Statistics 650 - Quiz 1

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Monday September 28, 2020

Instructions: This is an open book, open notes, and open Google/internet quiz. This is a closed phone and closed friend quiz. You may use R on your own computer. You may use a calculator.

Type your answers to the questions into an R Notebook. Answer the questions in order. Answer each of the questions that is asked above your R code chunks. You must write a sentence containing your answer. To receive full credit answers need to be computed programatically. Remove all of the R Notebook template before you being.

Your R Notebook should have the following in the code at the top of your .Rmd file.

```
title: "Statistics 650 - Quiz 1"
author: "Your name, firstname lastname"
date: "Wednesday October 2, 2019"
```

Your files should have a name in the usual form for the class **lastname_firstname_Stat650_Quiz.Rmd** and **lastname_firstname_Stat650_Quiz.docx** or .pdf. Submit **both** files in Backboard before the due date.

Academic Honesty: As a student at CSU East Bay you are held to the standards stated in the Academic Dishonesty Policy. Copying another student's work or allowing another student to copy your work is academically dishonest. I expect you to be academically honest while taking the test.

Load the *tidyverse* and answer the following questions using the *diamonds* dataset.

```
library(tidyverse)
data(diamonds)
glimpse(diamonds)
help(diamonds)
```

1. How many diamonds are between 1 or more *carats* and less than 2 *carats*?

2. What proportion of diamonds are between 1 or more *carats* and less than 2 *carats*?

3. How many diamonds have a *cut* of Good or Very Good?

4. Of the diamonds with *cut* of Good or Very Good, what proportion of these diamonds are between 1 or more *carats* and less than 2 *carats*?

5. Compute a new variable, call it $volume = x * y * z$. Make a scatterplot with $x = volume$ and $y = price$. Remove any outliers. Make another scatterplots with the color of the points showing the different values of the variable *cut*. For the variable *cut*, what value of *cut* has the most expensive average price for diamonds between 1 and 2 carats?