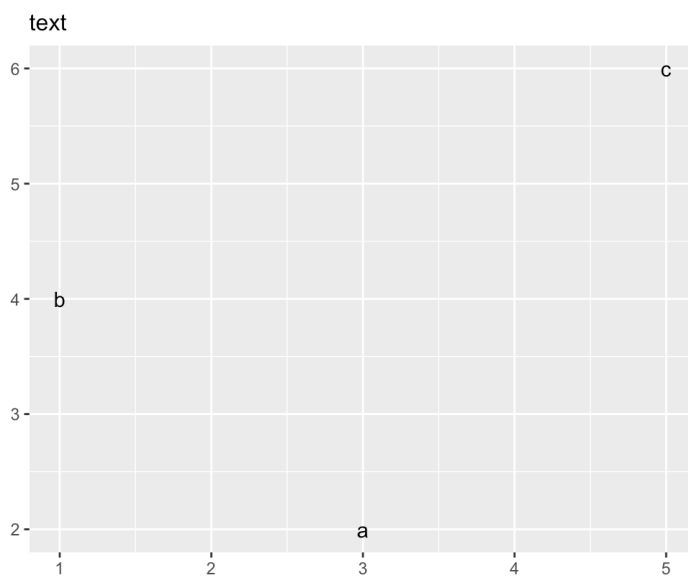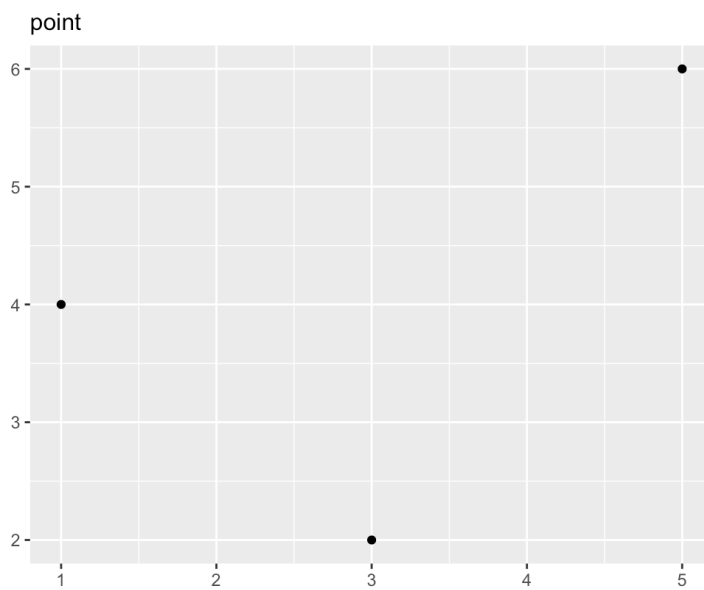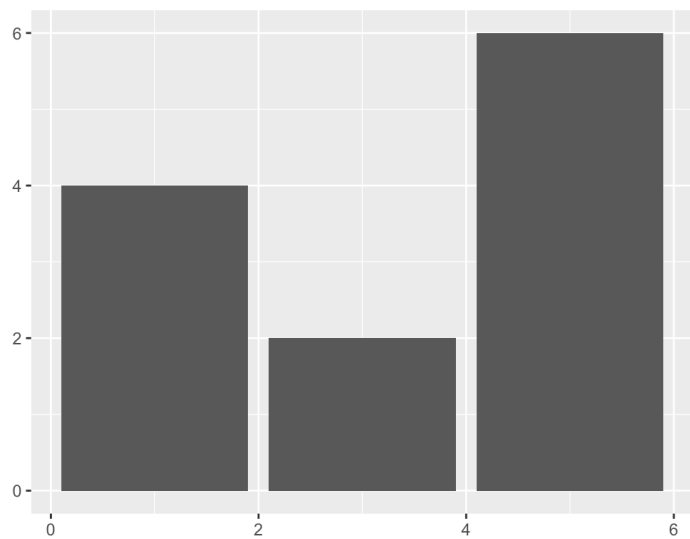```
library(ggplot2)
df <- data.frame(
  x = c(3, 1, 5),
  y = c(2, 4, 6),
  label = c("a","b","c")
)
p <- ggplot(df, aes(x, y, label = label)) +
  labs(x = NULL, y = NULL) + # Hide axis label
  theme(plot.title = element_text(size = 12)) # Shrink plot title
p + geom_point() + ggtitle("point")
p + geom_text() + ggtitle("text")
p + geom_bar(stat = "identity") + ggtitle("bar")
p + geom_tile() + ggtitle("raster")
```
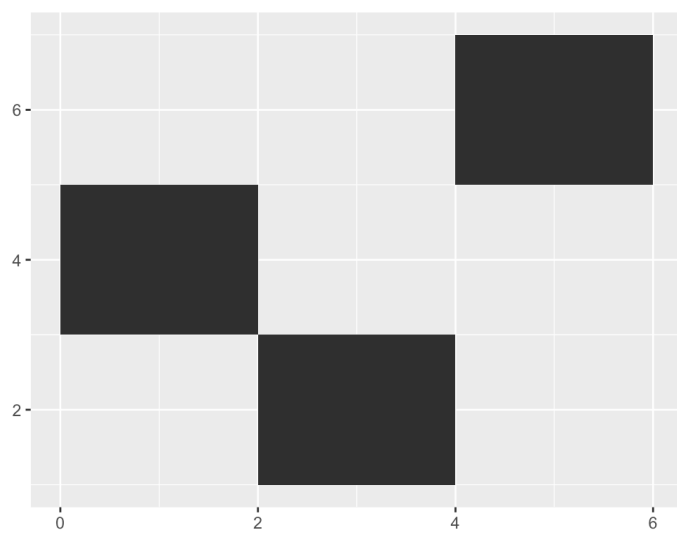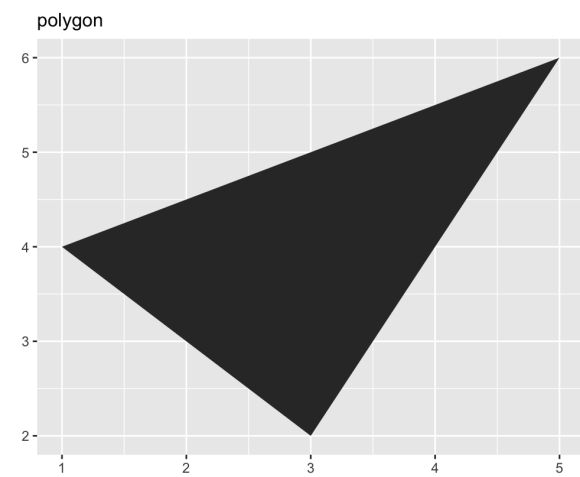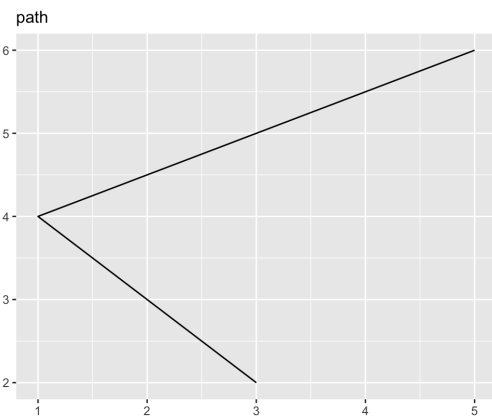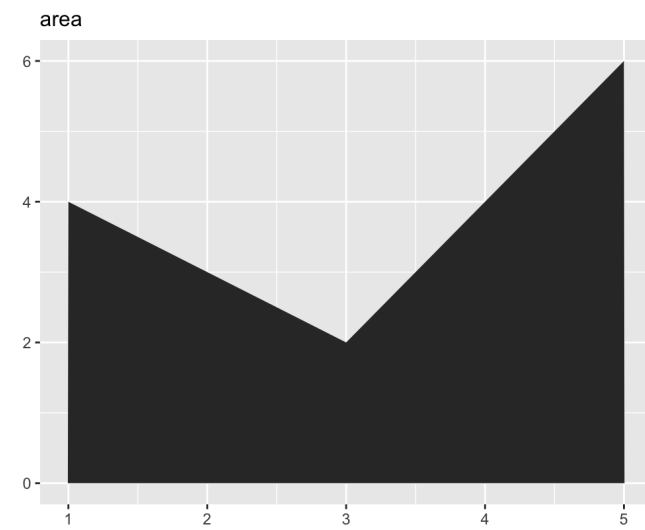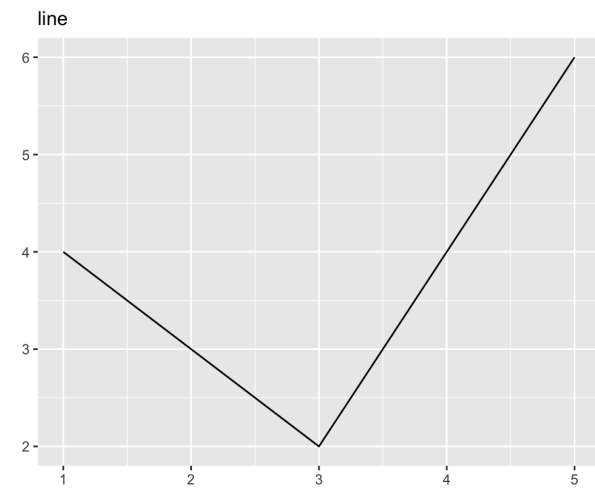
bar

raster

```
p + geom_line() + ggtitle("line")
p + geom_area() + ggtitle("area")
p + geom_path() + ggtitle("path")
p + geom_polygon() + ggtitle("polygon")
```
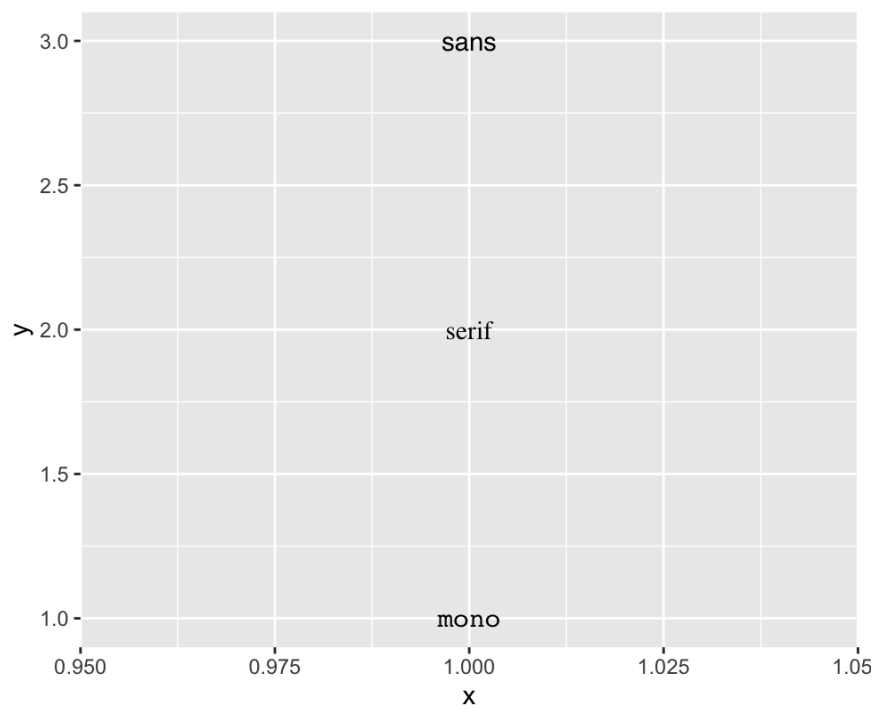
line



area



path



polygon

```
df <- data.frame(x = 1, y = 3:1, family = c("sans", "serif", "mono"))
ggplot(df, aes(x, y)) +
  geom_text(aes(label = family, family = family))字體
```
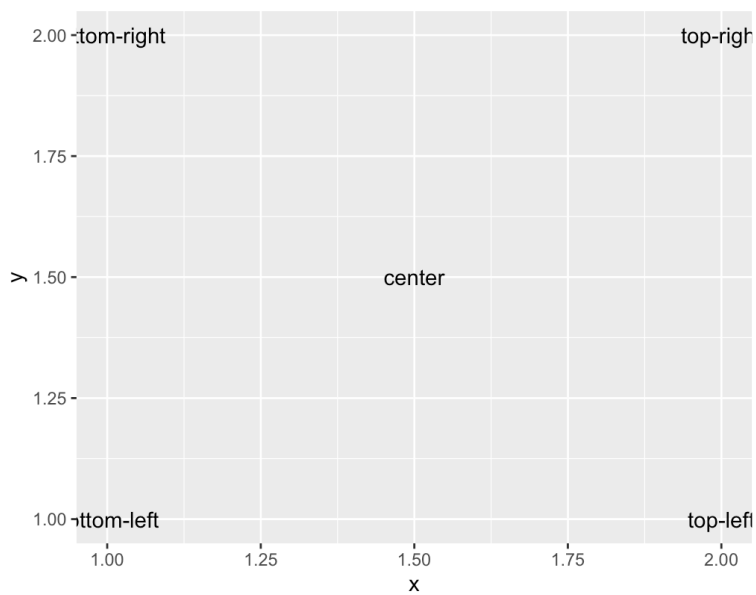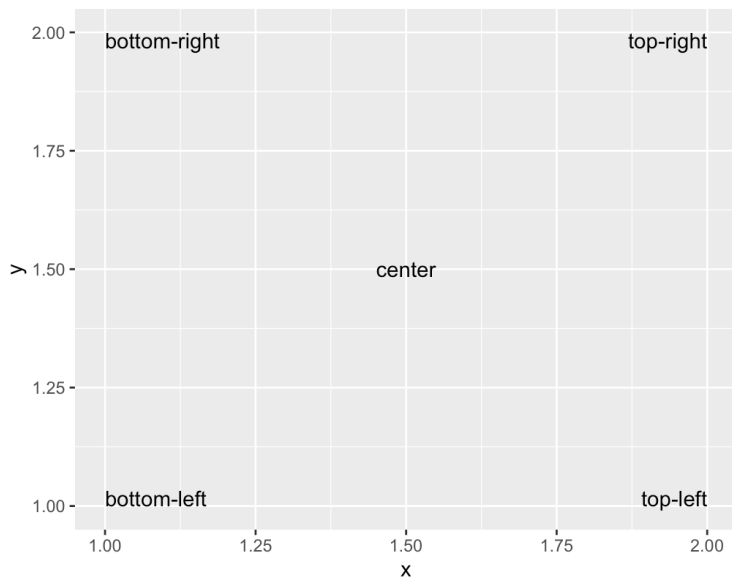
```
df <- data.frame(
  x = c(1, 1, 2, 2, 1.5),
  y = c(1, 2, 1, 2, 1.5),
  text = c(
    "bottom-left", "bottom-right",
    "top-left", "top-right", "center"
)
)
ggplot(df, aes(x, y)) +
  geom_text(aes(label = text))
```
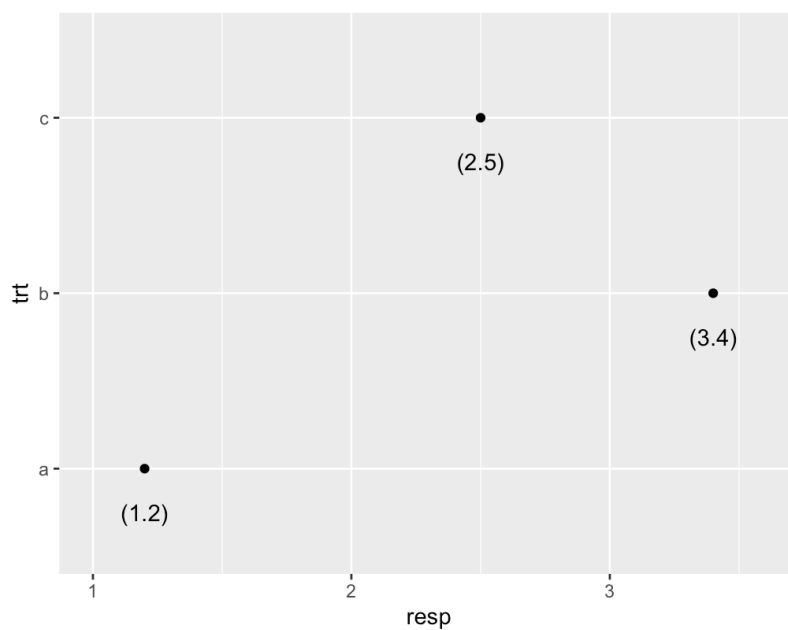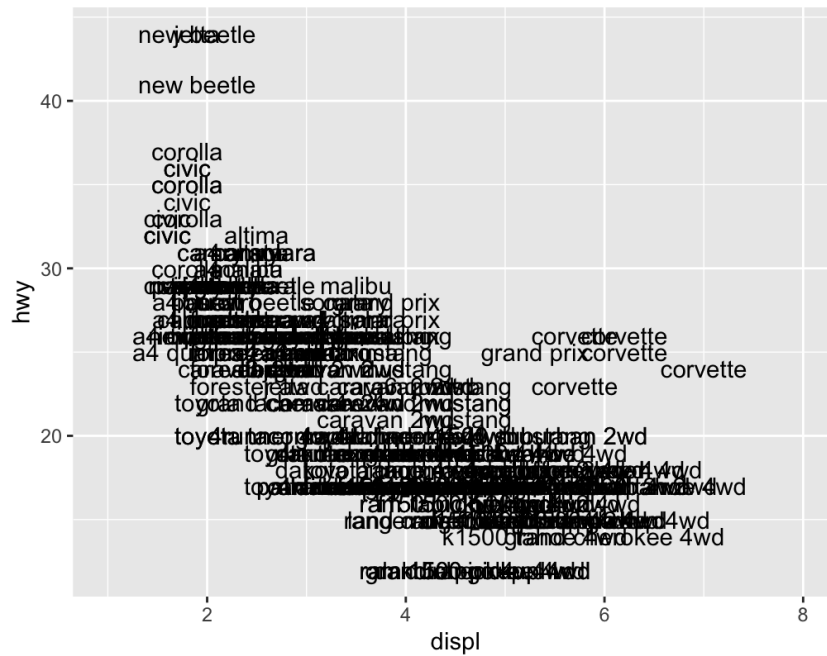


```
ggplot(df, aes(x, y)) +
  geom_text(aes(label = text), vjust = "inward", hjust = "inward")
```
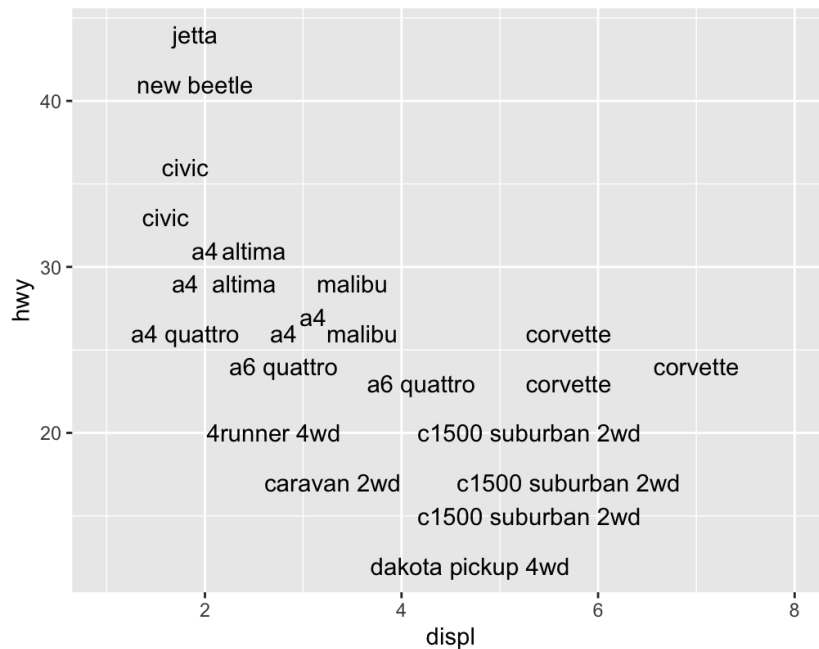
```
df <- data.frame(trt = c("a", "b", "c"), resp = c(1.2, 3.4, 2.5))
ggplot(df, aes(resp, trt)) +
  geom_point() +
  geom_text(aes(label = paste0("(", resp, ")")), nudge_y = -0.25) +
  xlim(1, 3.6)
```



```
ggplot(mpg, aes(displ, hwy)) +
  geom_text(aes(label = model)) +
  xlim(1, 8)
```

```
ggplot(mpg, aes(displ, hwy)) +
  geom_text(aes(label = model), check_overlap = TRUE) +
  xlim(1, 8)
```
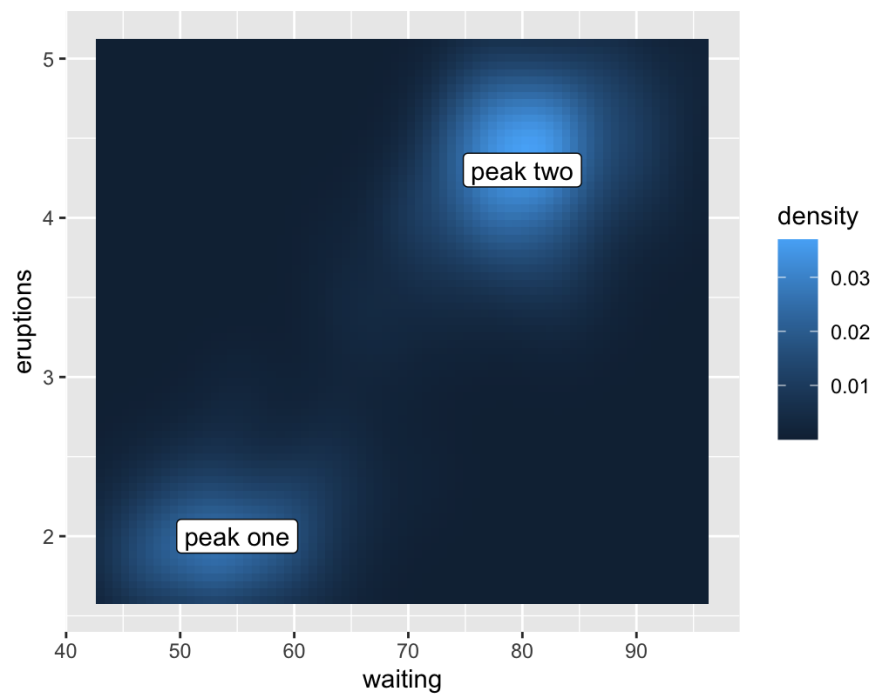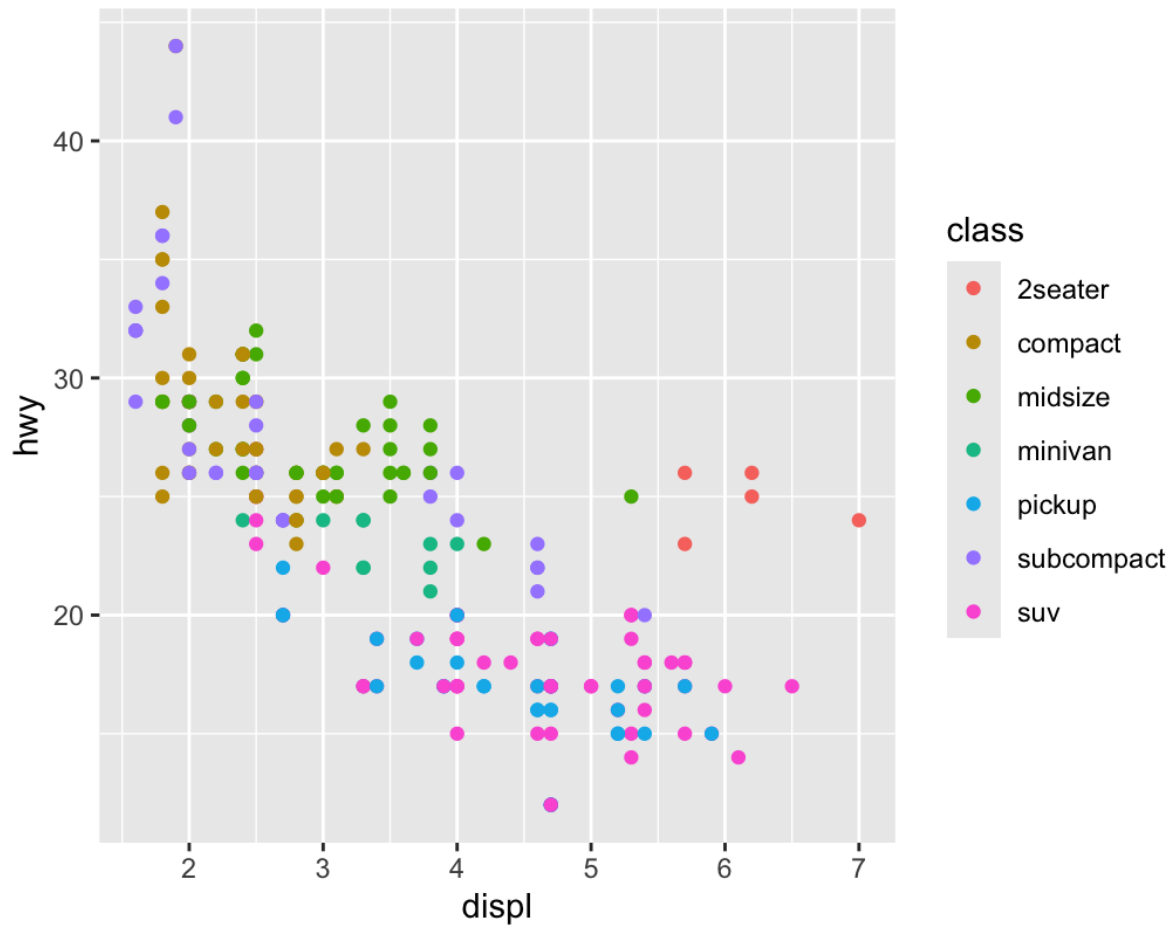


```
label <- data.frame(
  waiting = c(55, 80),
  eruptions = c(2, 4.3),
  label = c("peak one", "peak two")
)
ggplot(faithfuld, aes(waiting, eruptions)) +
  geom_tile(aes(fill = density)) +
  geom_label(data = label, aes(label = label))
```
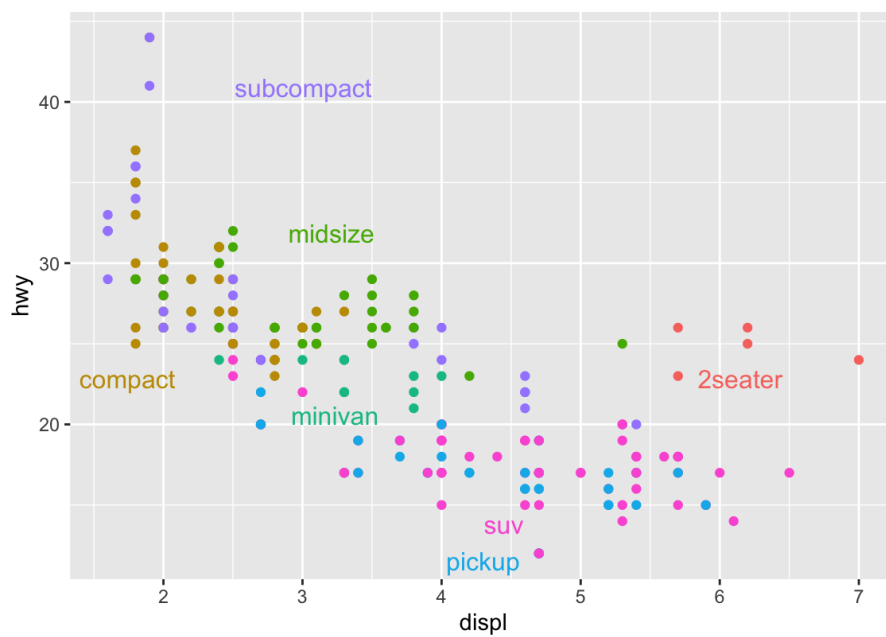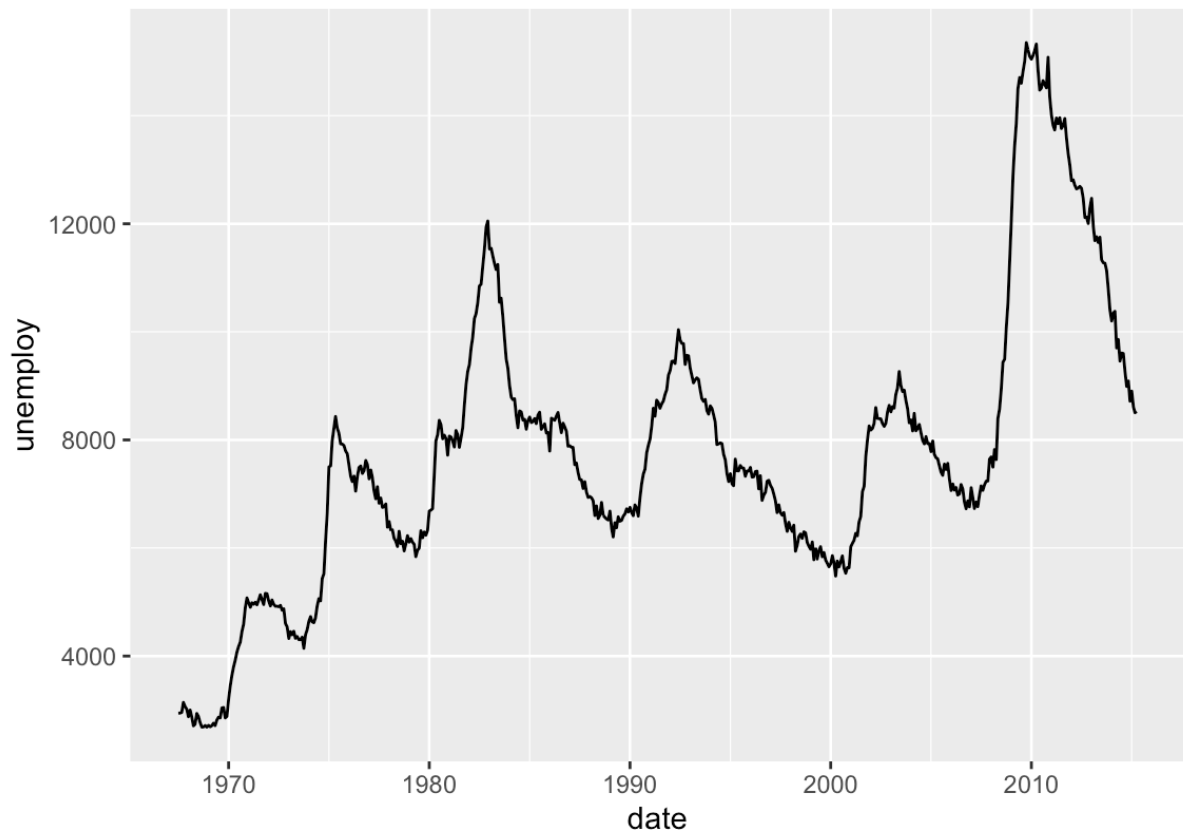
```
ggplot(mpg, aes(displ, hwy, colour = class)) +
  geom_point()
```

```
ggplot(mpg, aes(displ, hwy, colour = class)) +
  geom_point(show.legend = FALSE) +
  directlabels::geom_dl(aes(label = class), method = "smart.grid")
```



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

```
ggplot(economics) +
  geom_rect(
    aes(xmin = start, xmax = end, fill = party),
    ymin = -Inf, ymax = Inf, alpha = 0.2,
    data = presidential
  ) +
  geom_vline(
    aes(xintercept = as.numeric(start)),
    data = presidential,
    colour = "grey50", alpha = 0.5
  ) +
  geom_text(
    aes(x = start, y = 2500, label = name),
    data = presidential,
    size = 3, vjust = 0, hjust = 0, nudge_x = 50
  ) +
  geom_line(aes(date, unemploy)) +
  scale_fill_manual(values = c("blue", "red"))
```

presidential <- subset(Taiwan.President.data, 開始 > Taiwan.data.sub$統計期[1])

```
ggplot(Taiwan.data.sub) +
  geom_rect(
    aes(xmin = 開始, xmax = 結束, fill = 政黨),
    ymin = -Inf, ymax = Inf, alpha = 0.2,
    data = Taiwan.President.data
  ) +
  geom_vline(
    aes(xintercept = as.numeric(開始)),
    data = Taiwan.President.data,
    colour = "grey50", alpha = 0.5
  ) +
  geom_text(
    aes(x = 開始, y = 6, label = 姓名),data = Taiwan.President.data,
    size = 3, vjust = 25, hjust = 0, nudge_x = 50
  ) +
  geom_line(aes(統計期, `失業率(%)`)) +
  scale_fill_manual(values = c("blue", "darkgreen"))+
  labs(x="統計期",y="失業率(%)")
```
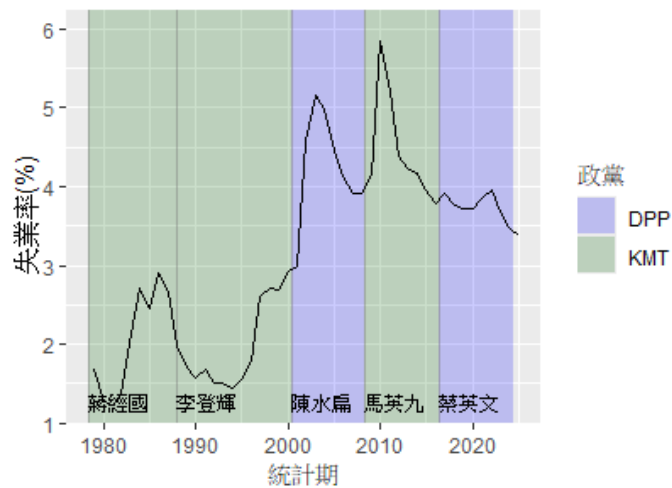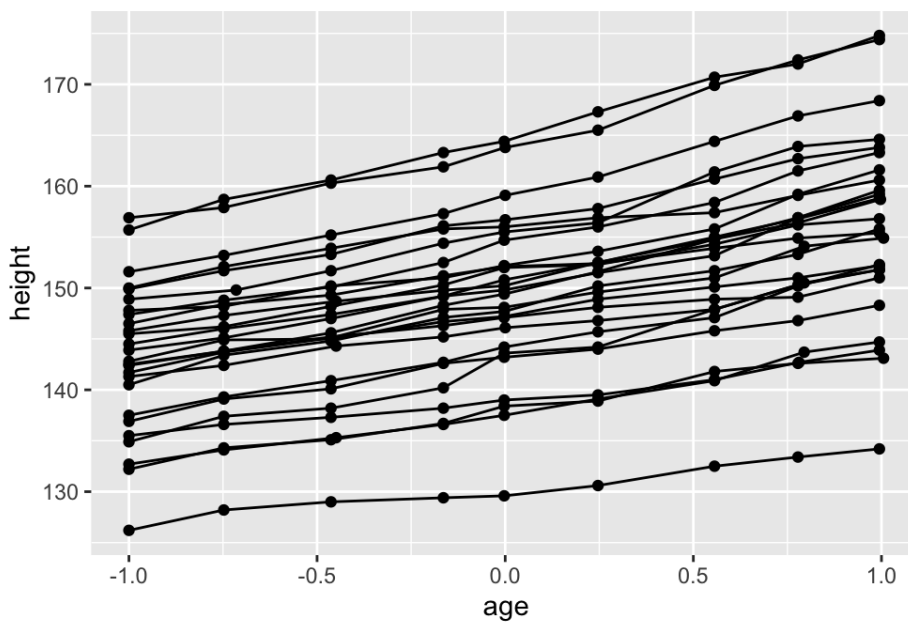
```
ggplot(diamonds, aes(log10(carat), log10(price))) +
  geom_bin2d() +
  facet_wrap(~cut, nrow = 1)
```
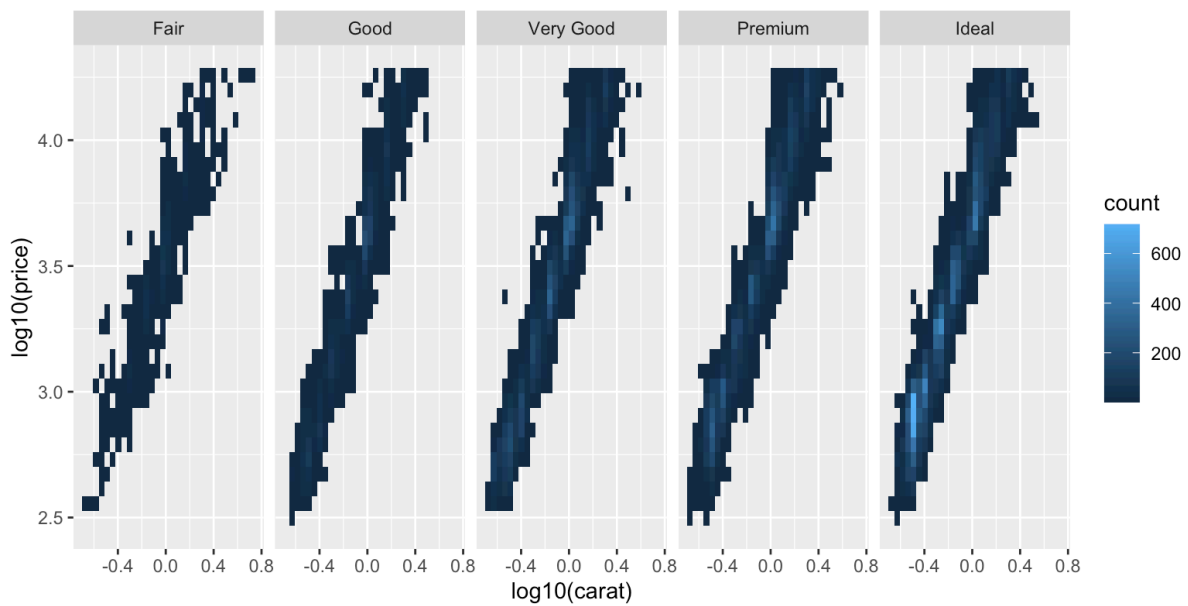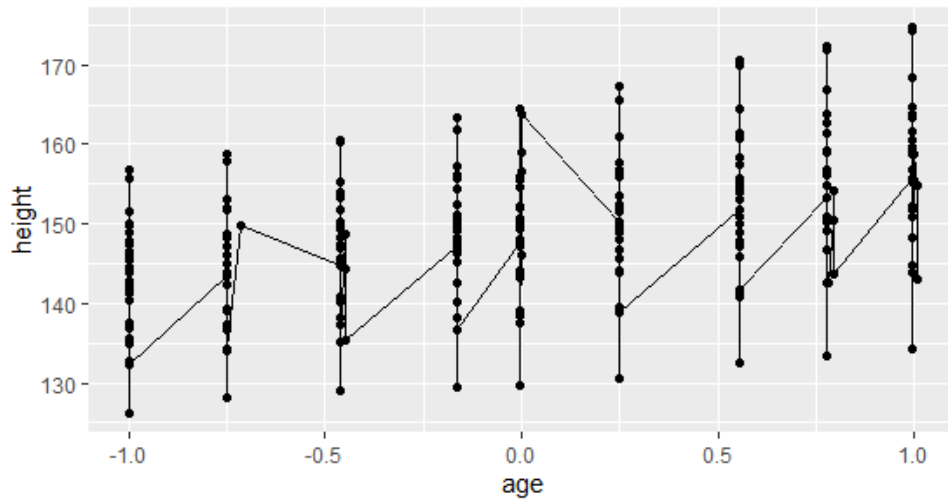


```
mod_coef <- coef(lm(log10(price) ~ log10(carat), data = diamonds))
ggplot(diamonds, aes(log10(carat), log10(price))) +
  geom_bin2d() +
  geom_abline(intercept = mod_coef[1], slope = mod_coef[2],
          colour = "white", size = 1) +
  facet_wrap(~cut, nrow = 1)
```
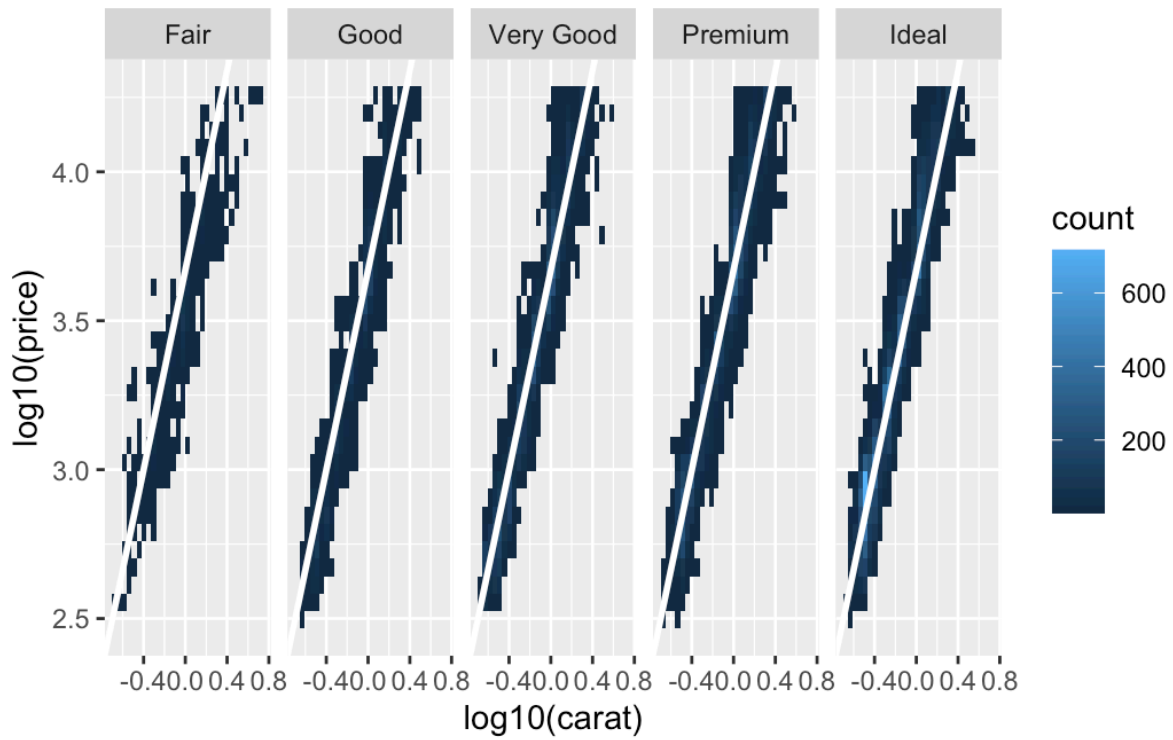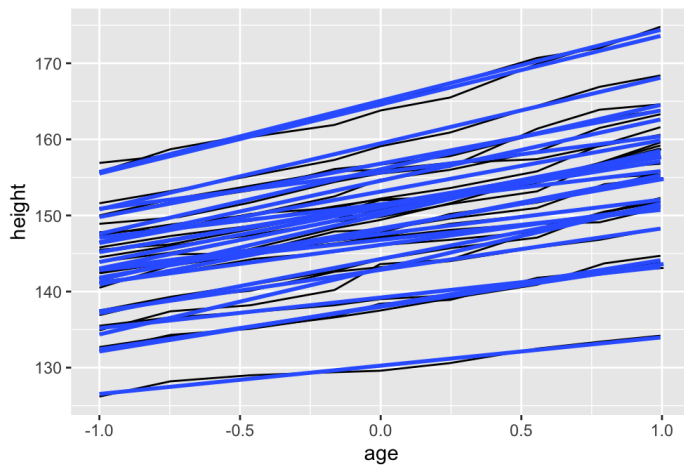
```
ggplot(Oxboys, aes(age, height, group = Subject)) +
  geom_point() +
  geom_line()
```
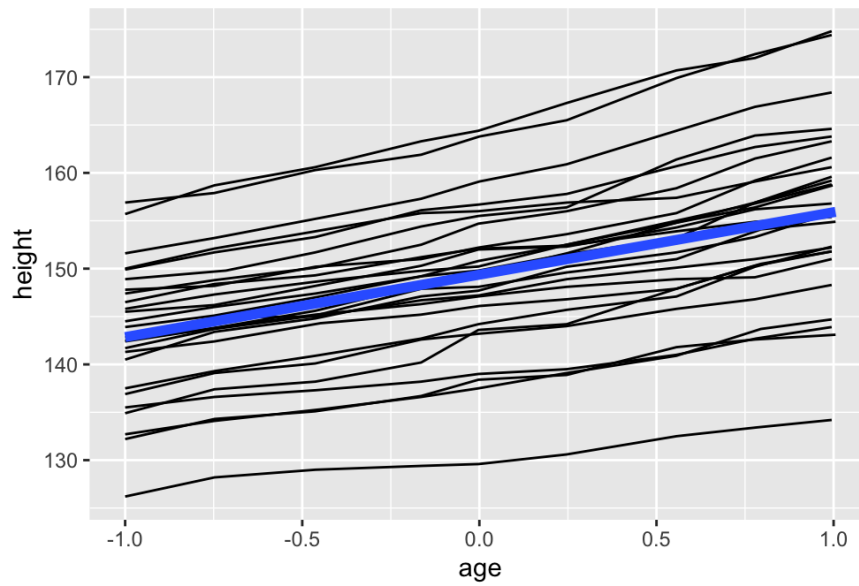


```
ggplot(Oxboys, aes(age, height)) +
geom_point() +
geom_line()
```
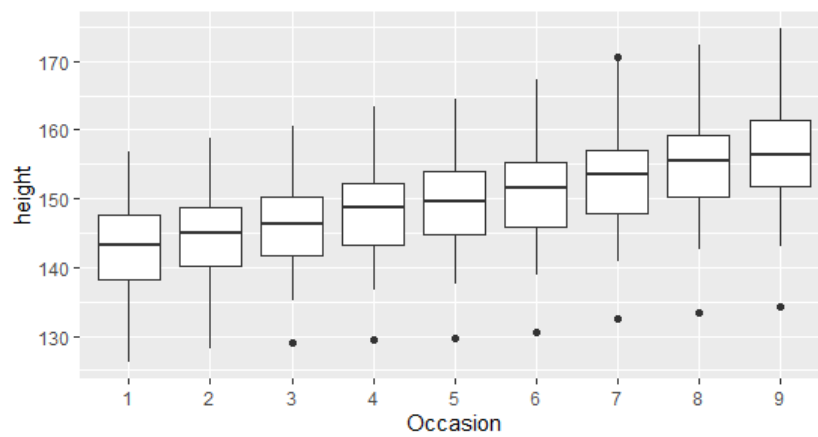
```
ggplot(Oxboys, aes(age, height, group = Subject)) +
geom_line() +
geom_smooth(method = "lm", se = FALSE)
```
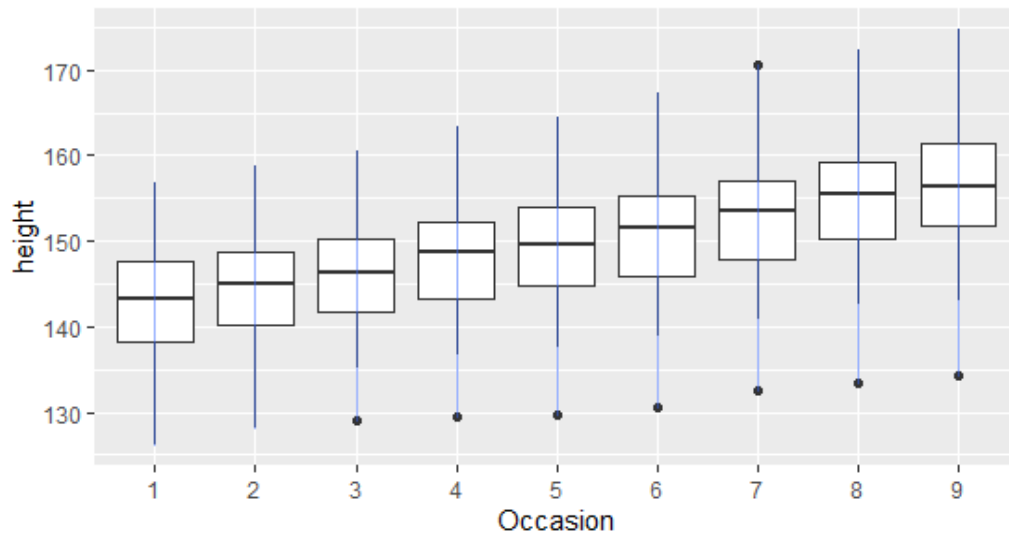


```
ggplot(Oxboys, aes(age, height)) +
geom_line(aes(group = Subject)) +
geom_smooth(method = "lm", size = 2, se = FALSE)
```
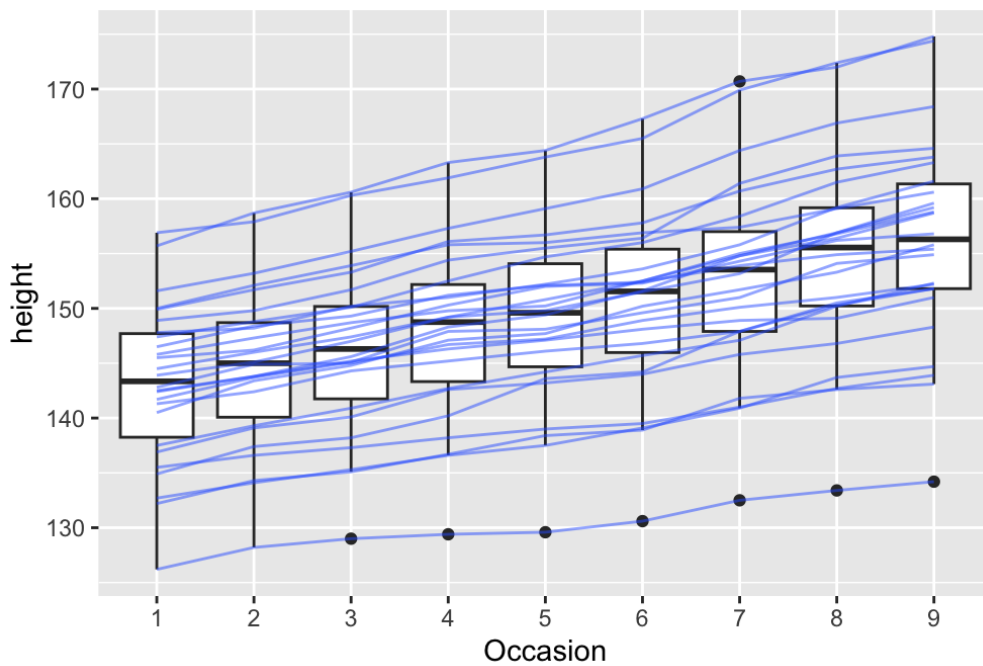
```
ggplot(Oxboys, aes(Occasion, height)) +
geom_boxplot()
```



```
ggplot(Oxboys, aes(Occasion, height)) +
geom_boxplot() +
geom_line(colour = "#3366FF", alpha = 0.5)
```
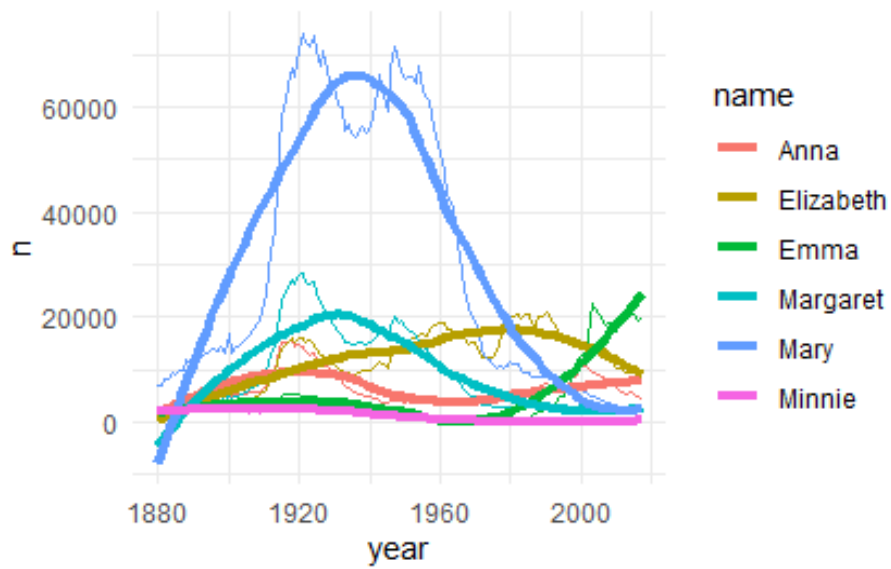
```
ggplot(Oxboys, aes(Occasion, height)) +
geom_boxplot() +
geom_line(aes(group = Subject), colour = "#3366FF", alpha = 0.5)
```
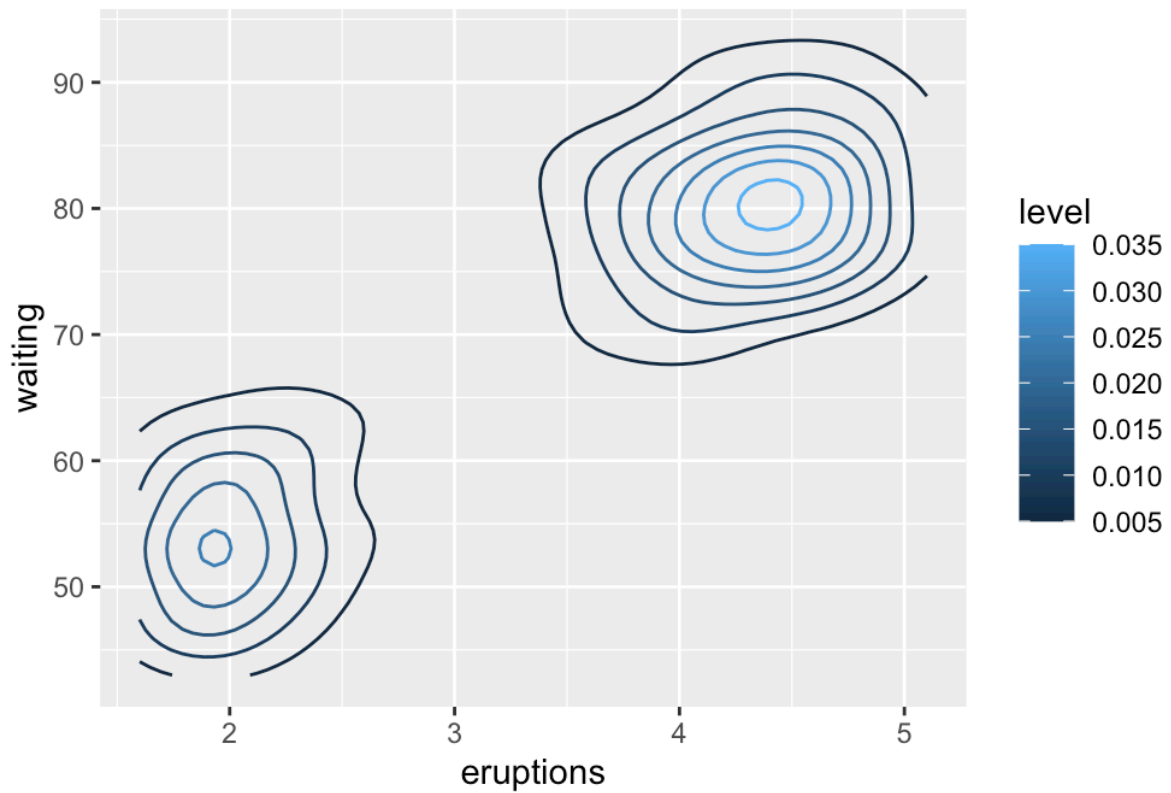


```
ggplot(popular.F.6names, aes(x = year, y = n, colour = name)) +
  geom_line() +
  geom_smooth(se = FALSE, size = 1.5) +
  labs(title = "The number of the most popular female names",x = "year", y = "n" )
```
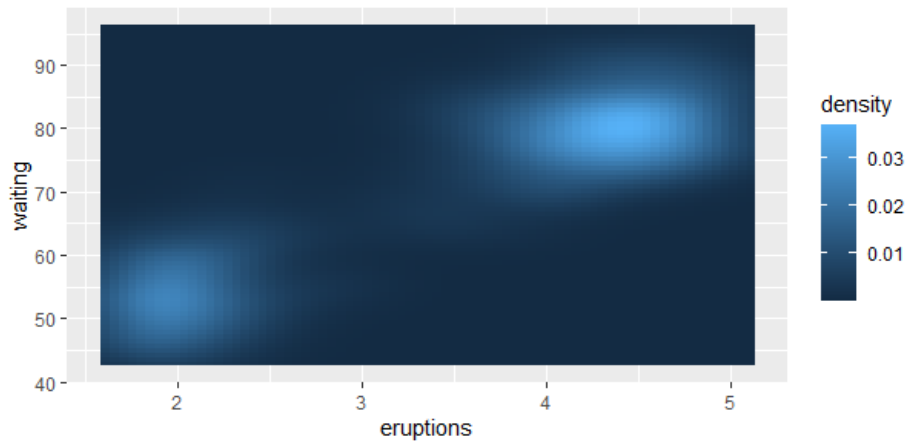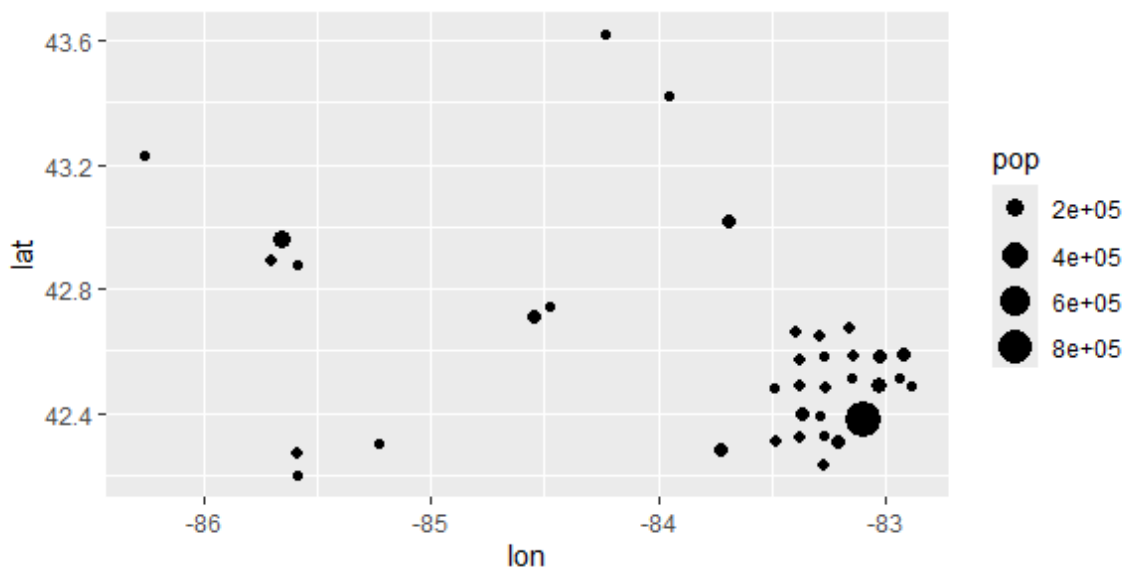
The number of the most popular female name

ggplot(faithfuld, aes(eruptions, waiting)) +
  geom_contour(aes(z = density, colour = ..level..))

```
ggplot(faithfuld, aes(eruptions, waiting)) +
geom_raster(aes(fill = density))
```
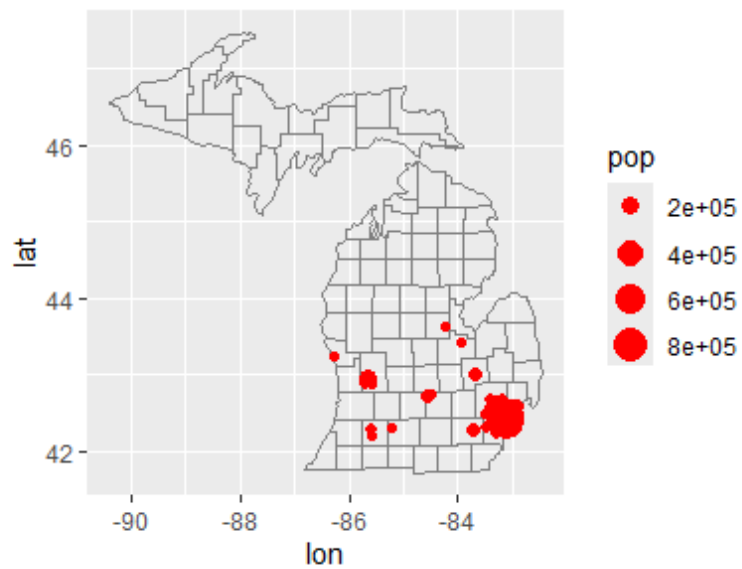


```
ggplot(mi_cities, aes(lon, lat)) +
  geom_point(aes(size = pop)) +
  scale_size_area() +
  coord_quickmap()
```



```
ggplot(mi_cities, aes(lon, lat)) +
  geom_polygon(aes(group = group), mi_counties, fill = NA, colour = "grey50") +
  geom_point(aes(size = pop), colour = "red") +
  scale_size_area() +
```

coord_quickmap()


```
mi_census <- midwest %>%
  tbl_df() %>%
  filter(state =="MI") %>%
  mutate(county = tolower(county)) %>%
  select(county, area, poptotal, percwhite, percblack)
mi_census
census_counties <- left_join(mi_census, mi_counties, by = c("county" ="id"))
census_counties
ggplot(census_counties, aes(lon, lat, group = county)) +
  geom_polygon(aes(fill = poptotal)) +  coord_quickmap()
```
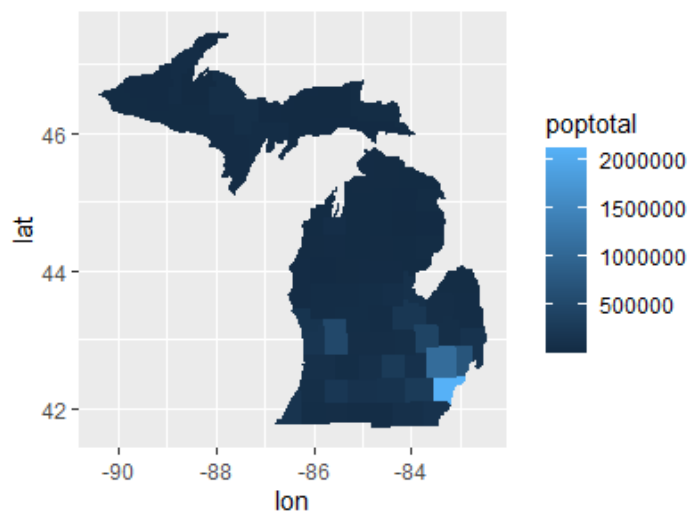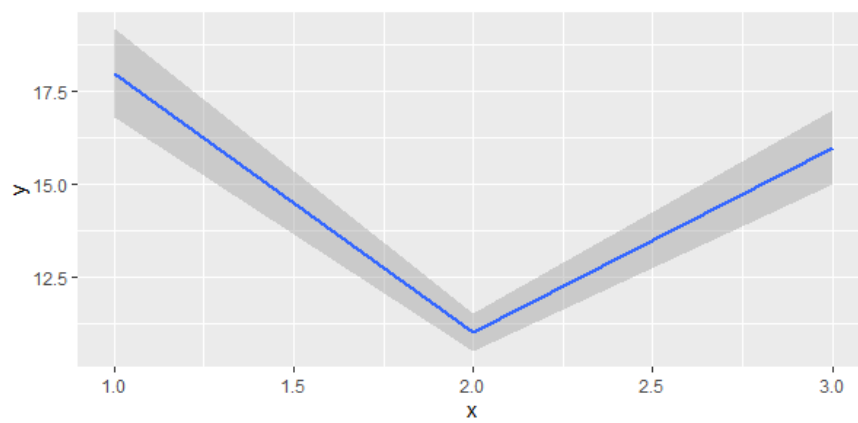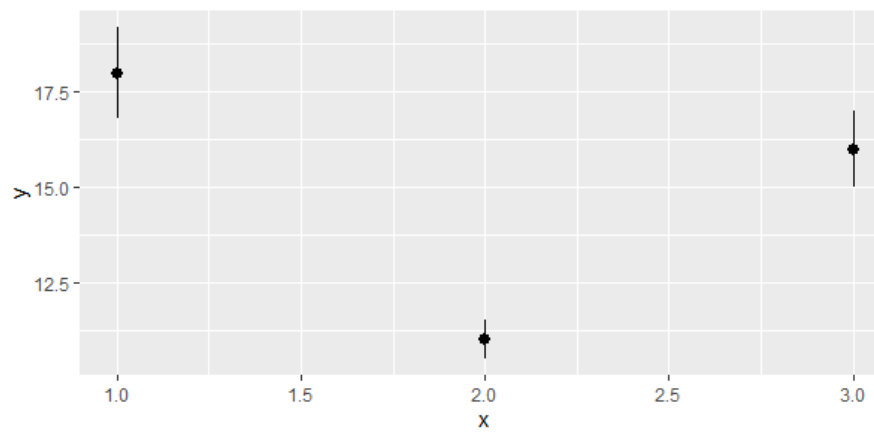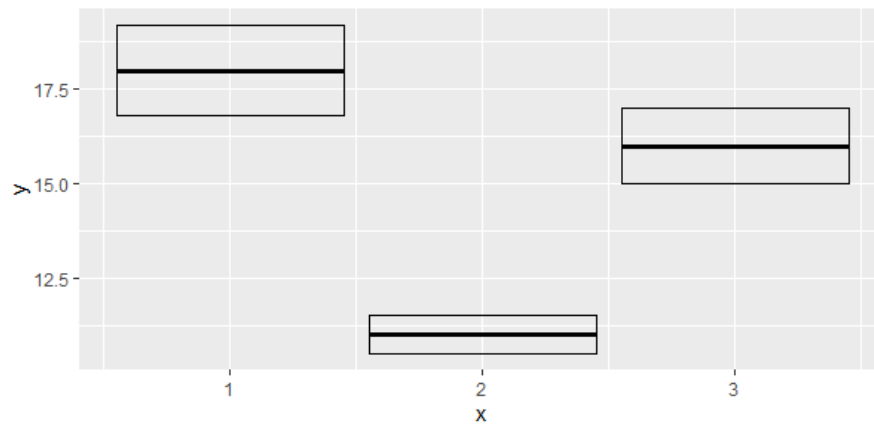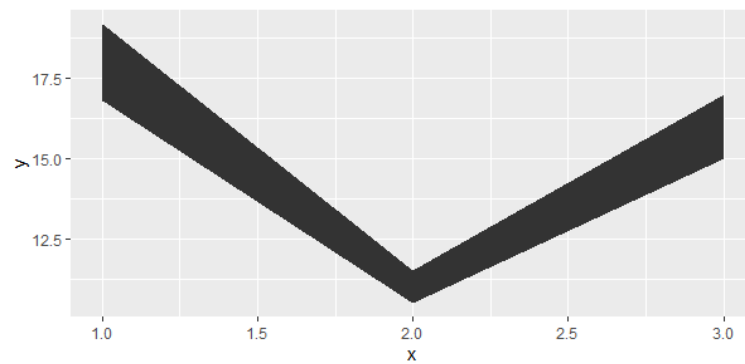
```
ggplot(census_counties, aes(lon, lat, group = county)) +
  geom_polygon(aes(fill = percwhite)) +
  coord_quickmap()
```
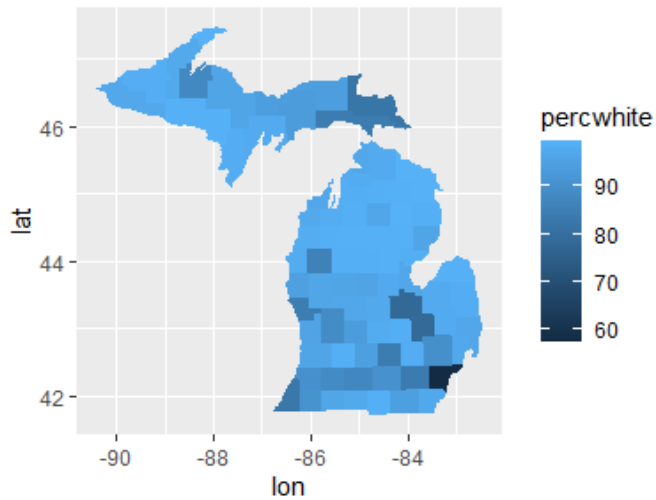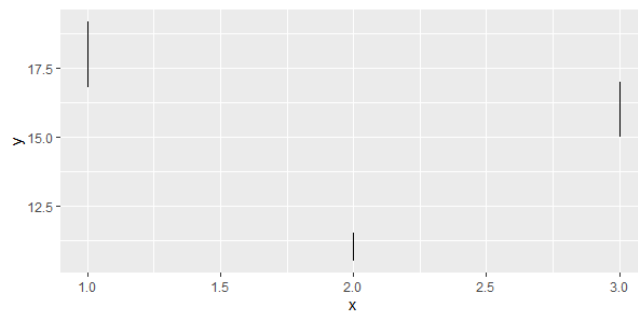


```
y <- c(18, 11, 16)
df <- data.frame(x = 1:3, y = y, se = c(1.2, 0.5, 1.0))
base <- ggplot(df, aes(x, y, ymin = y - se, ymax = y + se))
base + geom_crossbar()
base + geom_pointrange()
base + geom_smooth(stat = "identity")
```

base + geom_errorbar()
base + geom_linerange()
base + geom_ribbon()
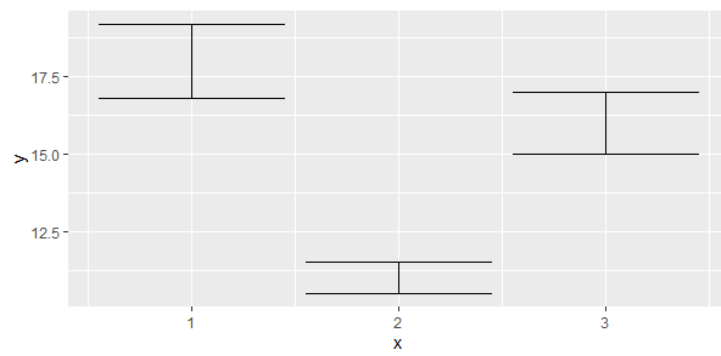
```
# Unweighted
ggplot(midwest, aes(percwhite, percbelowpoverty)) +
  geom_point() +
  geom_smooth(method = lm, size = 1)
```

```
ggplot(midwest, aes(percwhite, percbelowpoverty)) +
  geom_point(aes(size = poptotal / 1e6)) +
  geom_smooth(aes(weight = poptotal), method = lm, size = 1) +
  scale_size_area(guide = "none")
```
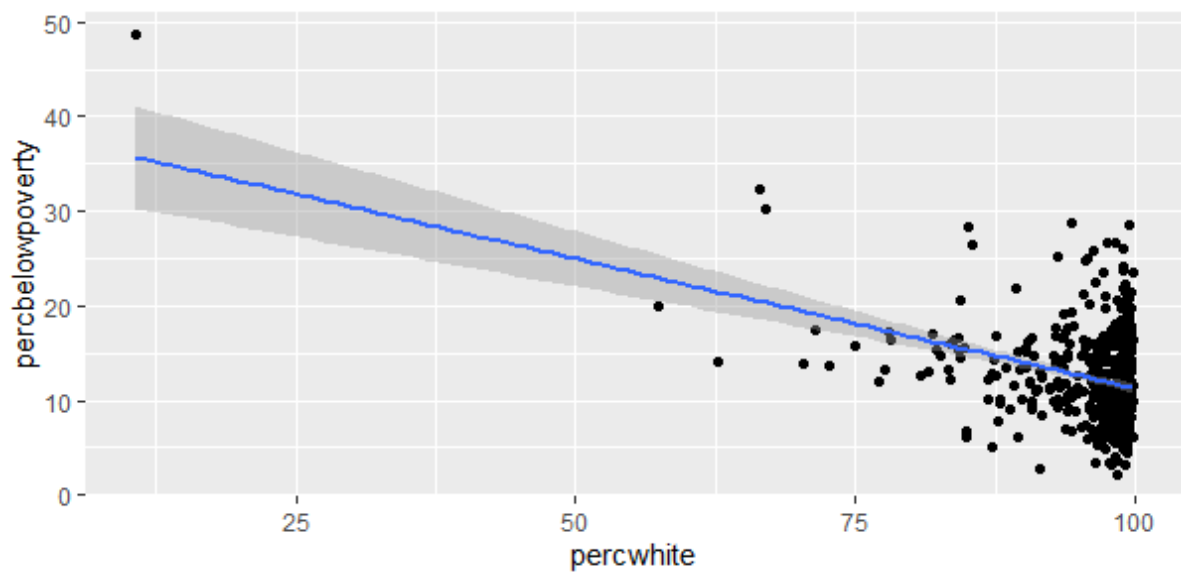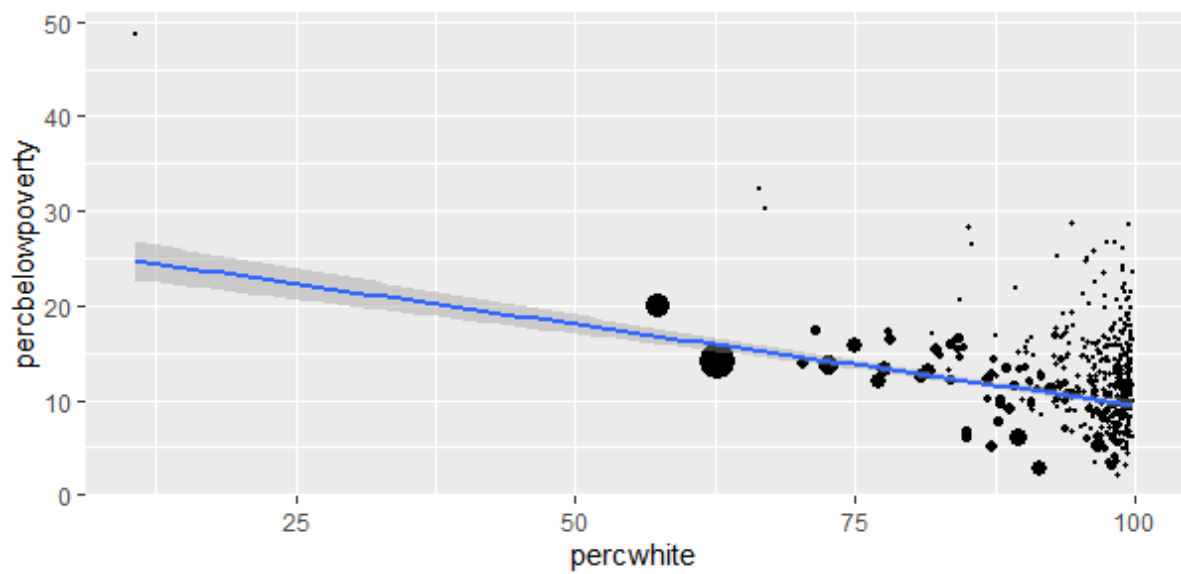


```
library(ggplot2)
library(cowplot)
```

```
data(mpg)

p1 <- ggplot(mpg, aes(displ, hwy)) +
  geom_point(alpha = 0.5, color = "blue") +
  geom_smooth(method = "lm", se = FALSE, color = "red") +
  geom_smooth(se = FALSE, color = "orange") +
  ggtitle("Unweighted") +
  theme(plot.title = element_text(face = "bold"))

p2 <- ggplot(mpg, aes(displ, hwy)) +
  geom_point(aes(size = cty), alpha = 0.5, color = "lightblue") +
  geom_smooth(aes(weight = cty), method = "lm", se = FALSE, color = "red") +
  geom_smooth(aes(weight = cty), se = FALSE, color = "orange") +
  geom_smooth(aes(weight = cty), method = "loess", se = FALSE, color = "green") +
  geom_smooth(aes(weight = cty), method = "gam", formula = y ~ s(x, bs = "cs"), se = FALSE, color = "bl
ue") +
  ggtitle("Weighted by cty") +
  theme(plot.title = element_text(face = "bold"))
plot_grid(p1, p2)
```