

HW5

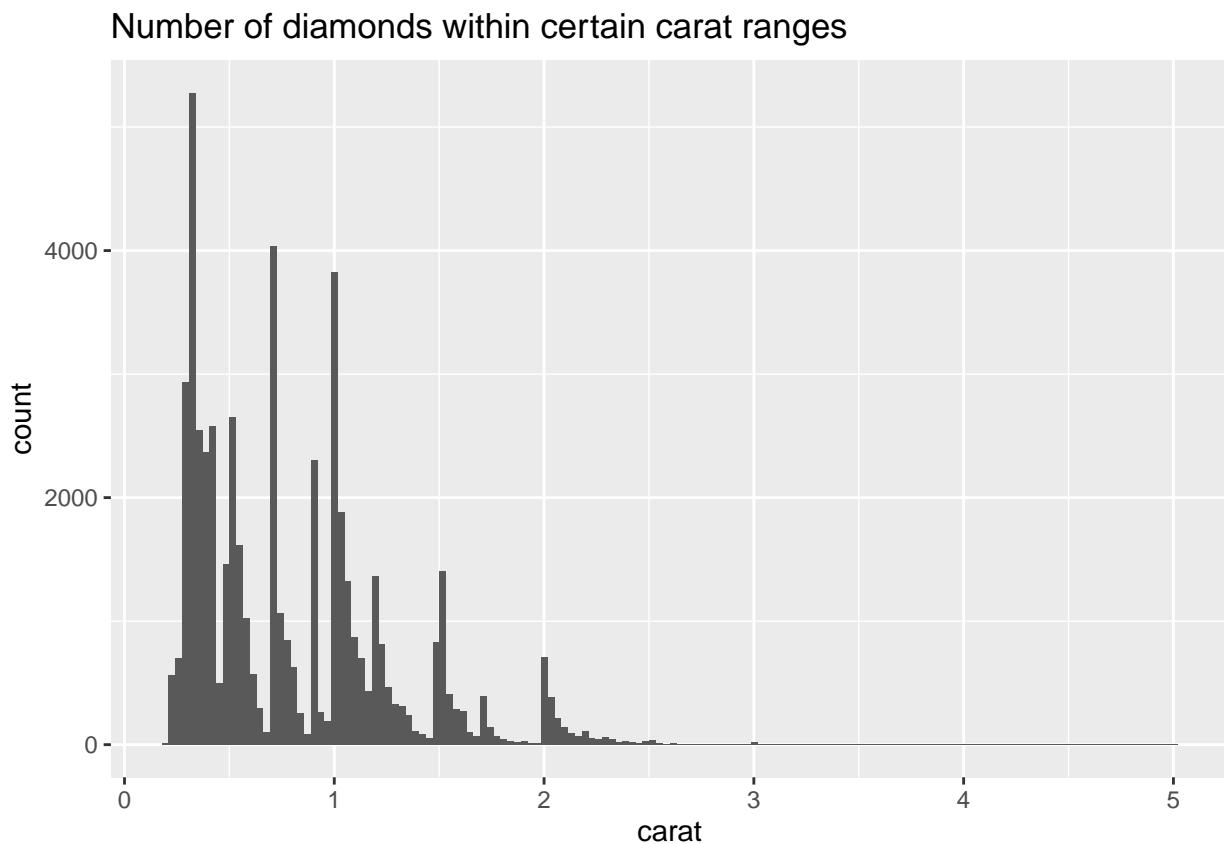
Orlando Malanco

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```
library(ggplot2)
data("diamonds")
```

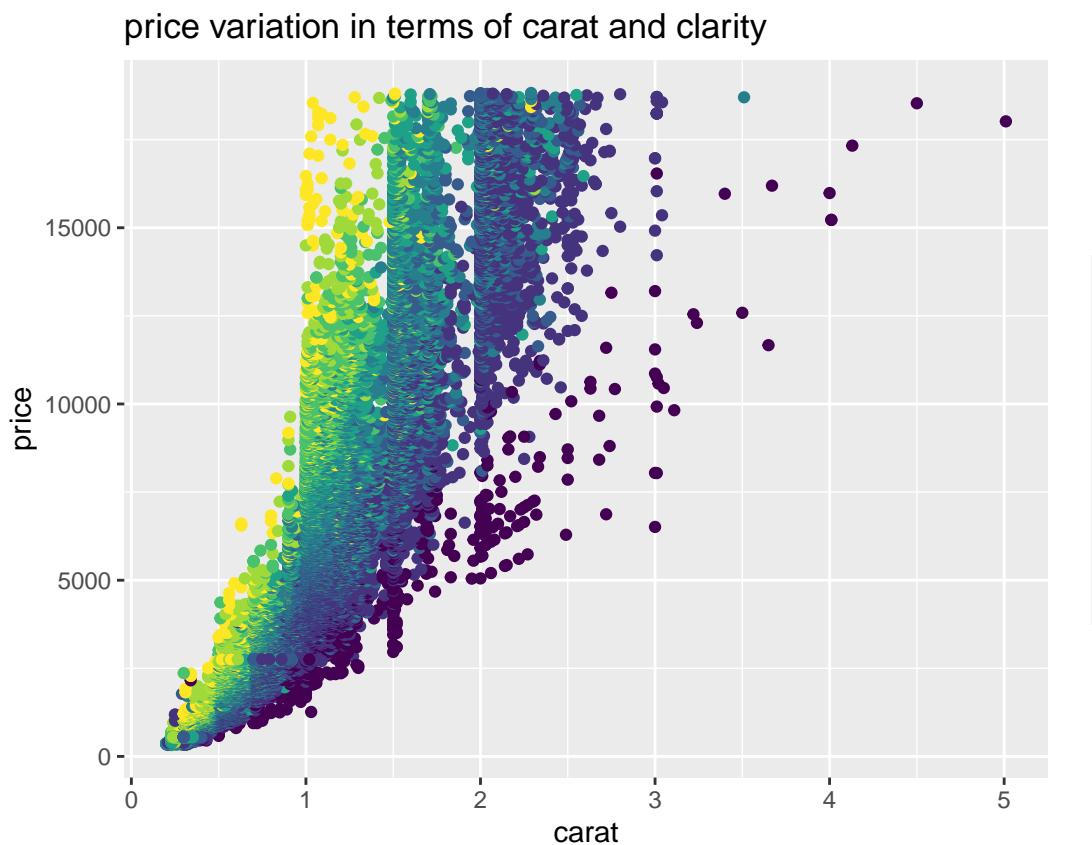
#1a #This is a histogram of carat and it has 150 bins.this shows the frequency at # which the diamonds fall into certain weight.

```
ggplot(diamonds, aes(x = carat)) + geom_histogram(bins = 150) +
  labs(title = "Number of diamonds within certain carat ranges")
```



#1b #this graph plots the price in terms of carat. It color codes them by clarity # so you can see a vague difference in prices of diamonds due to clarity.

```
ggplot(diamonds, aes(x=carat, y=price, color=clarity)) + geom_point() +
  labs(title = "price variation in terms of carat and clarity ")
```

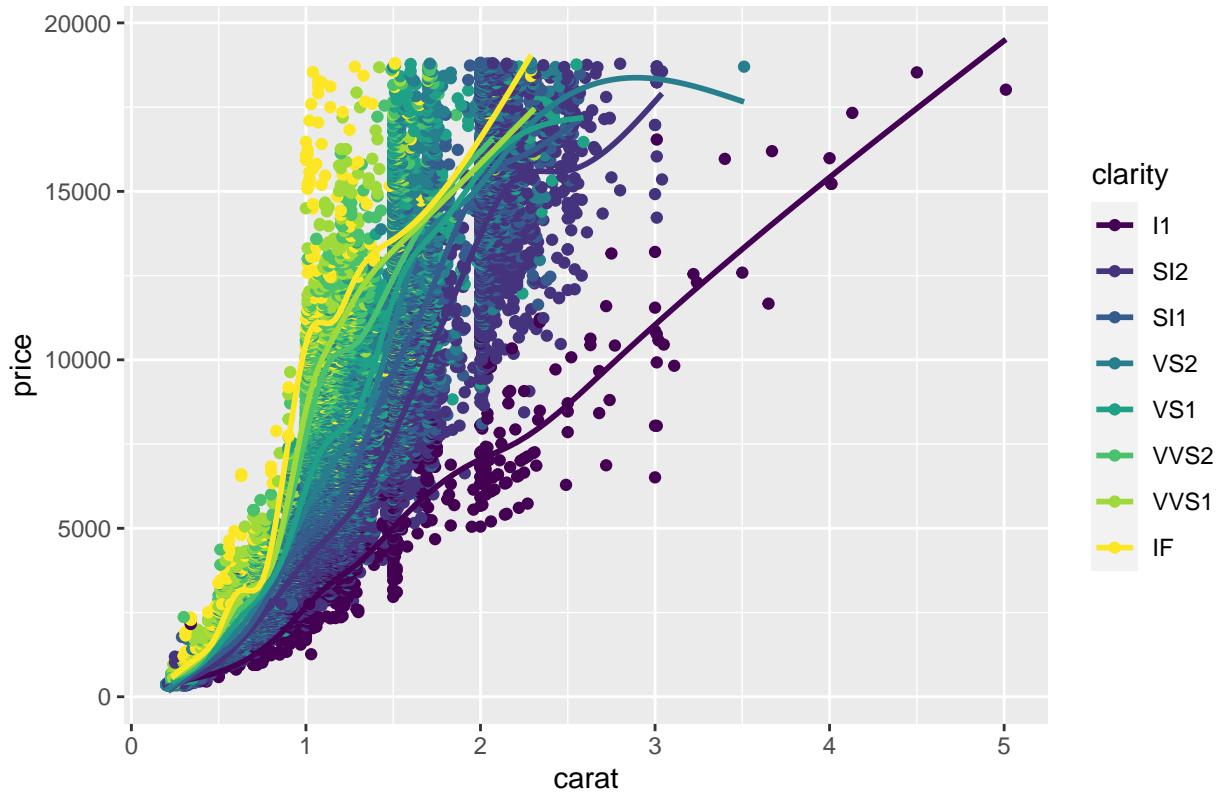


#1c # This graph shows a change in price given weight and distinguishes each point #by color coding it between clarities. this allows you to compaare prices between # cuts as well as see a general line of where the price is for certain clarity

```
ggplot(diamonds, aes(x=carat, y=price, color=clarity)) + geom_point() +
  geom_smooth(se=FALSE) + labs(title = "Price in Relation to Carat and Clarity")
```

```
## 'geom_smooth()' using method = 'gam' and formula 'y ~ s(x, bs = "cs")'
```

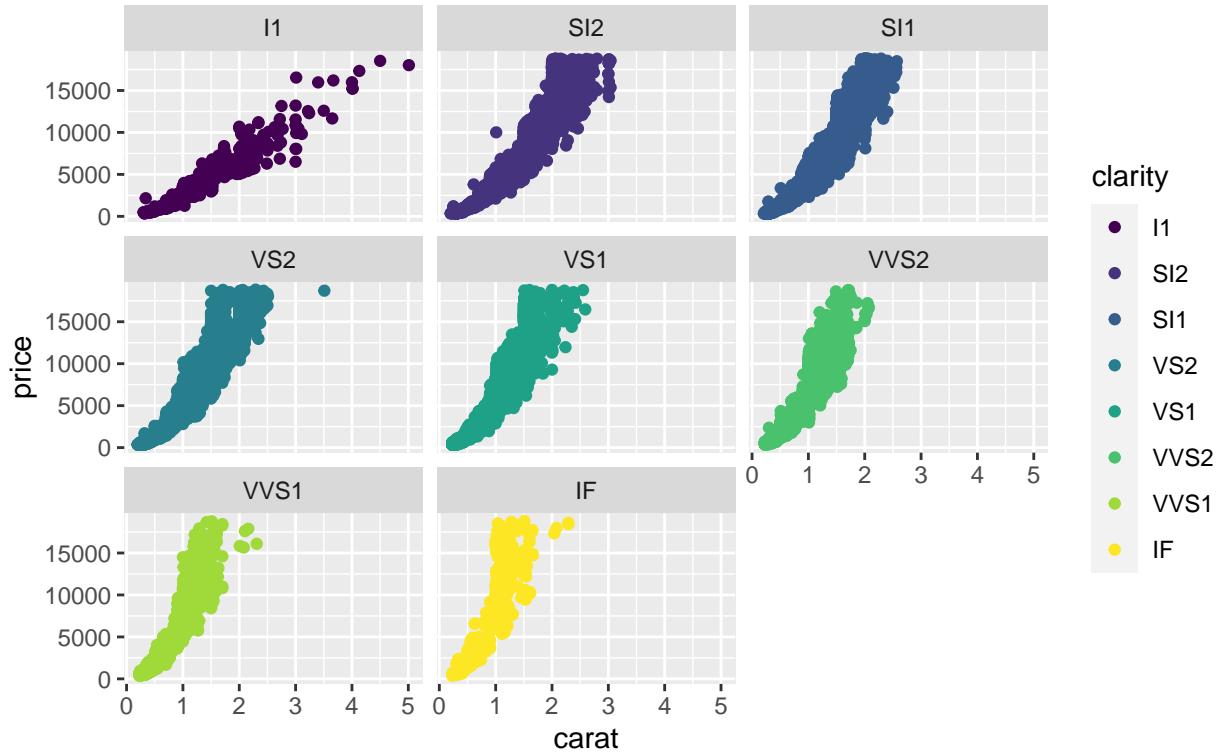
Price in Relation to Carat and Clarity



#1d #This shows the price in terms of weight within a given clarity

```
ggplot(diamonds, aes(x=carat, y=price, color=clarity)) + geom_point() +  
  facet_wrap(clarity ~.) + labs(title = "price in relation to weight given  
  clarity")
```

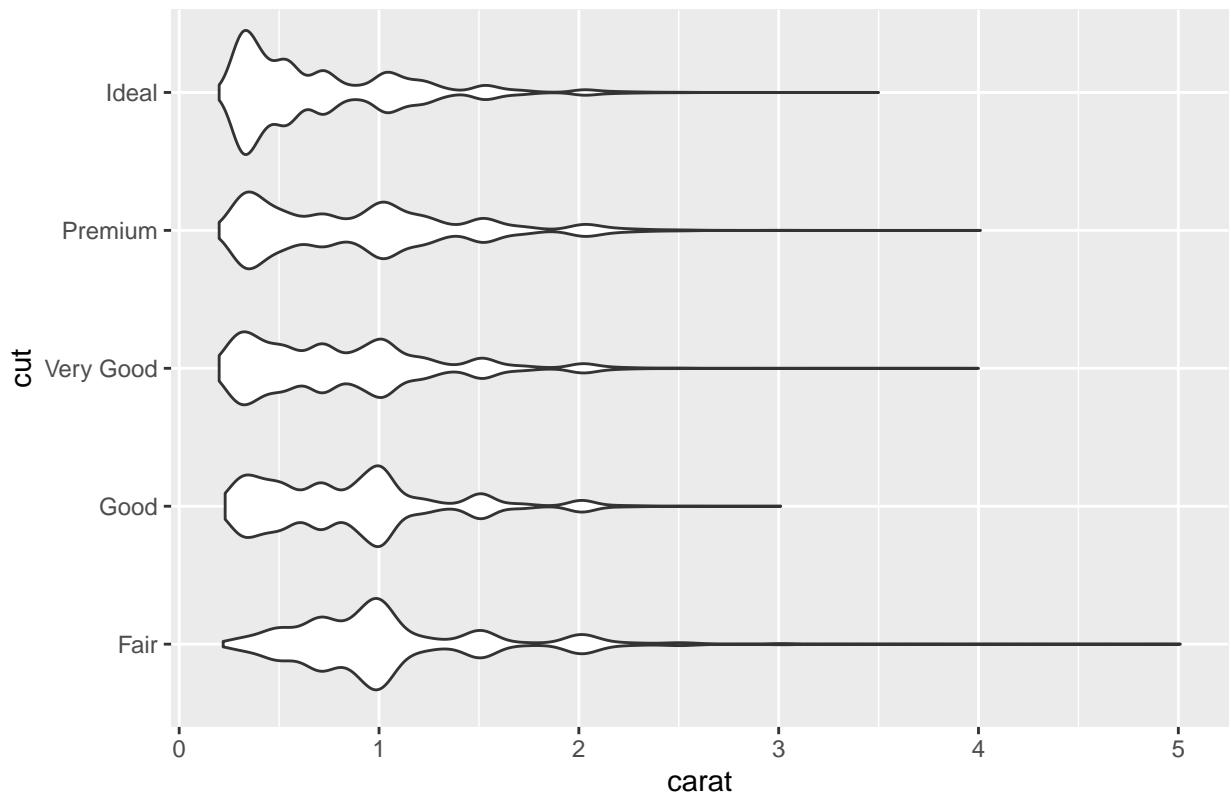
price in relation to weight given clarity



#1e # the violin graph is better for visualisation because it shows the density #of the weights within a cut

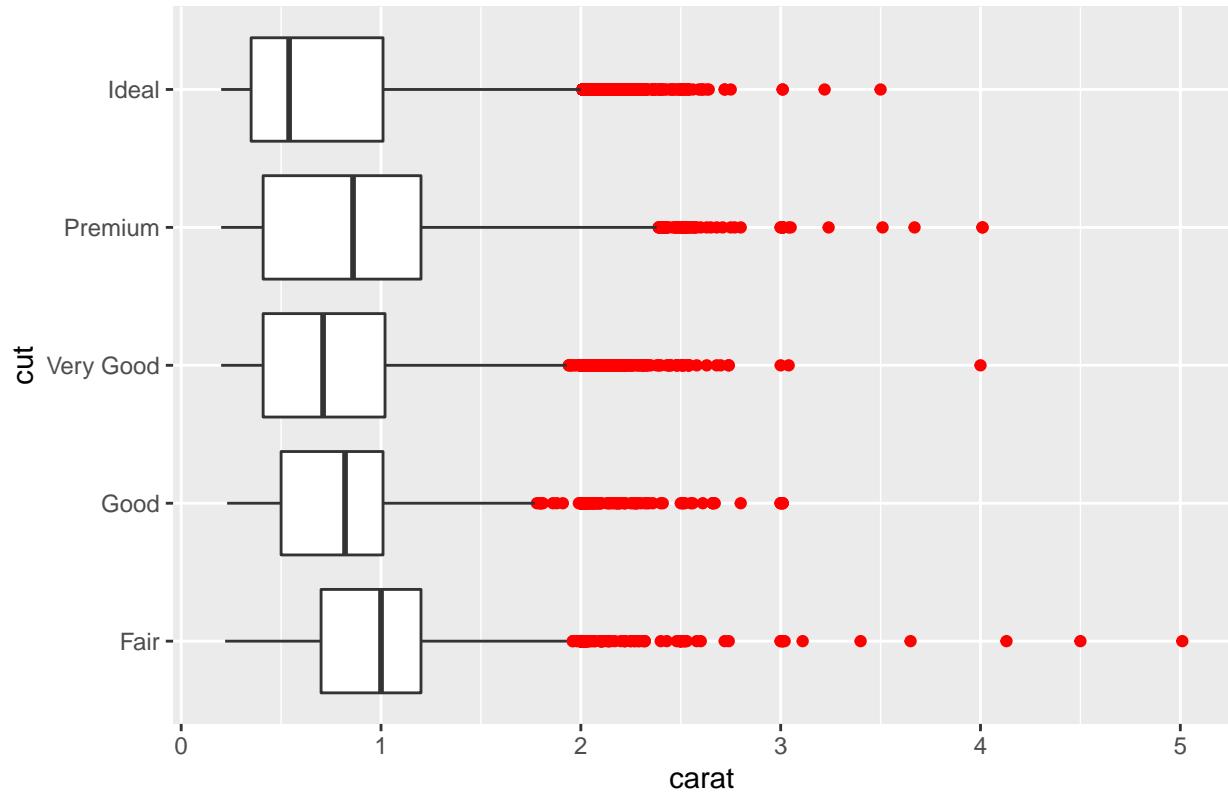
```
ggplot(diamonds, aes(x = carat, y = cut)) + geom_violin() +
  labs(title = "density of types of cut given weight")
```

density of types of cut given weight



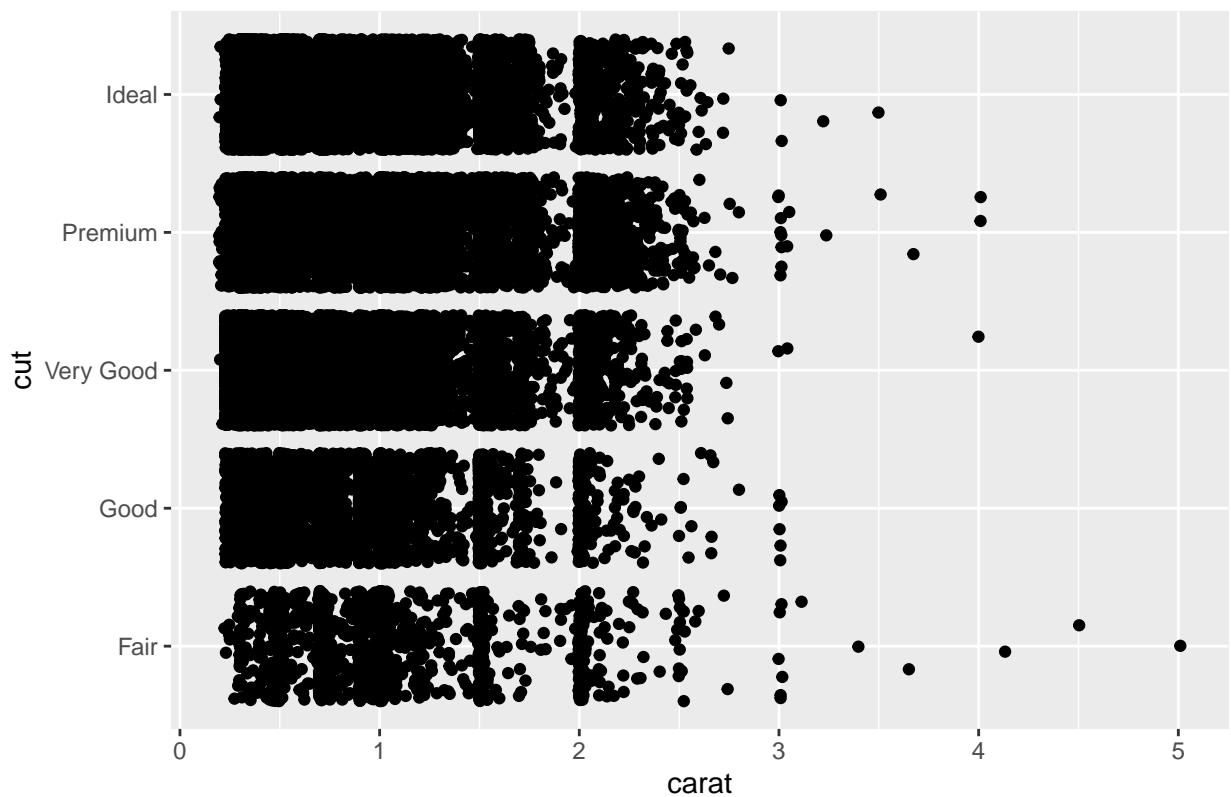
```
ggplot(diamonds, aes(x = carat, y = cut)) +  
  geom_boxplot(outlier.colour="red") +  
  labs(title = "variation of wight within a cut")
```

variation of wight within a cut



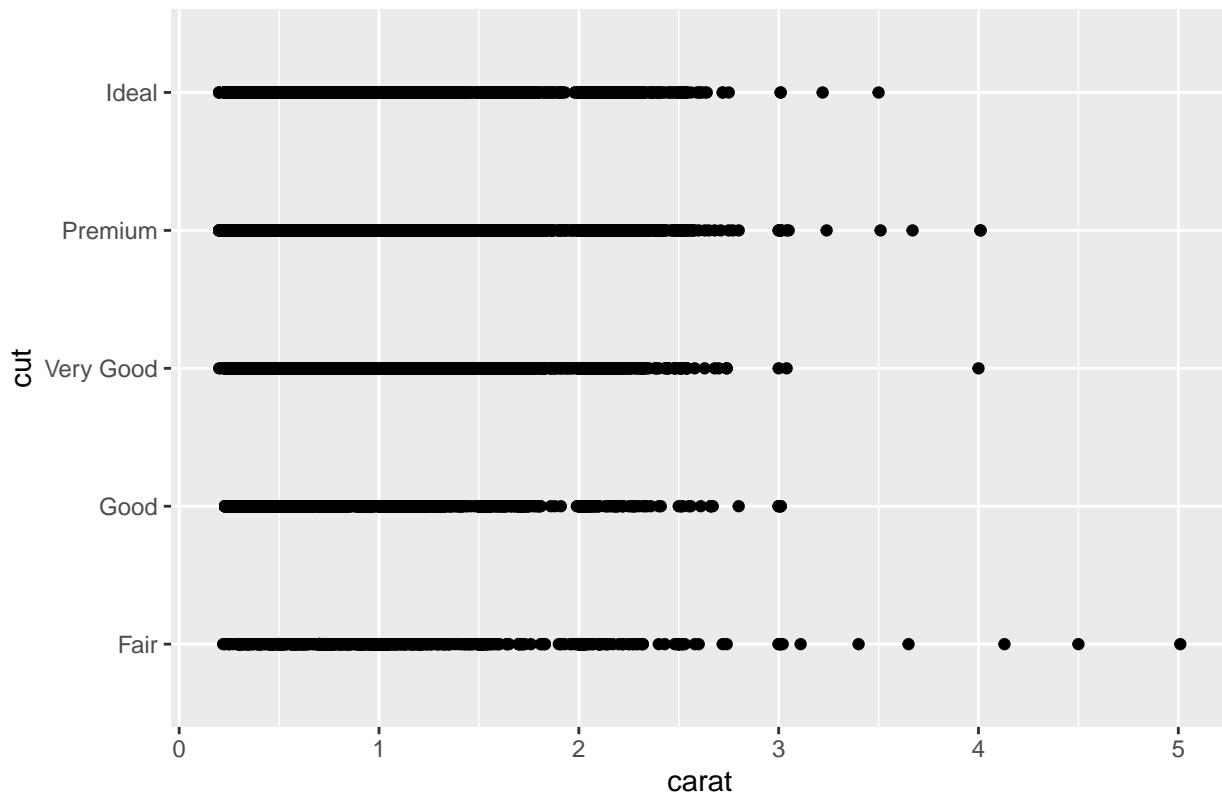
```
ggplot(diamonds, aes(x = carat, y = cut)) +  
  geom_jitter() + labs(title = "weight of diamond within certain cuts")
```

weight of diamond within certain cuts



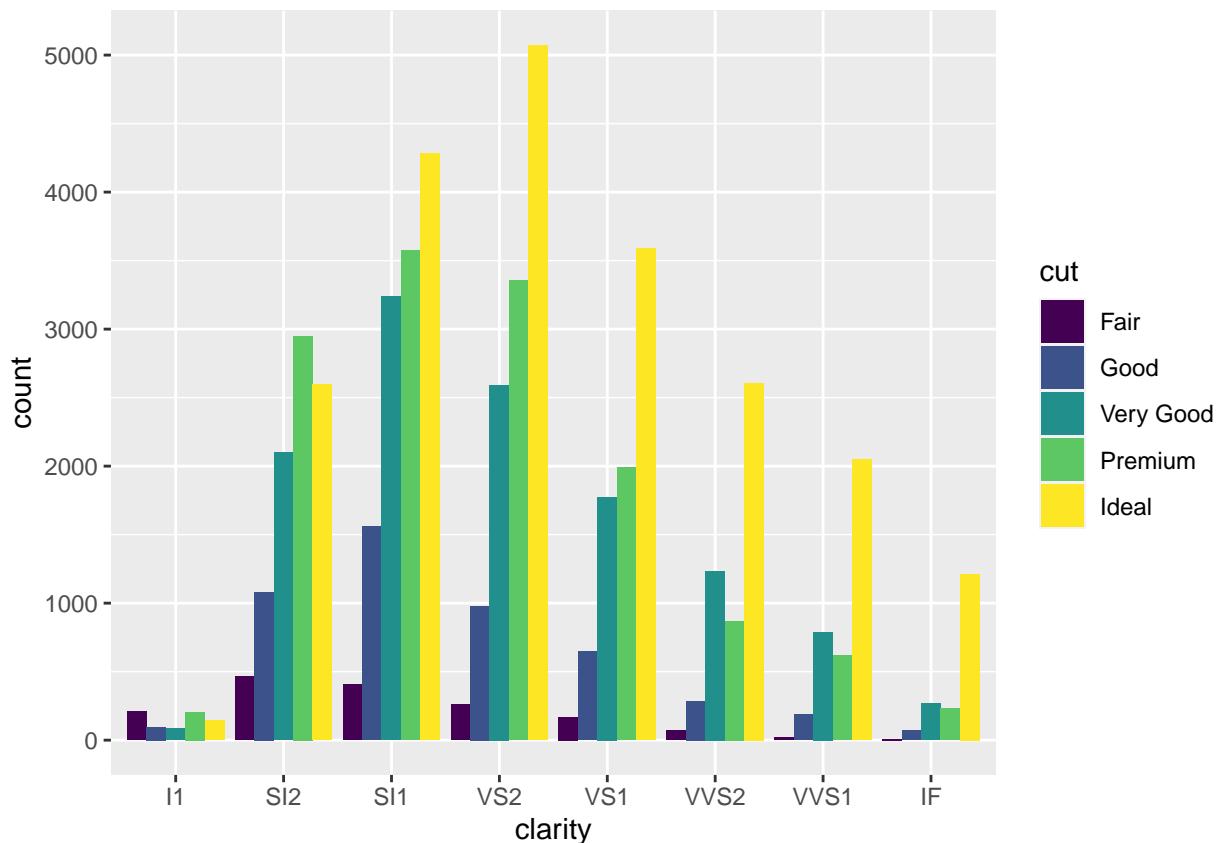
```
ggplot(diamonds, aes(x = carat, y = cut)) + geom_point() +  
  labs(title = "diamond cuts and their weights")
```

diamond cuts and their weights

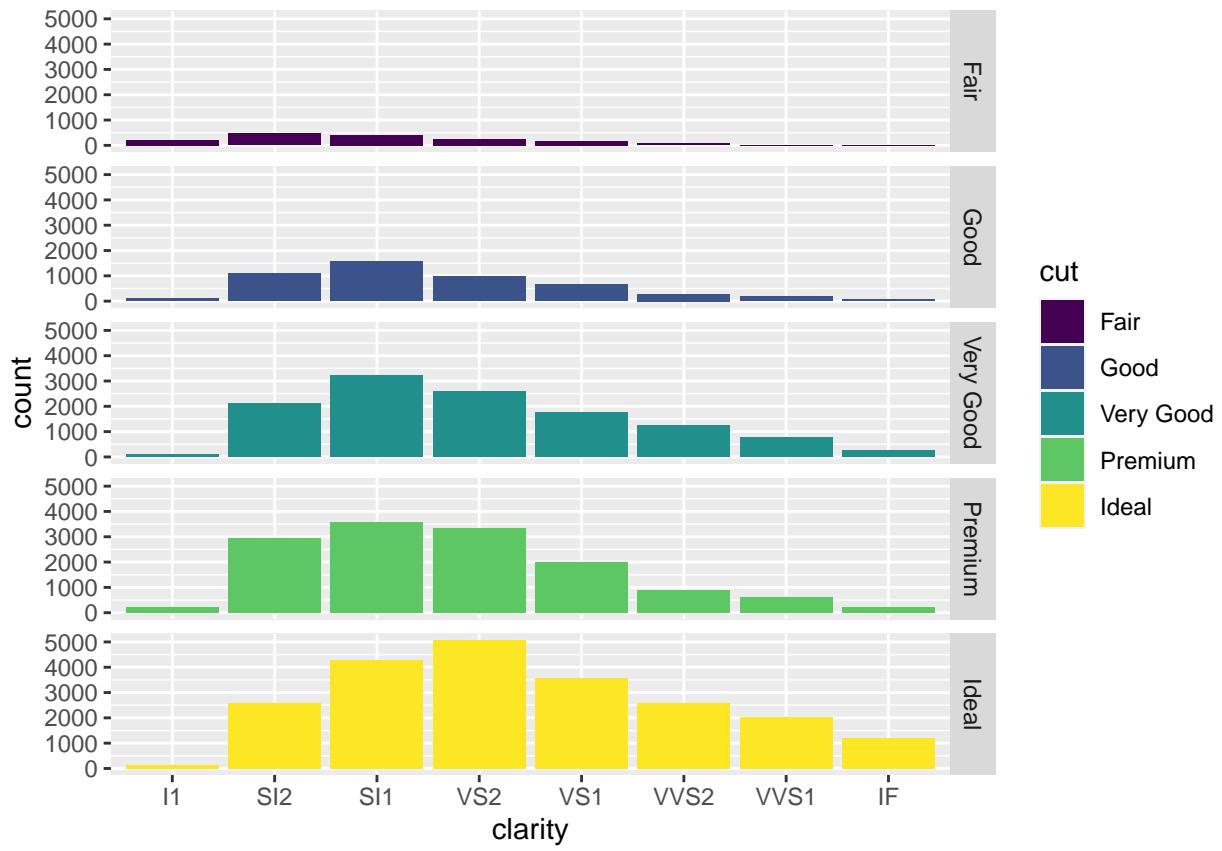


#2a # The first graph is better at comparing the cuts within a given clarity and can be used to compare which clarity is better for certain cuts but the graph that splits up the cuts can be used to compare the clarities within a given cut

```
ggplot(diamonds, aes(x = clarity, fill = cut)) +  
  geom_bar(position = position_dodge())
```



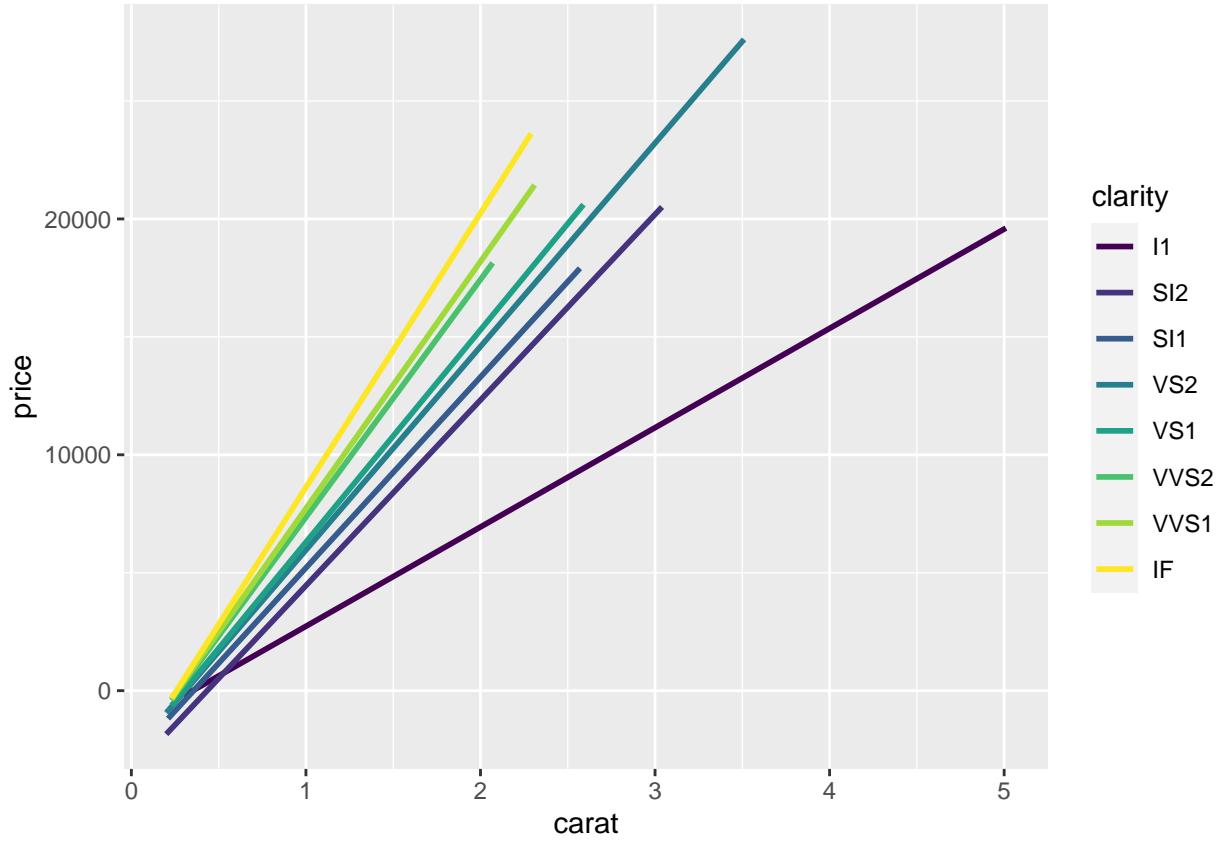
```
ggplot(diamonds, aes(x = clarity, fill = cut)) +
  geom_bar(position = position_dodge()) + facet_grid(cut~.)
```



#2b

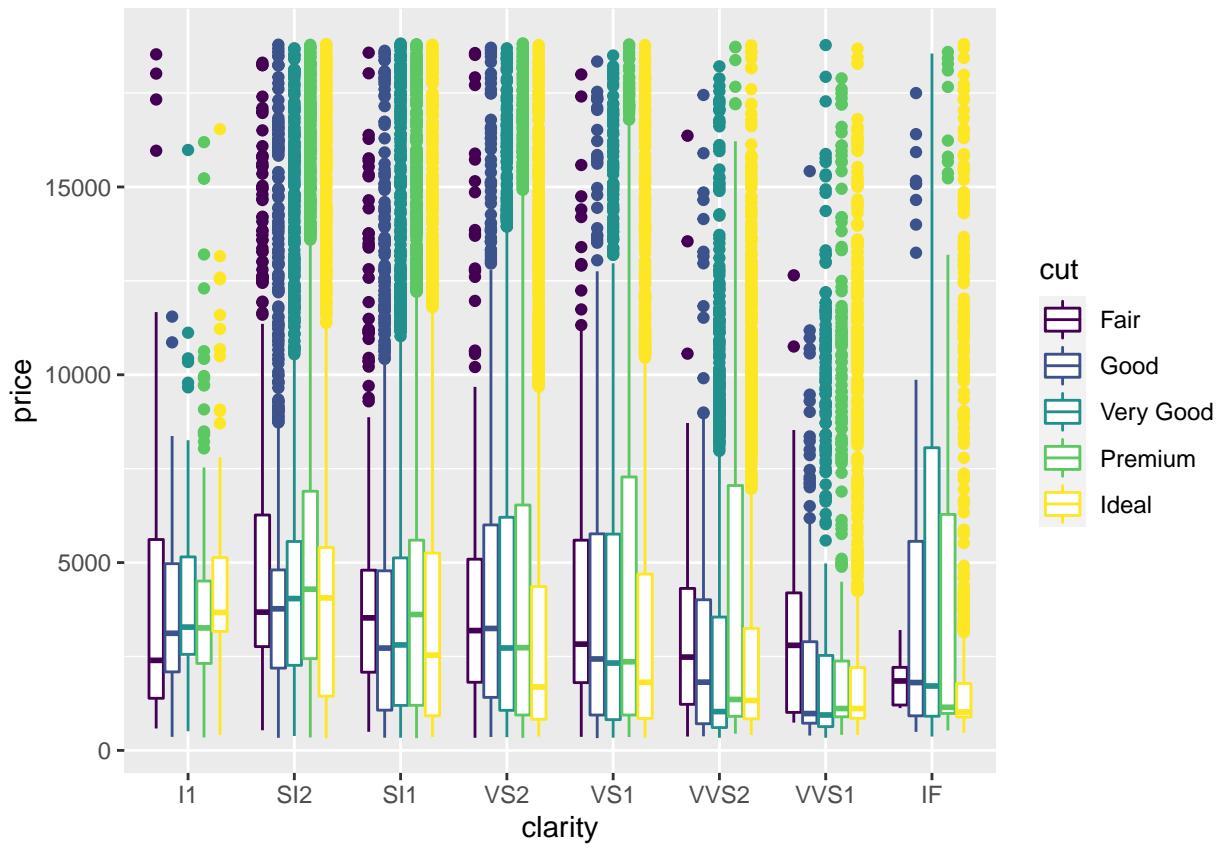
```
ggplot(diamonds, aes(x = carat, y = price, col = clarity)) +
  geom_smooth(se = FALSE, method = lm)
```

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



#2c

```
ggplot(diamonds, aes(x = clarity, y = price, col = cut)) +  
  geom_boxplot()
```



#2d

```
ggplot(diamonds, aes(x = clarity, y = price, col = cut)) +
  geom_boxplot()
```

