HW4

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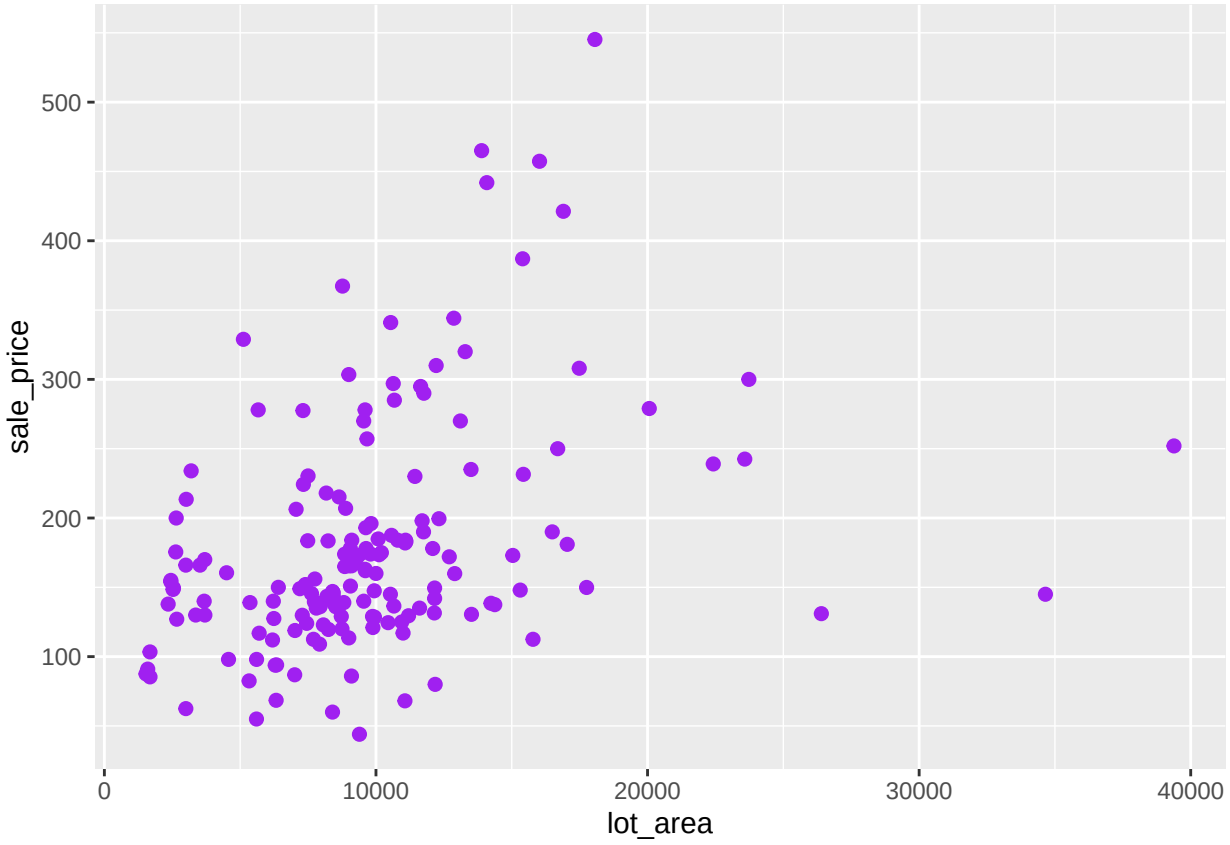
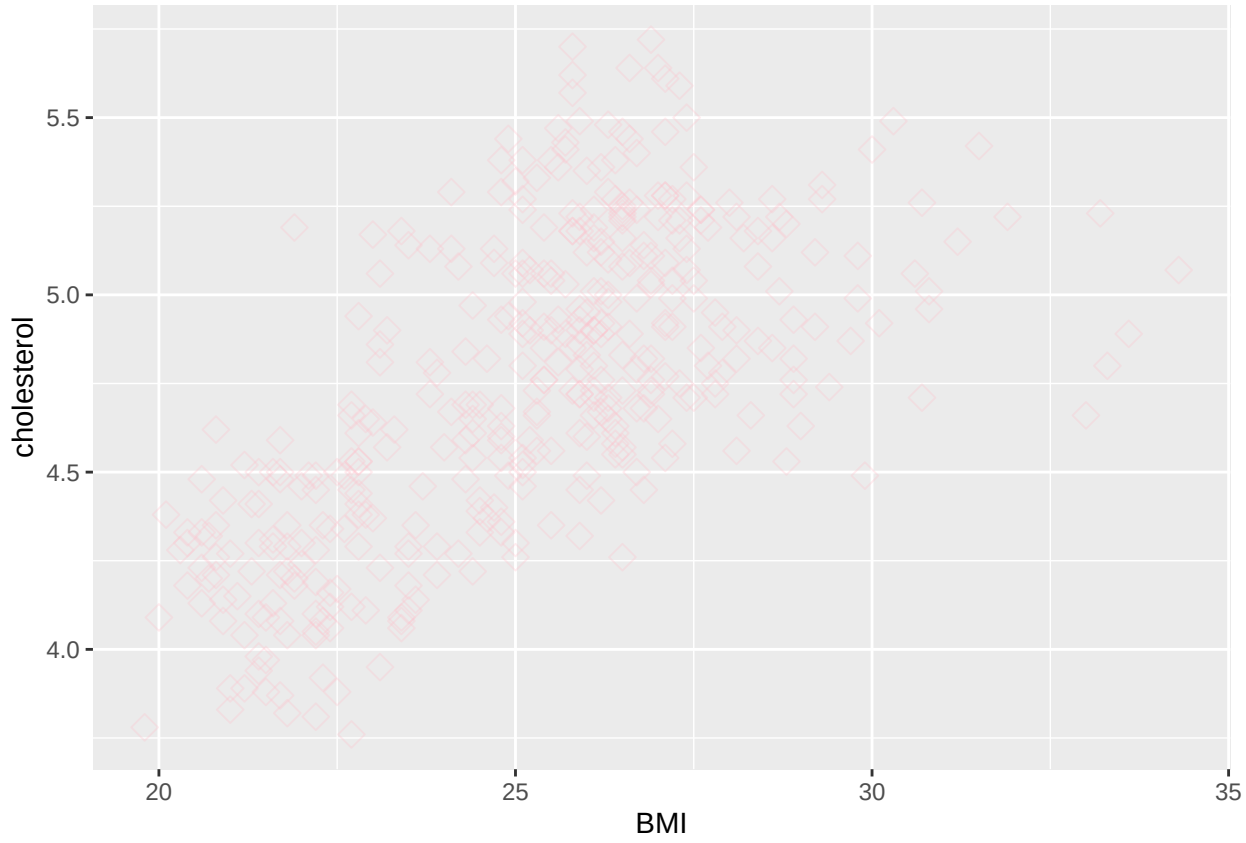
5.2.1 Q1

```
library(ggplot2)
library(r02pro)
ggplot(data = sahp) +
  geom_point(mapping = aes(x = lot_area,
                           y = sale_price),
             color = 'purple',
             size = 2)
```



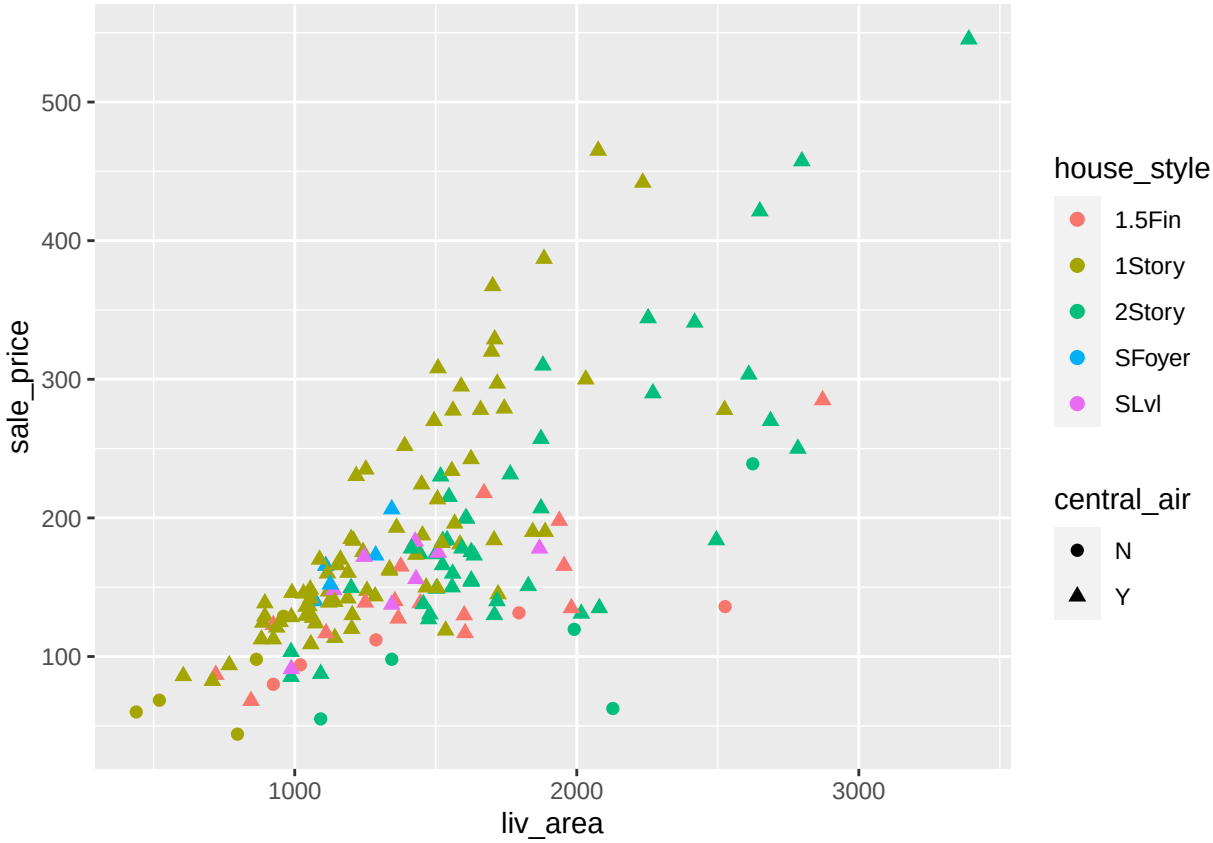
5.2.1 Q2

```
ggplot(data = gm2004) +
  geom_point(mapping = aes(x = BMI,
                           y = cholesterol),
             color = 'pink',
             size = 3,
             alpha = 0.3,
             shape = 5)
```



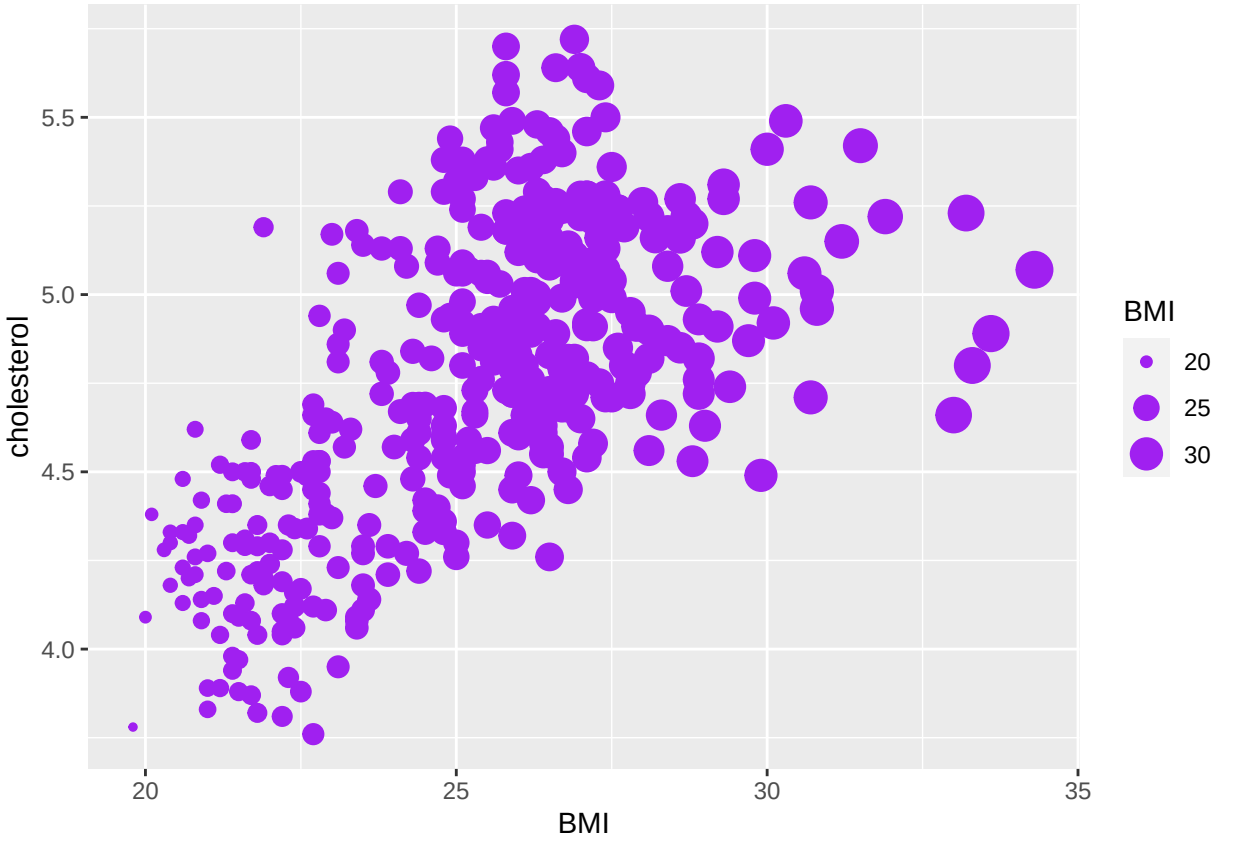
5.3.5 Q1

```
ggplot(data = sahp) +
  geom_point(mapping = aes(x = liv_area,
                           y = sale_price,
                           color = house_style,
                           shape = central_air),
             size = 2)
```



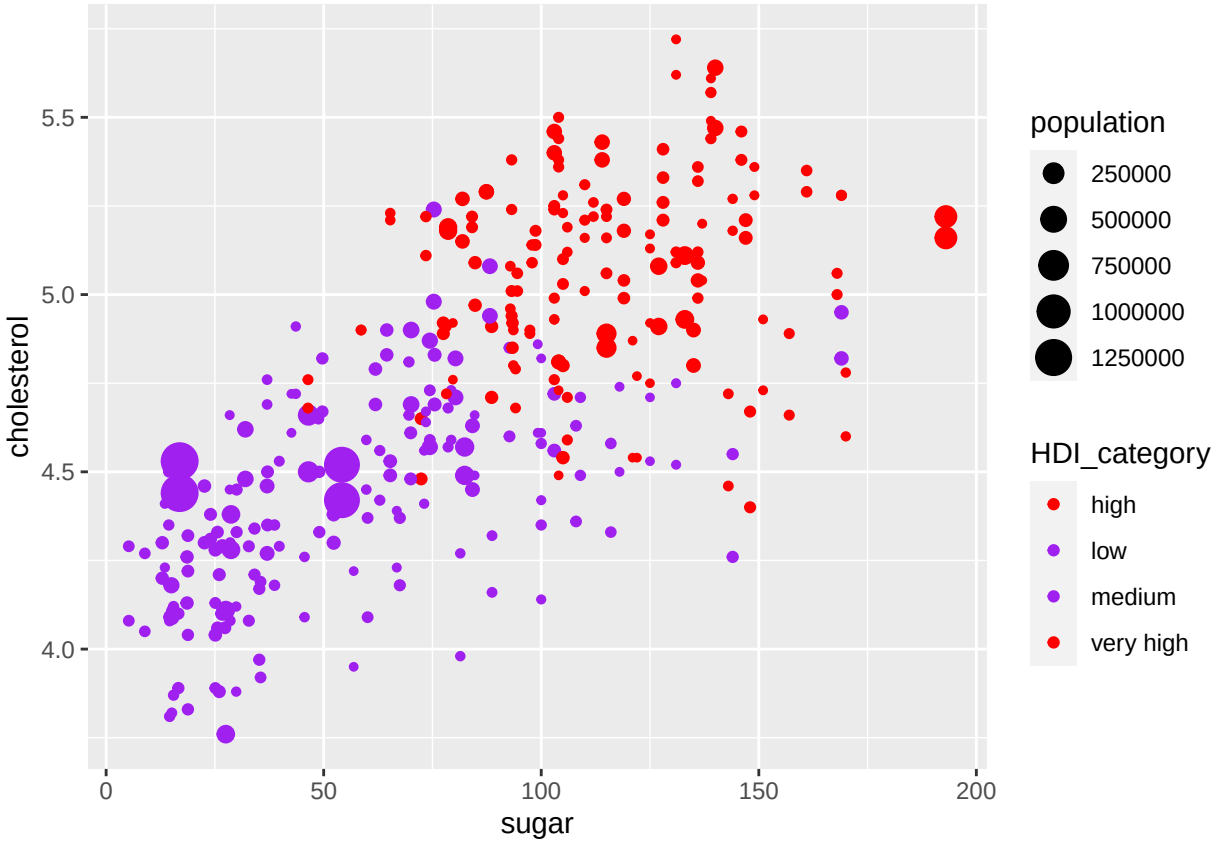
5.3.5 Q2

```
ggplot(data = gm2004) +
  geom_point(mapping = aes(x = BMI,
                           y = cholesterol,
                           size = BMI),
             color = 'purple')
```



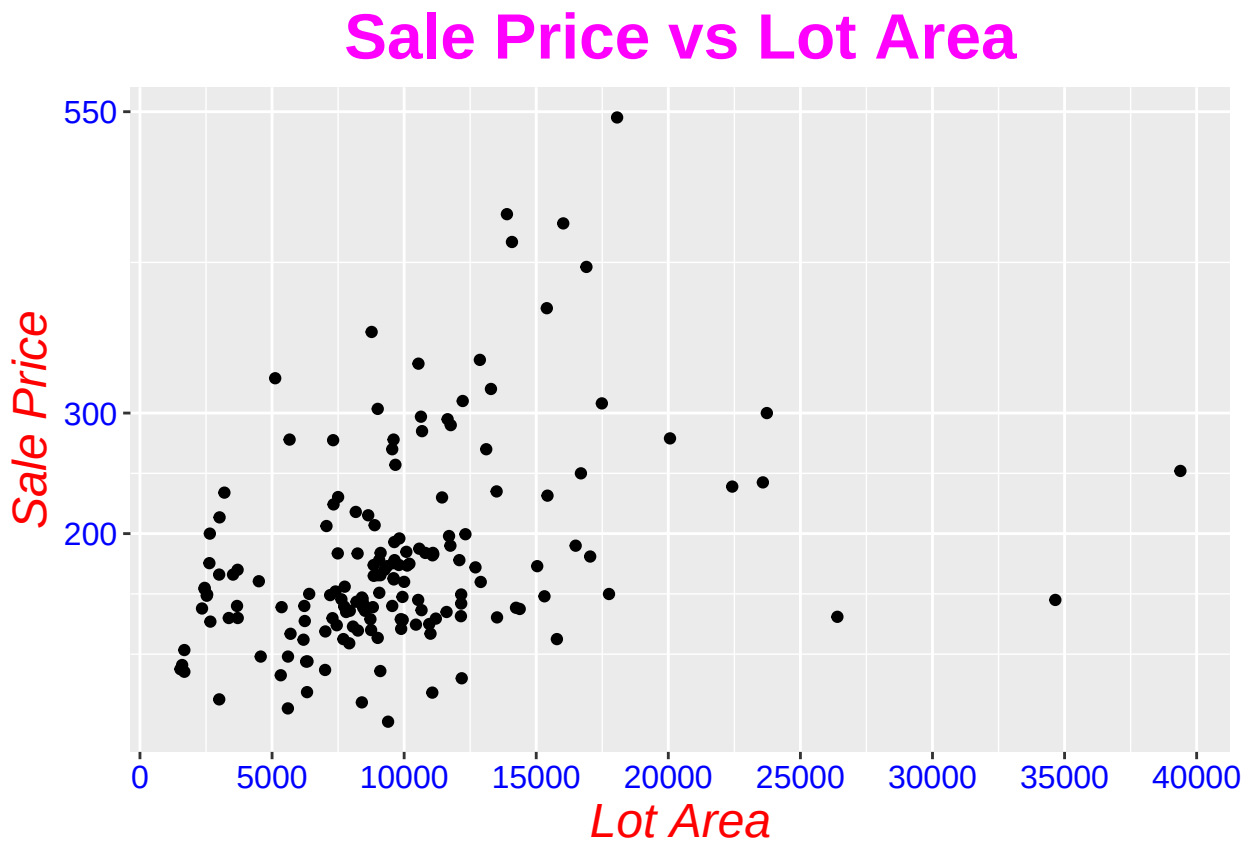
5.3.5 Q3

```
ggplot(data = remove_missing(gm2004, vars = 'HDI_category')) +
  geom_point(mapping = aes(x = sugar,
                           y = cholesterol,
                           color = HDI_category,
                           size = population)) +
  scale_color_manual(values = c('low' = 'purple', 'medium' = 'purple', 'high' = 'red', 'very high' = 'r
```



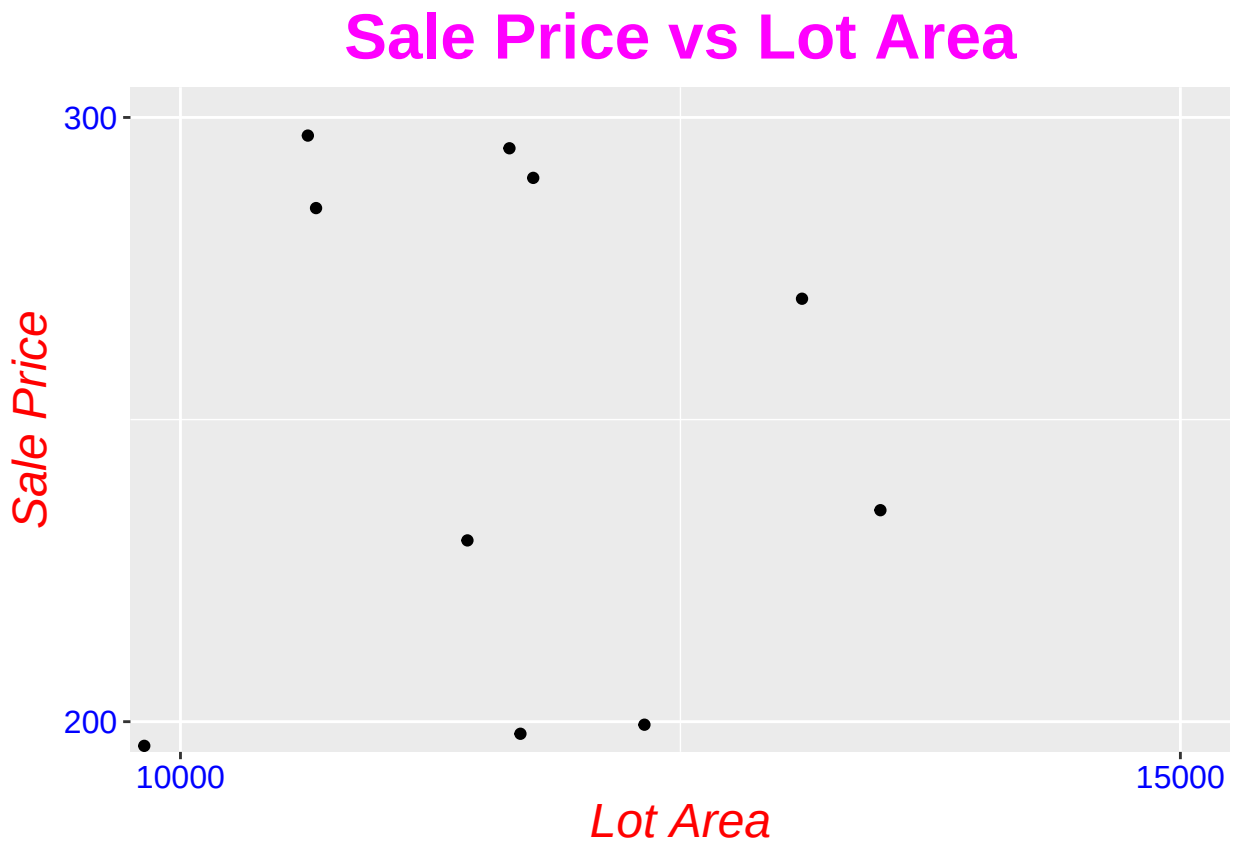
5.4.6 Q1

```
mytheme <- theme(axis.title = element_text(size = 18,
                                           color = "red",
                                           face = "italic"),
                 axis.text = element_text(size = 12,
                                          color = "blue"),
                 plot.title = element_text(size = 24,
                                           color = "magenta",
                                           face = "bold",
                                           hjust = 0.5))

myplot <- ggplot(data = sahp) +
  geom_point(mapping = aes(x = lot_area,
                           y = sale_price)) +
  scale_x_continuous(breaks = seq(0, 40000, 5000)) +
  scale_y_continuous(breaks = c(0, 200, 300, 550)) +
  xlab('Lot Area') +
  ylab('Sale Price') +
  ggtitle('Sale Price vs Lot Area') +
  mytheme

myplot
```



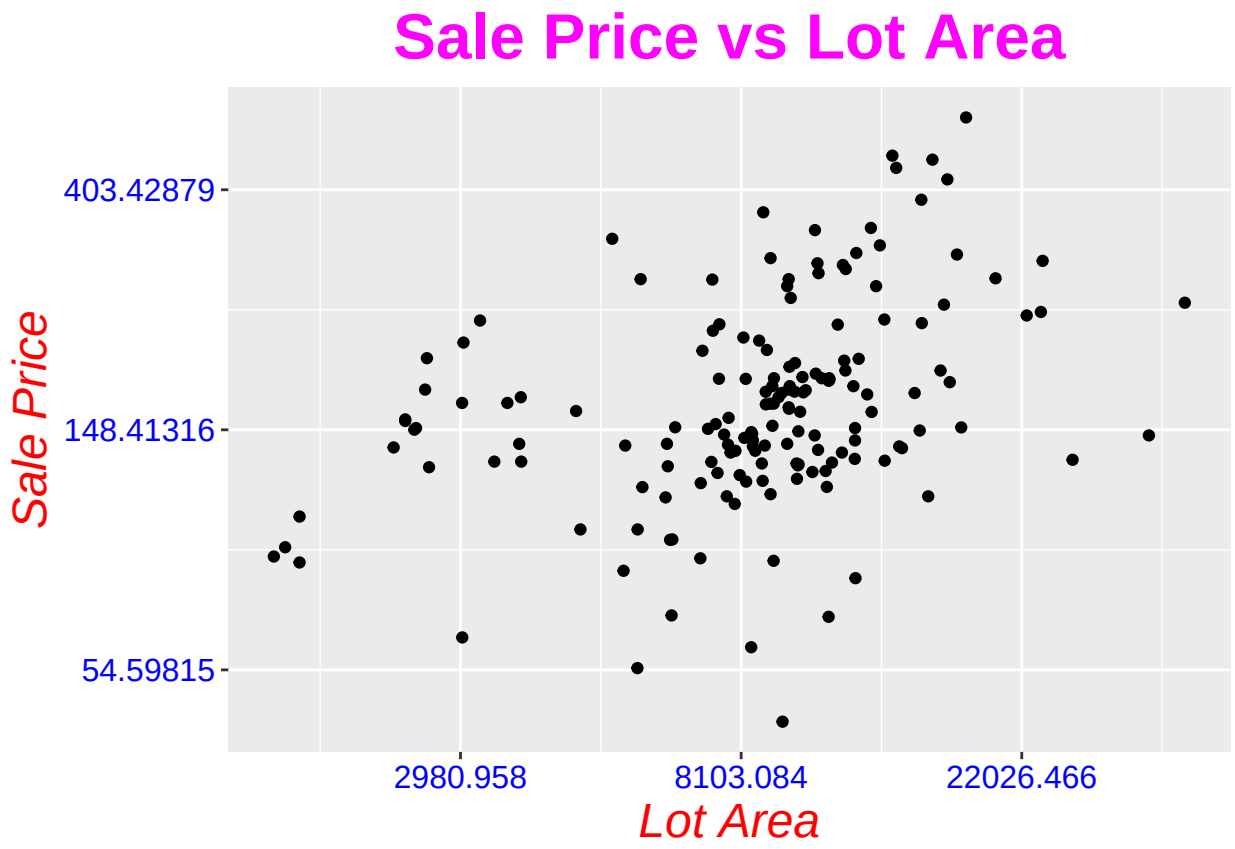
5.4.6 Q2

```
myplot +
  coord_cartesian(xlim = c(10000, 15000),
                  ylim = c(200, 300))
```



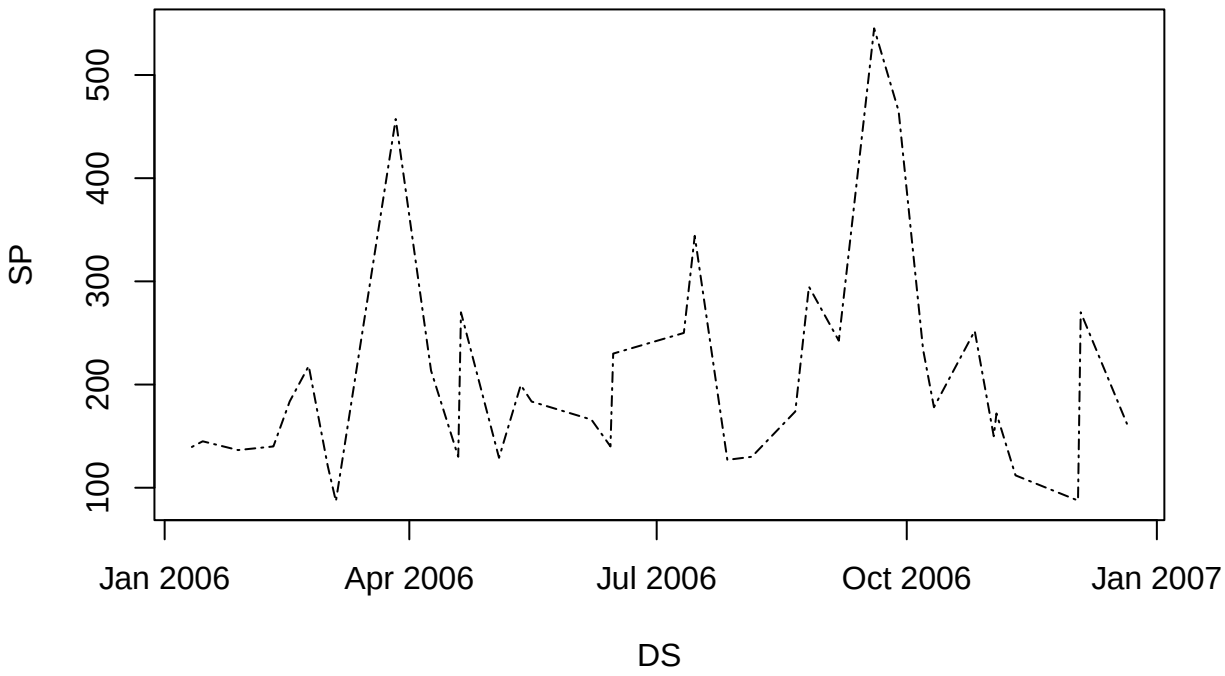
5.4.6 Q3

```
myplot +
  scale_x_continuous(trans = 'log') +
  scale_y_continuous(trans = 'log')
```



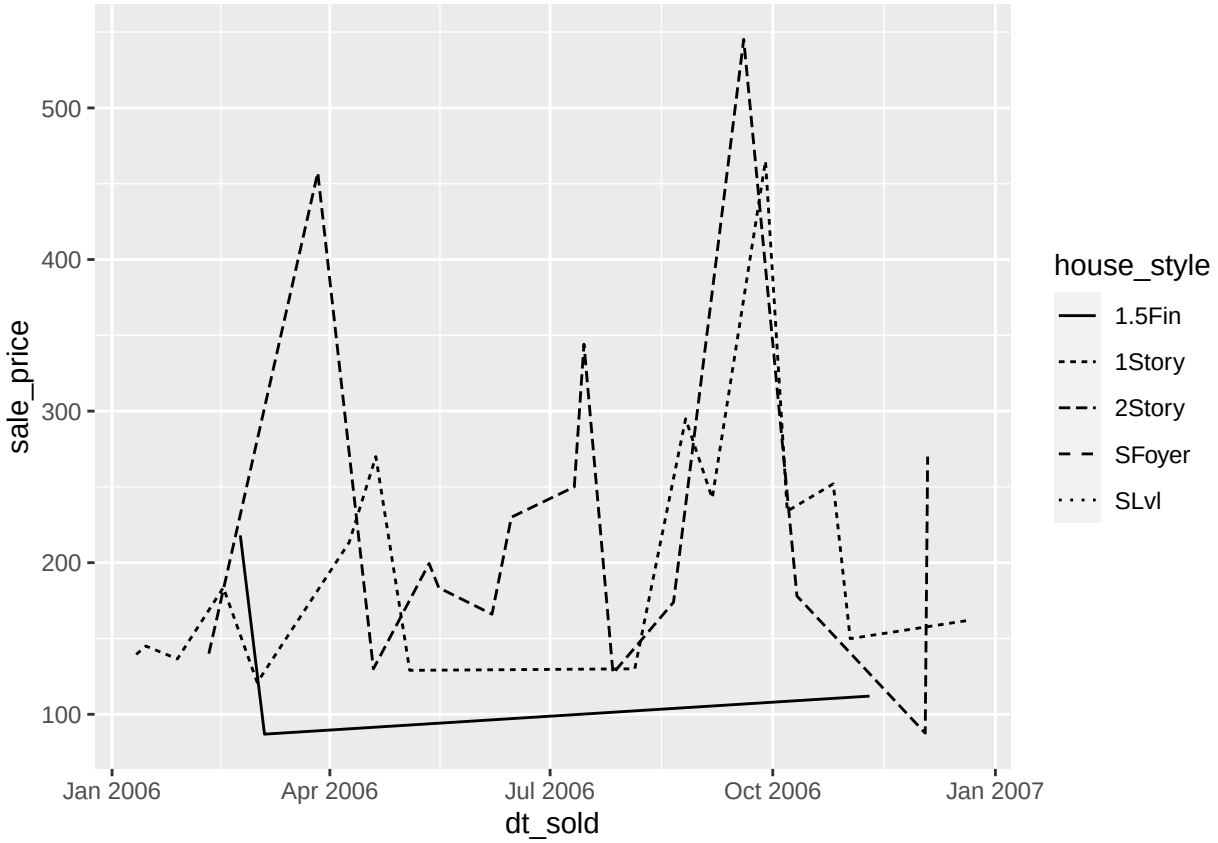
5.5.5 Q1

```
sahp_2006 <- sahp[format(sahp$dt_sold, "%Y") < 2007, ] #all houses sold before 2007
plot(sahp_2006$dt_sold[order(sahp_2006$dt_sold)],
     sahp_2006$sale_price[order(sahp_2006$dt_sold)],
     type = 'l',
     xlab = 'DS',
     ylab = 'SP',
     lty = 'twodash')
```



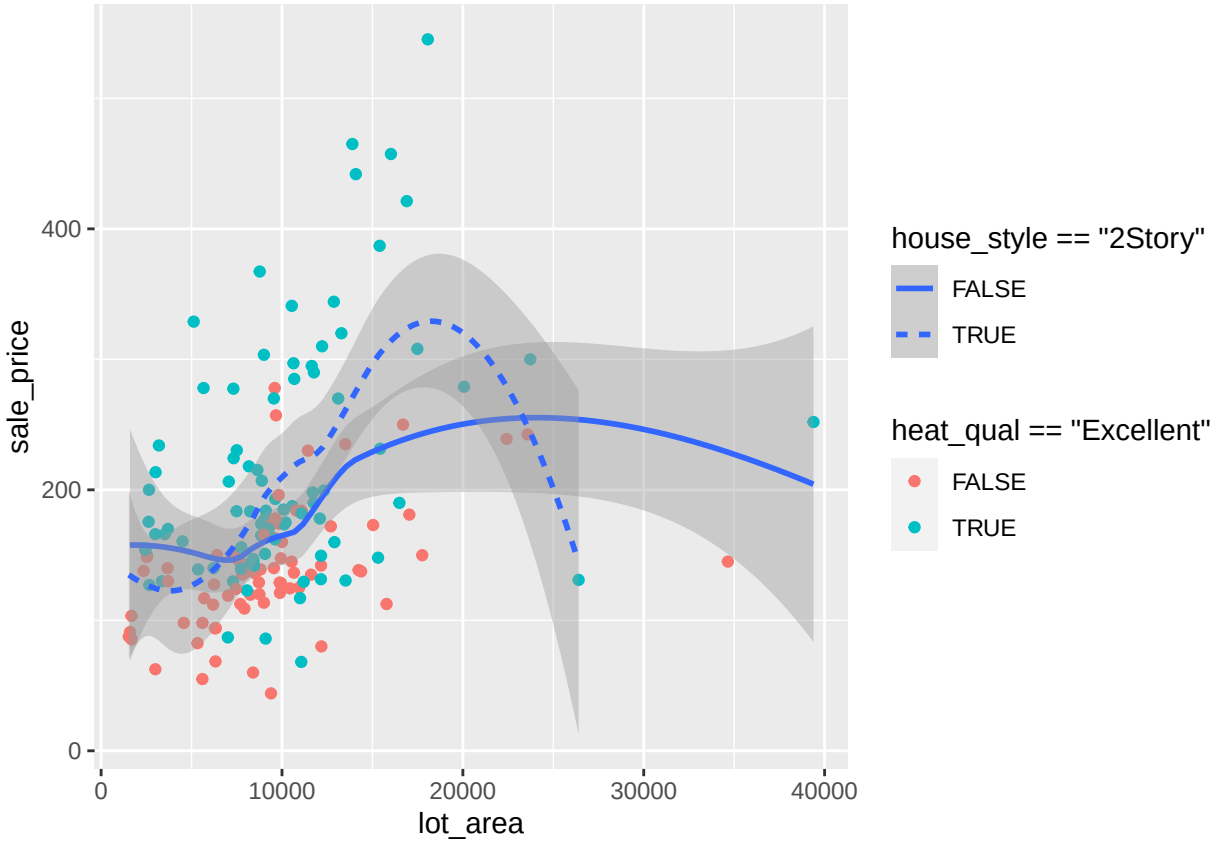
5.5.5 Q2

```
ggplot(data = sahp_2006) +
  geom_line(mapping = aes(x = dt_sold,
                          y = sale_price,
                          linetype = house_style))
```



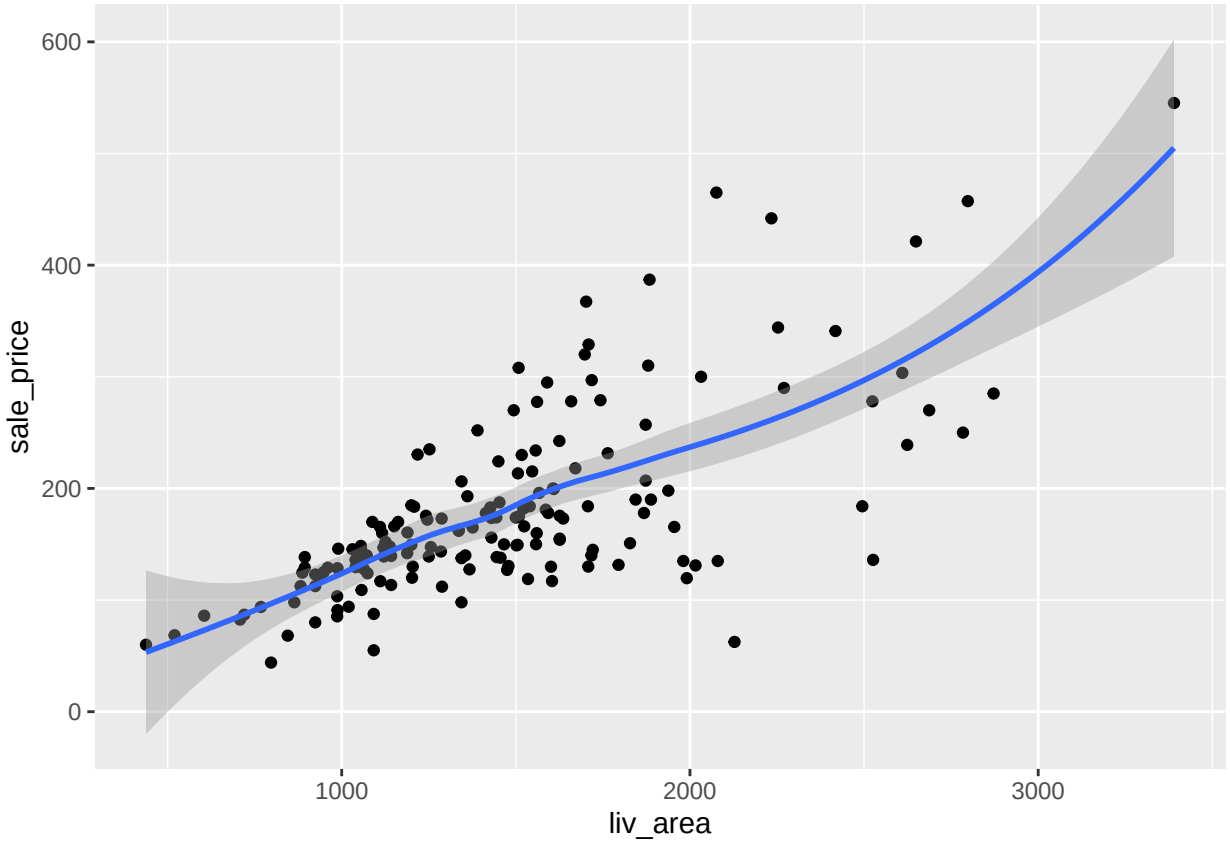
5.7.3 Q1

```
ggplot(data = sahp,
       mapping = aes(x = lot_area,
                     y = sale_price)) +
  geom_point(mapping = aes(colour = heat_qual == 'Excellent')) +
  geom_smooth(mapping = aes(linetype = house_style == '2Story'))
```



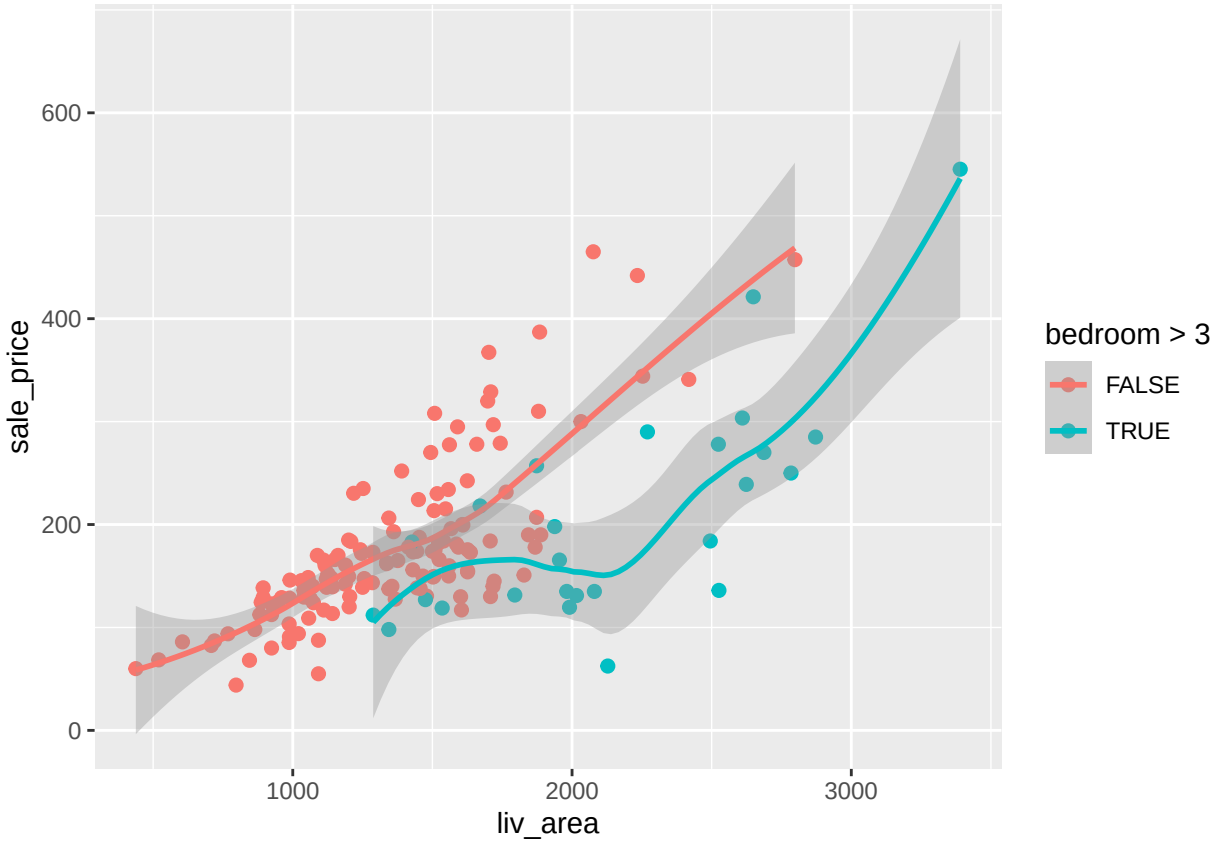
5.7.3 Q2

```
new_plot <- ggplot(data = sahp,
                   mapping = aes(x = liv_area,
                                 y = sale_price)) +
  geom_point() +
  geom_smooth()

new_plot
```



5.7.3 Q3

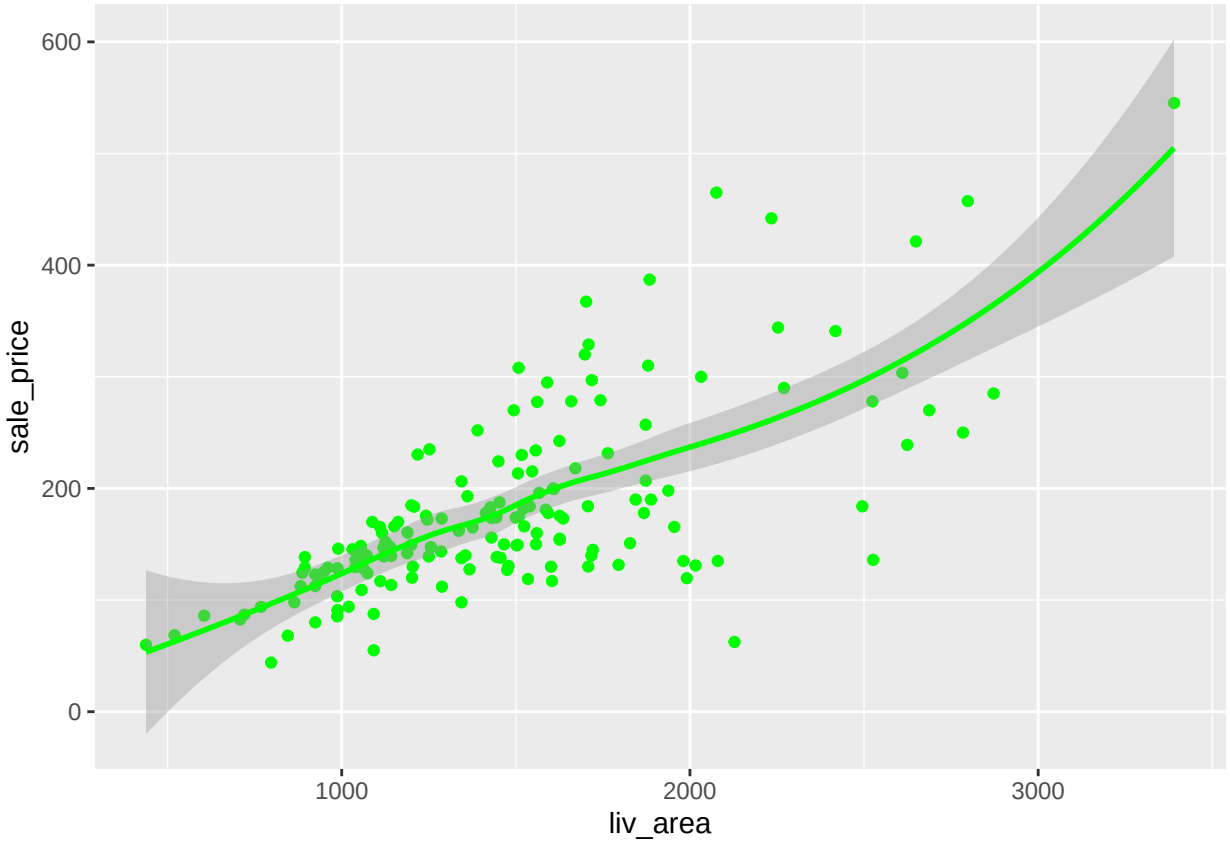
```
ggplot(data = sahp,
                  mapping = aes(x = liv_area,
                                y = sale_price)) +
  geom_point(mapping = aes(color = bedroom > 3),
             size = 2) +
  geom_smooth(mapping = aes(color = bedroom > 3))
```



5.7.3 Q4

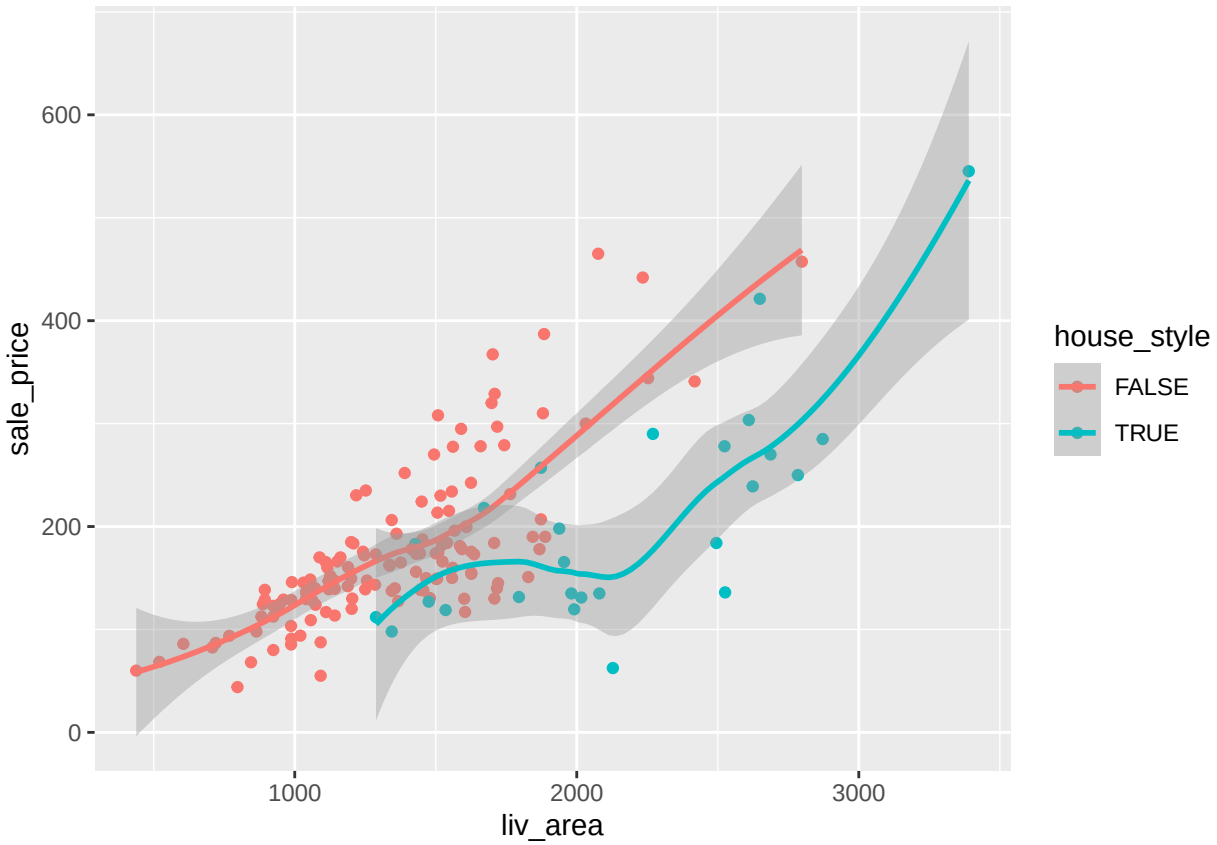
No, there are no global constant-valued aesthetics.

```
ggplot(data = sahp,
       mapping = aes(x = liv_area,
                     y = sale_price)) +
  geom_point(color = "green") +
  geom_smooth(color = "green")
```



5.7.3 Q5

```
ggplot(data = sahp,
       mapping = aes(x = liv_area,
                     y = sale_price,
                     color = house_style)) +
  geom_point(mapping = aes(color = bedroom > 3)) +
  geom_smooth(mapping = aes(color = bedroom > 3))
```



The global aesthetic mapping has been overwritten by the local geom aesthetic mapping. The name remains `house_style` because it is an artifact of `ggplot` implementation.