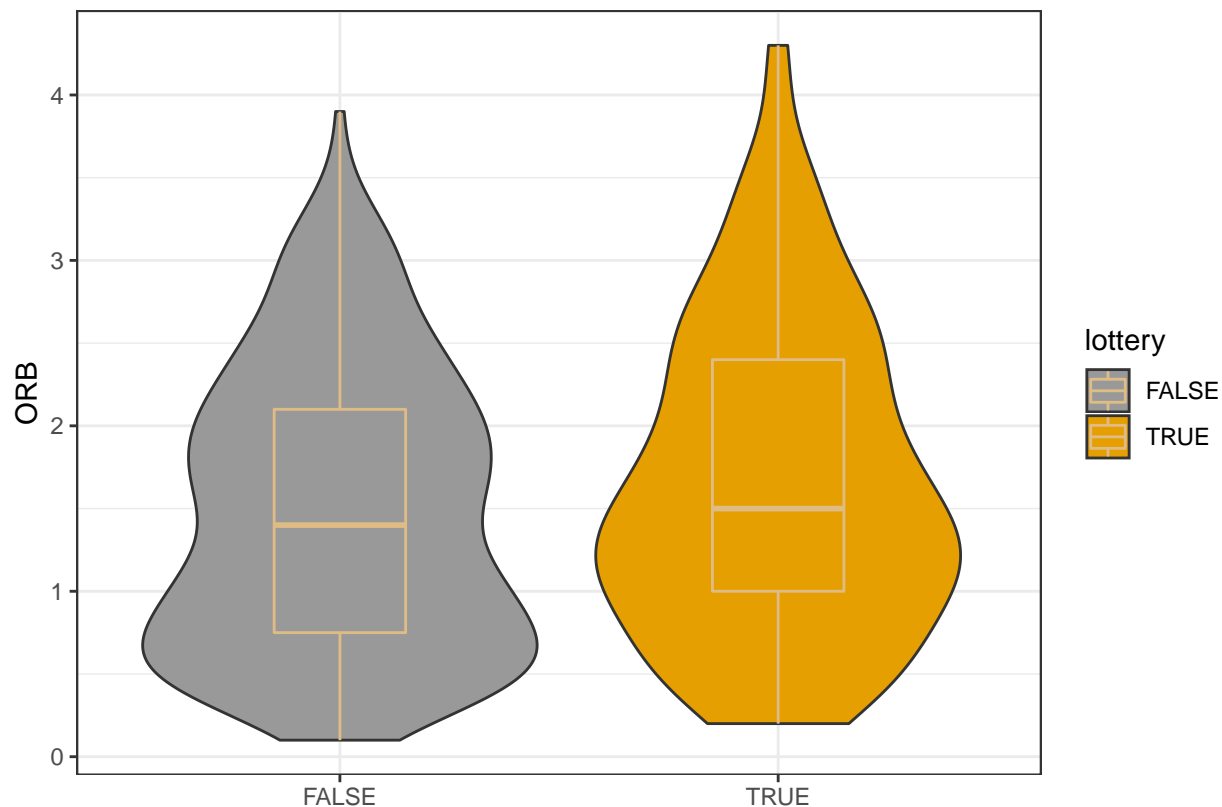
```
ggplot(df, aes(x=lottery, y=`3P%_college`, fill=lottery)) +
  geom_violin() +
  geom_boxplot(width=0.3,color="#dfbb85", alpha=0.2) +
  scale_fill_manual(values=c("#999999", "#E69F00", "#56B4E9")) +
  theme_bw() +
  xlab("")
```



```
ggplot(df, aes(x=lottery, y=`FT%_college`, fill=lottery)) +
  geom_violin() +
  geom_boxplot(width=0.3,color="#dfbb85", alpha=0.2) +
  scale_fill_manual(values=c("#999999", "#E69F00", "#56B4E9")) +
  theme_bw() +
  xlab("")
```



```
ggplot(df, aes(x=lottery, y=`ORB`, fill=lottery)) +
  geom_violin() +
  geom_boxplot(width=0.3,color="#dfbb85", alpha=0.2) +
  scale_fill_manual(values=c("#999999", "#E69F00", "#56B4E9")) +
  theme_bw() +
  xlab("")
```



```
## CORRELATION MATRIX ----
# df.subset <- df[c('PTS_college', `FG%_college`, `FT%_college`, `3P%_college`, `2P%_college`)]
# ggcorr(df.subset, method = c("everything", "pearson"))

# points <- df$PTS_college
# draft.pick <- df$Pk

ggplot(df, aes(x=Pk, y=PTS_college)) +
  geom_point(
    aes(color=lottery), #, shape=lottery),
    size=2,
    alpha=0.8,
  ) +
  scale_color_manual(
    values = c("#386cb0", "#fdb462", "#7fc97f")
  ) +
  geom_smooth(method = lm, col='red') + # add linear trend line
  theme_bw() +
  xlab("Draft Pick") +
  ylab("Average Points Per Game (college)") +
  ggtitle("Comparing points scored to draft pick number")

## `geom_smooth()` using formula 'y ~ x'
```

Comparing points scored to draft pick number

