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title: "Lesson 5 - Problem Set"

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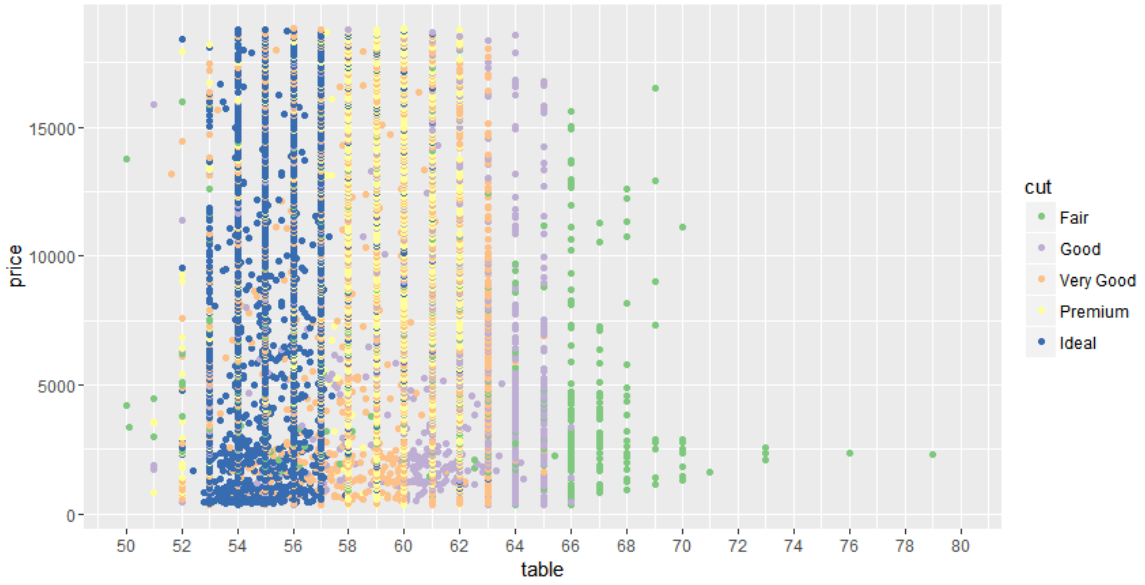
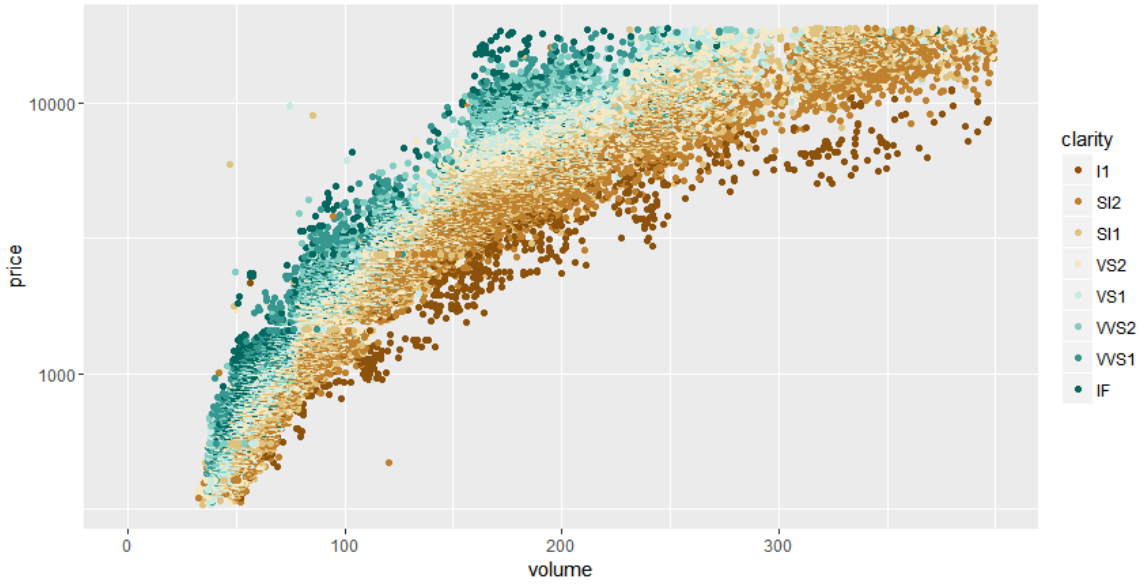
```{r Exercise 1 - Price Histograms with Facet and Color}

#Price Histograms with Facet and Color

library(ggplot2)

data(diamonds)

ggplot(data = diamonds, aes(x = price, fill = cut)) +

  geom_histogram() +

  scale_x_log10() +

  scale_fill_brewer(type = "qual") +

  facet_wrap(~color)

```

```{r Exercise 2 - Price vs. Table Colored by Cut}
ggplot(data = diamonds, aes(x = table, y = price)) +
  geom_point(aes(color = cut)) +
  scale_x_continuous(limits = c(50, 80), breaks = seq(50, 80, 2)) +
  scale_color_brewer(type = "qual")
```

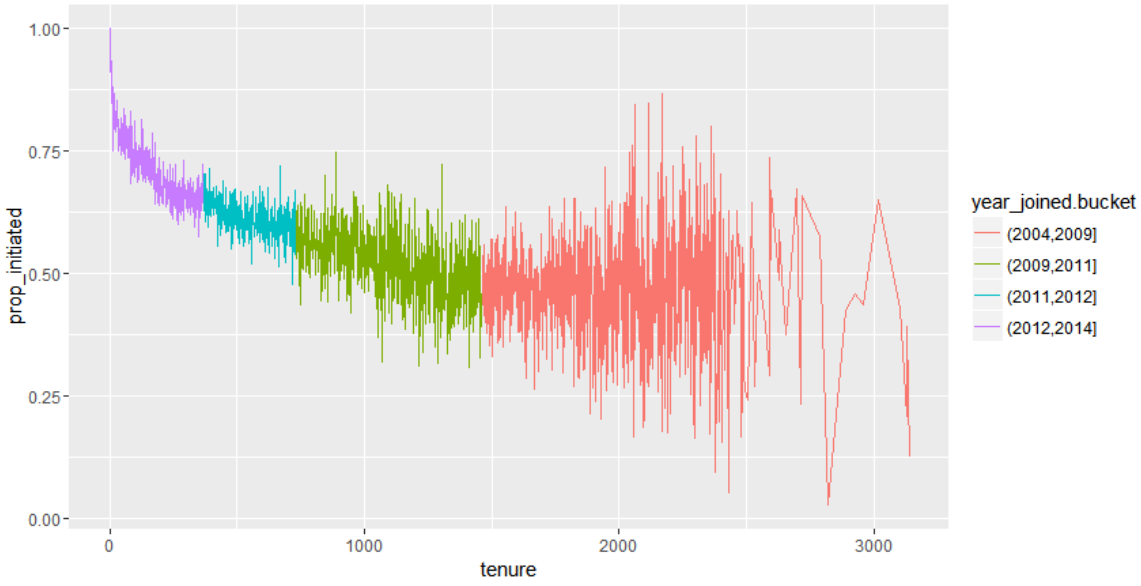


```{r Exercise 4 - Price vs. Volume and Diamond Clarity}
diamonds <- transform(diamonds, volume = (x * y * z))
ggplot(data = subset(diamonds, (diamonds$volume > 0.01 * volume)), aes(x = volume, y = price)) +
  geom_point(aes(color = clarity)) +
  scale_x_continuous(limits = c(0, 400), breaks = seq(0, 300, 100)) +
  scale_y_log10() +
  scale_color_brewer(type = "div")
```

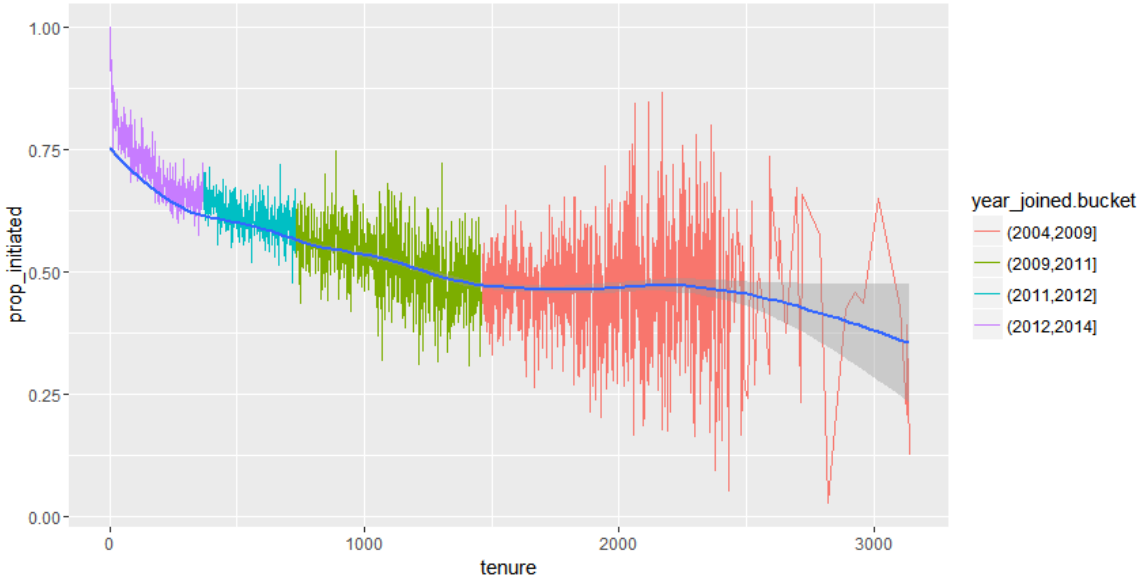



```{r Exercise 5 - Proportion of Friendships Initiated}
pf <- transform(pf, prop_initiated = (friendships_initiated / friend_count))
```

```{r Exercise 6 - prop_initiated vs. tenure}
pf$year_joined.bucket <- cut(pf$year_joined,
                             c(2004, 2009, 2011, 2012, 2014))

ggplot(aes(x = tenure, y = prop_initiated),
       data = subset(pf, !is.na(year_joined.bucket))) +
  geom_line(aes(color = year_joined.bucket) ,stat = "summary", fun.y = median)
```



```{r Exercise 8 - Smoothing prop_initiated vs. tenure}
ggplot(aes(x = tenure, y = prop_initiated),
       data = subset(pf, !is.na(year_joined.bucket), !is.na(prop_initiated))) +
  geom_line(aes(color = year_joined.bucket) ,stat = "summary", fun.y = median) +
  geom_smooth()

pf2 <- subset(pf, year_joined.bucket == "(2012,2014]")

summary(pf2)
```



```{r Exercise 10 - Price/Carat Binned, Faceted, & Colored}
ggplot(data = diamonds, aes(x = cut, y = price/carat)) +
  geom_point(aes(color = color), pch = 16, position = "jitter") +
  scale_color_brewer(type = "div") +
  facet_wrap(~clarity)
```