GGPLOT Homework

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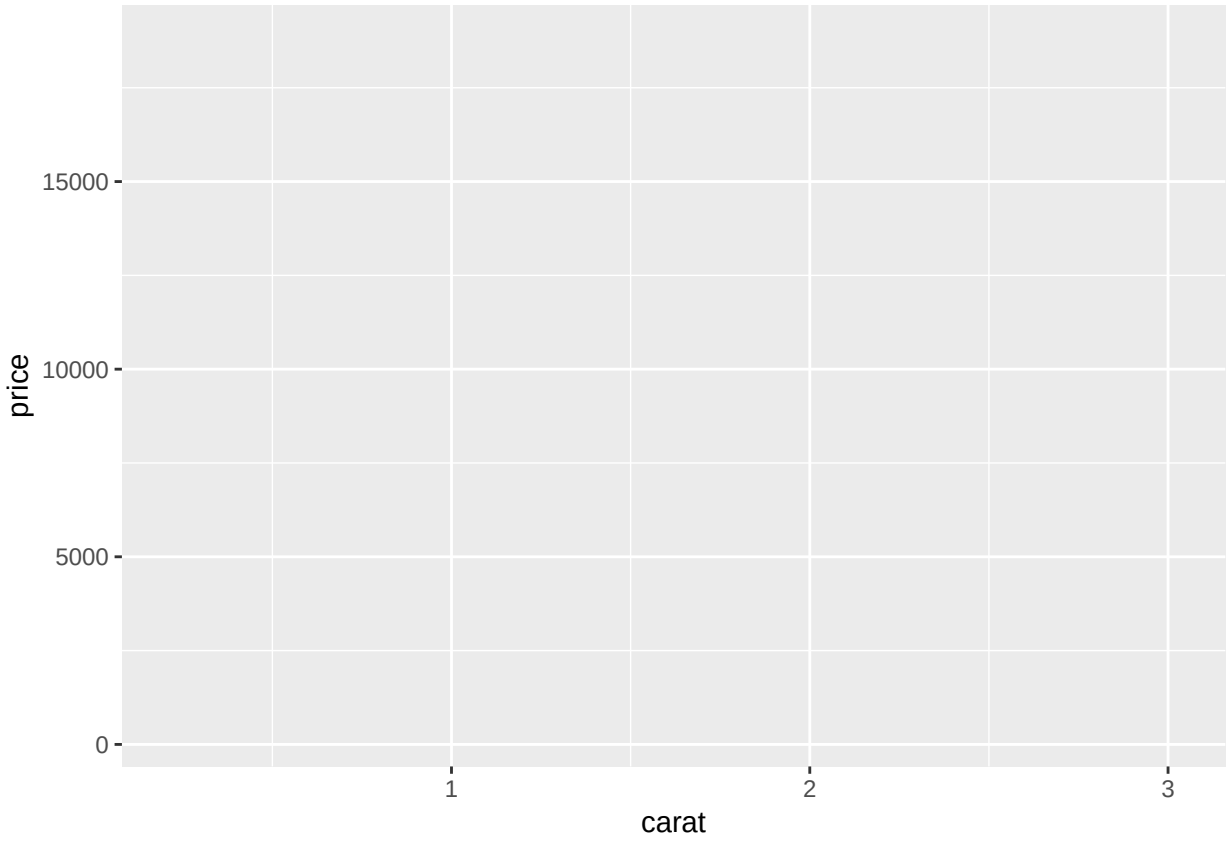
The question for this homework appears after the "Homework Preliminaries" section. If you are new to ggplot, the HW preliminaries will be very helpful. Run through the preliminary code prior to attempting the HW question.

Homework Preliminaries

In this exercise, you will be asked to analyze a fraction of the `diamonds` dataset that is included as part of the `ggplot2` package. Assuming you have the `ggplot2` package installed, the following lines will load the `diamonds` dataset and create a data frame `ddf` with a smaller sample of the data. Subsequently, the code creates a blank plot (just to show the axes) of `price` versus `carat`.

```
library(ggplot2)
library(dplyr)
set.seed(123)
ddf = diamonds %>% dplyr::sample_frac(0.1)
ggplot(ddf, aes(x = carat, y = price))
```



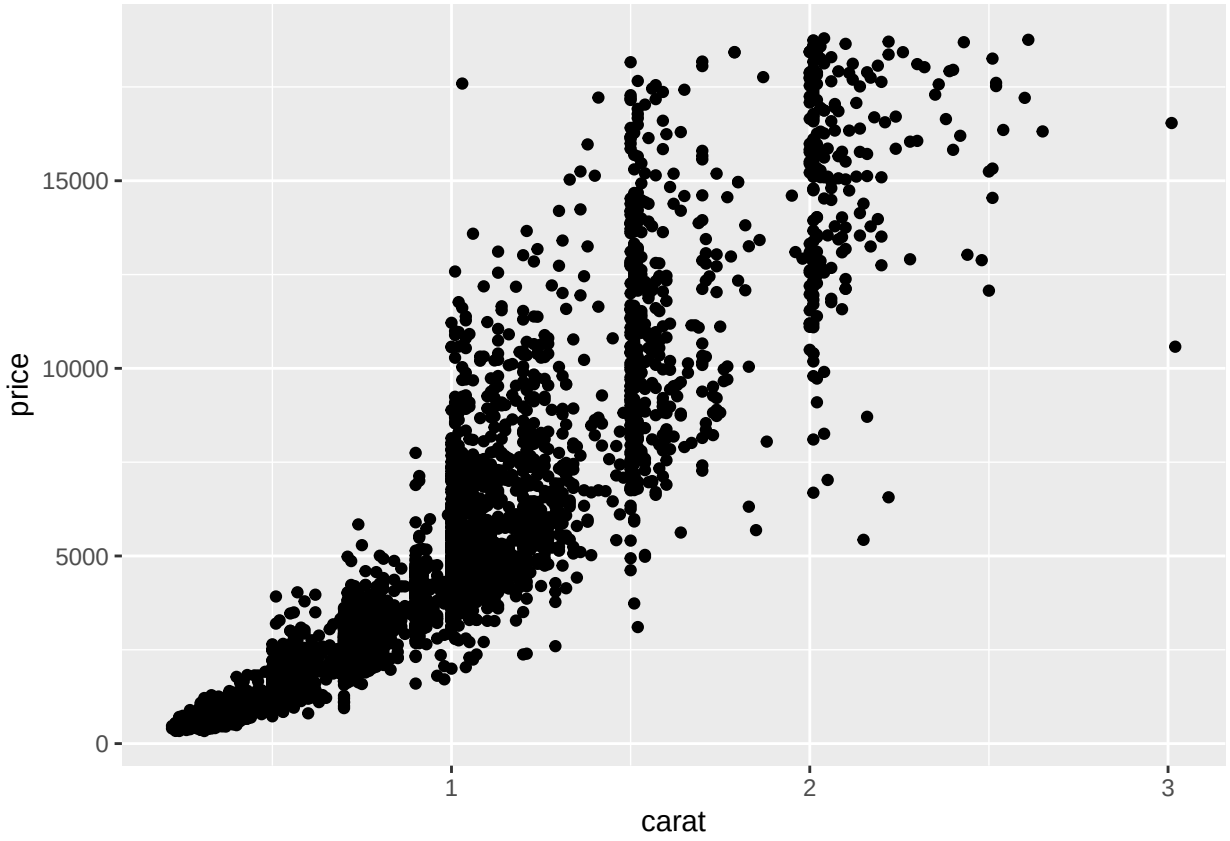
Using the `+` operator and other capabilities of `ggplot2`, make the following graphs:

1. Make a scatterplot of `price` versus `carat`.

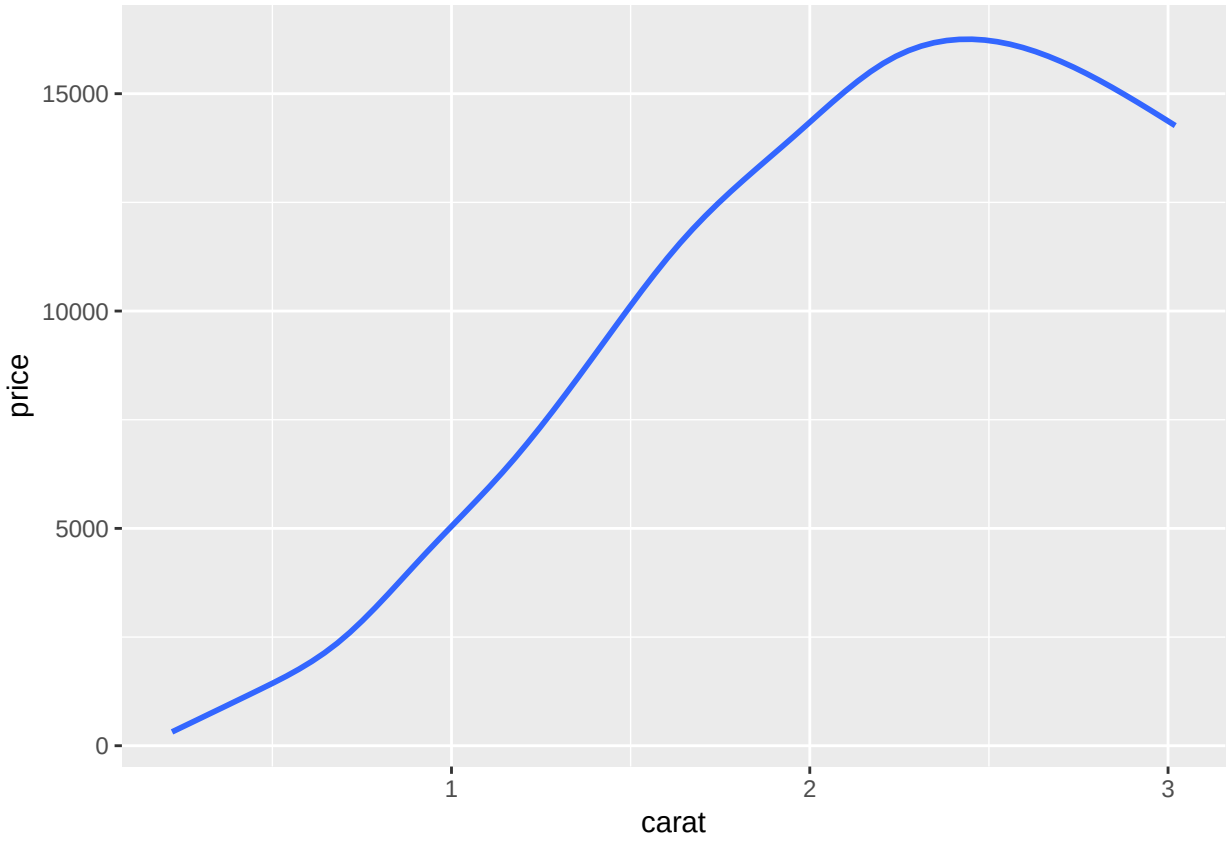
2. Use the `+` operator and the `geom_smooth()` function with no arguments to plot a smoothing line through the points of the previous graph.
3. Change the previous plot so that there is a mapping from the `color` aesthetic to the `clarity` column of the `ddf` data frame.
4. Change the previous plot by eliminating the smoothing line and adjust the transparency (`alpha`) of the points to 0.1.
5. Run the following two lines:

```
###Define the data and aesthetics layers:
###map carat on the x and price on the y axis.
###Assign it to an object: diaPlot.
diaPlot = ggplot(ddf, aes(x = carat, y = price))

##Using +, add a layer of points
diaPlot + geom_point()
```



7. Using a call to `aes()` inside of the `geom_point` function map `color` to `cut`. Add a title to this graph using `+ ggtitle("Ideal Diamonds Become <fill in the blank> Frequent as Diamonds Get Bigger")` where you replace <fill in the blank> with either "more" or "less" based on the graph you just made.
8. Use the diaplot object and the `geom_smooth` function with the appropriate value for the `se` argument and reproduce the following graph:



9. Modify the `geom_smooth()` function from the previous plot so that it contains the `aes()` function within the call to the `geom_smooth()` function and create a mapping of `cut` to the `color` argument of the `aes()` function.

10. Below are two lines that produce plots. One uses incorrect syntax. Modify the line with the correct syntax to produce a plot with "darkorange" points.

```
ggplot(ddf,aes(carat,price)) + geom_point(color="darkblue")
ggplot(ddf,aes(carat,price)) + geom_point(aes(color="darkblue"))
```

11. Look at the position adjustments box of the Data Visualziation with `GGPLOT2` [Cheat Sheet](https://github.com/rstudio/ch visualization-2.1.pdf). Modify the below line so that each `cut` type of a diamond is mapped to its own `fill`. There should still be only one bar per clarity value.

```
ggplot(ddf,aes(x=clarity))+geom_bar()
```

1. Change the `geom_bar()` argument from the previous plot (see position adjustments on your data visualization cheatsheet) so that each `cut` of diamond gets its own bar (i.e. do not stack the bars representing each type of cut).

HW Submission

In the text above, you were asked to make 10 graphs. To save this work, one can create a single pdf file that contains all ten plots. In order to do this, you will modify the following code.

```
###open a connection that routes all plot output
###to a file called "myname.pdf" which will be
###created in your current working directory.
pdf("Quiz1MyName.pdf") ## route output to file instead of Plots pane
```

```
##create your ten plots (two sample plots are created below)
ggplot(ddf,aes(x=clarity)) + geom_bar()
ggplot(ddf,aes(x=clarity, y = price)) +
  geom_jitter(alpha = 0.5, aes(color = cut))

###close the connection to the file so that your
###plots are saved
dev.off()  ## if you are having issues, run this line repeatedly
```

```
## pdf
##   2
```

```
           ## until you get "Error in dev.off()..."

##you can now find myname.pdf in your working directory.
```

Upload your created pdf file to CANVAS for credit.