

# Lab #3 - Diamond Data

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## 1 Introduction

This shiny app using R is used to describe the relationships between diamond cuts, carats, prices etc.

There are multiple data analysis sections and plots that describe these full relationships.

Each one is explained below.

## 2 Data Analysis

### 2.1 Carat Information

This section allows the user to view carat information. The drop down menu allows the user to select how many pieces of data they would like to view along with a summary at the top.

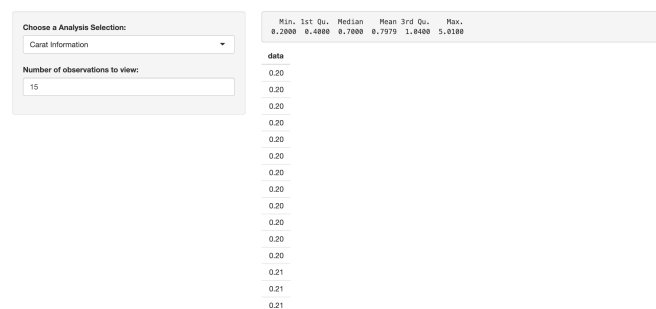


Figure 1. Carat Information with 15 Observations

## 2.2 Depth Information

This section does the same thing as carat information but allows the user to view depth information.

The same ability to choose the amount of observations is included.

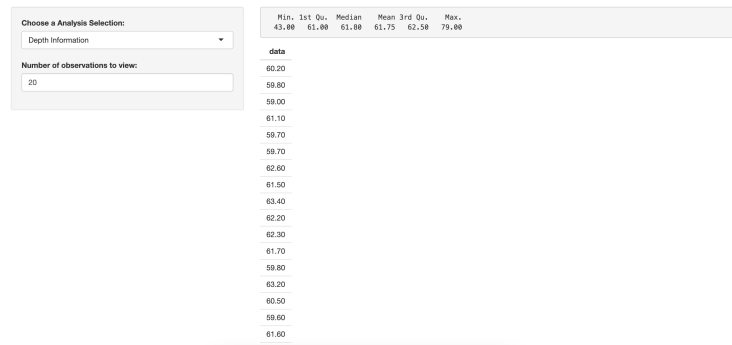


Figure 2. Depth Information with 20 Observations

## 2.3 Carat and Price Information

This section adds onto the depth information but now adds carat and price information. This gives the user the individual data but adds two sets to now view price and carat data. The summaries are still provided at the top.

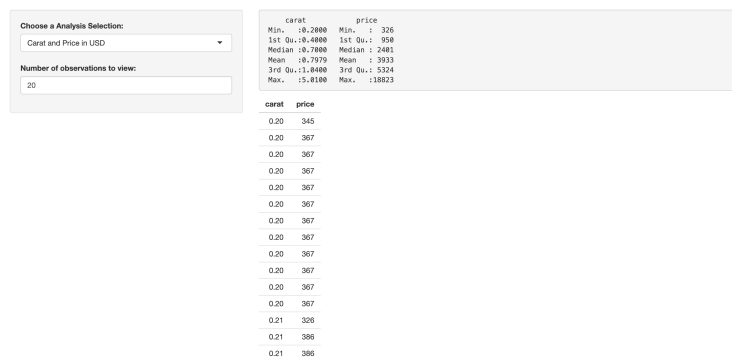


Figure 3. Carat and Price Information with 20 Observations

## 3 Plots and Data

### 3.1 Histogram of Prices

The first plot is an interactive plot that allows the user to view a histogram of all prices of the gathered diamond data. The interactive part of this plot allows the user to change how many bins are included in the price plot. This adds more viewability and control for the viewer.

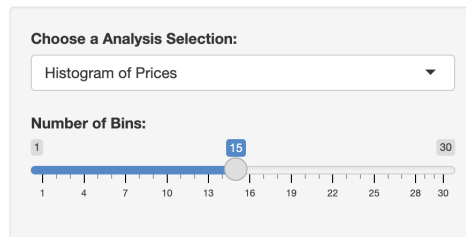


Figure 4. Histogram Bin Changing

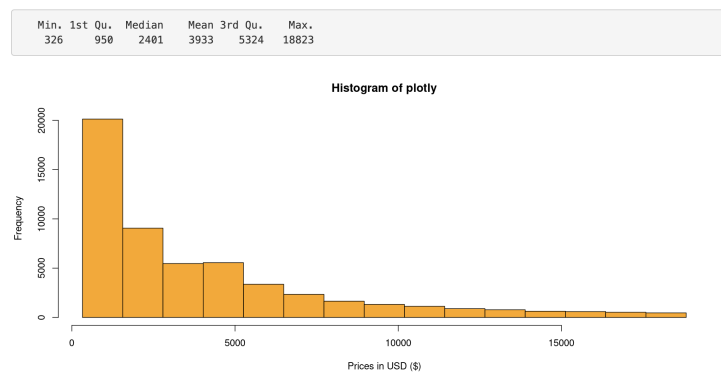


Figure 5. Histogram Plot with 15 Bins

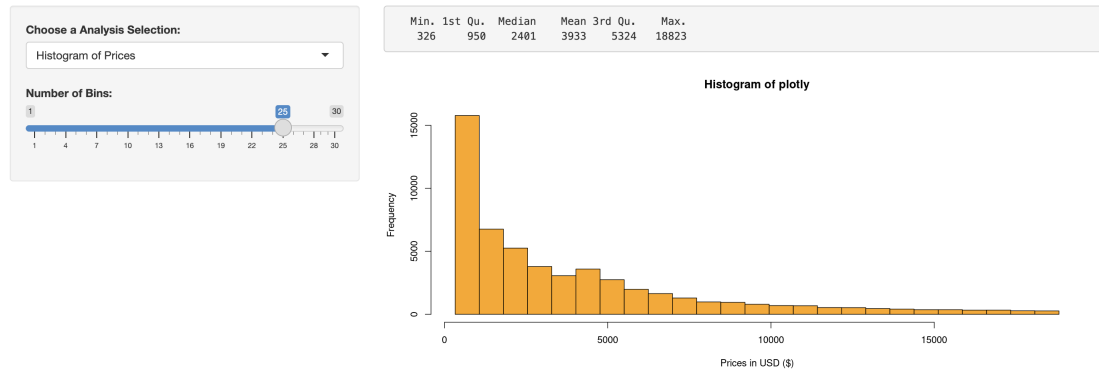


Figure 6. Histogram Plot with 25 Bins

### 3.2 Carat Plot

This plot simply shows a line plot of the range of carat prices of the diamonds from smallest to greatest.

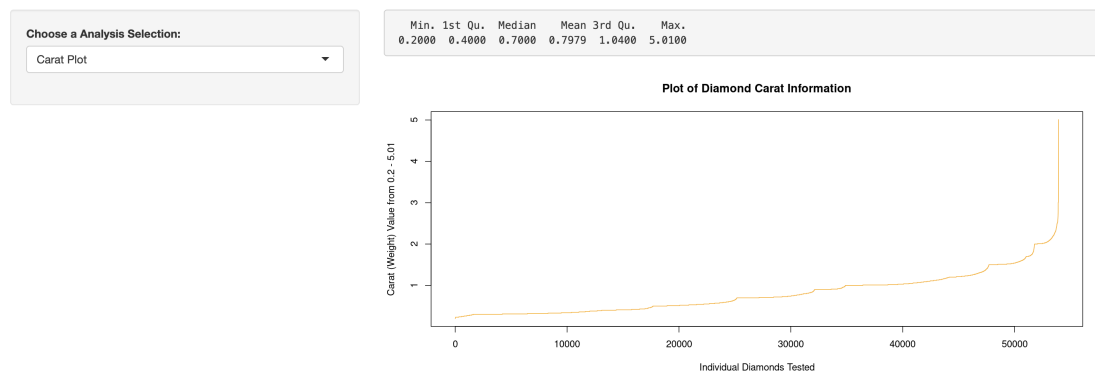


Figure 7. Carat Plot from Least to Greatest

### 3.3 Carat vs. Price Plot

This plot shows the Carat Size vs. Price within these diamonds. This plot is interesting to look at and shows a trend line to show how quickly the price grows based off carat. The colors represent clarity to show how clarity effects the price of the diamonds.

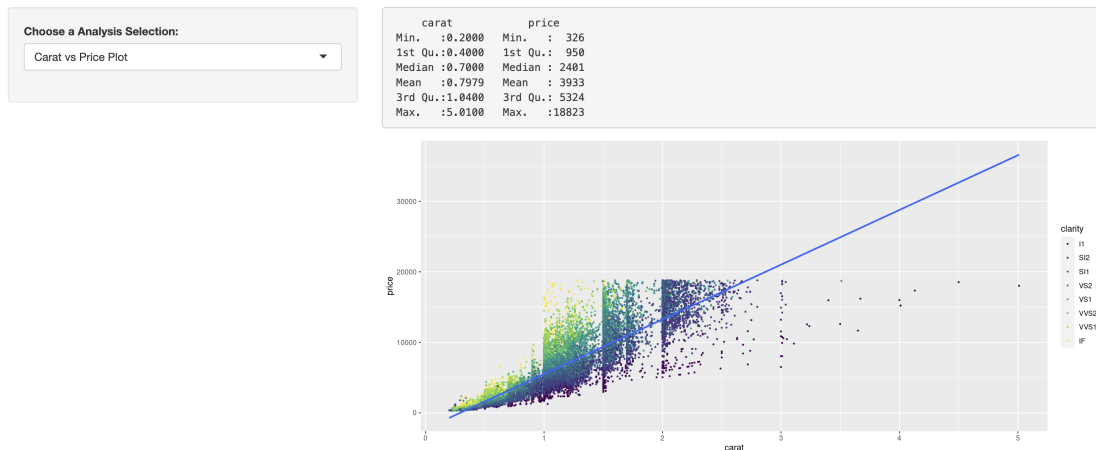


Figure 8. Carat vs Price Plot with Clarity Coloring

### 3.4 Depth and Clarity vs Price

This final plot shows the Depth and Clarity of the plot while including the price line to see how this changes. What are the effects on depth and clarity vs the price.

Note: This graph works on my machine and should work when you run it. However, when loaded onto the shiny site, it does not work. Therefore, I will include photos here and it will work on your local machine.

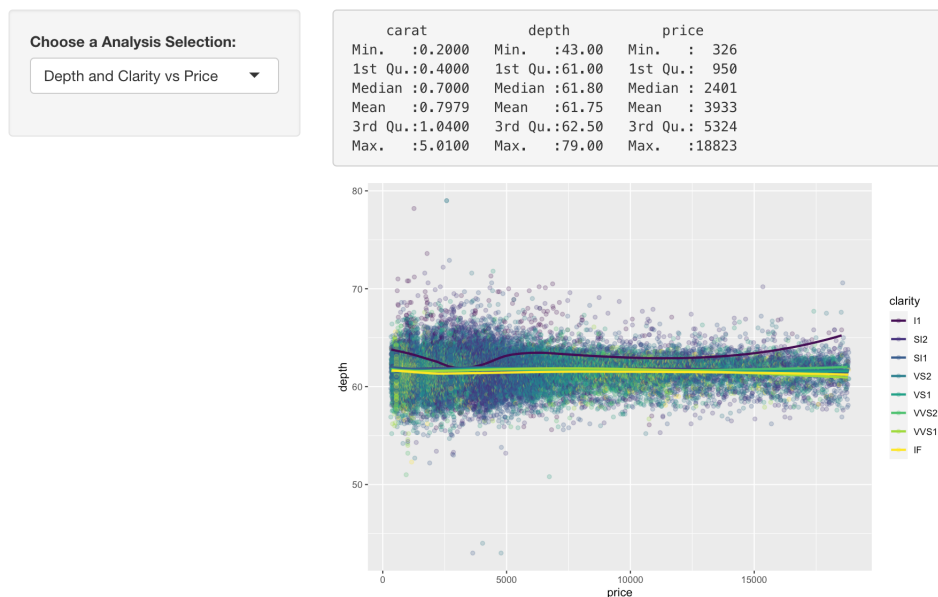


Figure 9. Depth and Clarity vs Price Graph with Trend Line

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