STAT394 Group Project: Group 11

Tom Tribe, Ken MacIver, Jundi Yang, Mei Huang

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```
## Warning: package 'ggplot2' was built under R version 4.1

## Warning: package 'GGally' was built under R version 4.1
```

Group Members

Tom Tribe - tom.tribe2016@gmail.com - 0000-0002-5002-8066
Ken MacIver - ken.maciver68@gmail.com - 0000-0001-8999-4598
Jundi Yang - ivyli112358@gmail.com - 0000-0003-0888-9564
Mei Huang - huangmei139@gmail.com - 0000-0003-2401-0679

The Diamonds dataset

- Dataset: Diamonds
- 53940 rows (diamonds)
- ten variables
- very large dataset (approx 540,000 values)
- slow to process!

The Variables

red font = categorical variable

- carat: the diamond's weight
- cut: a measure of quality
- color: a measure of colour quality
- clarity: a measure of clearness
- x: length in mm
- y: width in mm
- z: depth in mm
- depth: total depth percentage
- table: width of top of diamond relative to widest point
- price: the price of the diamond in US dollars

(List adapted from list at kaggle.com).

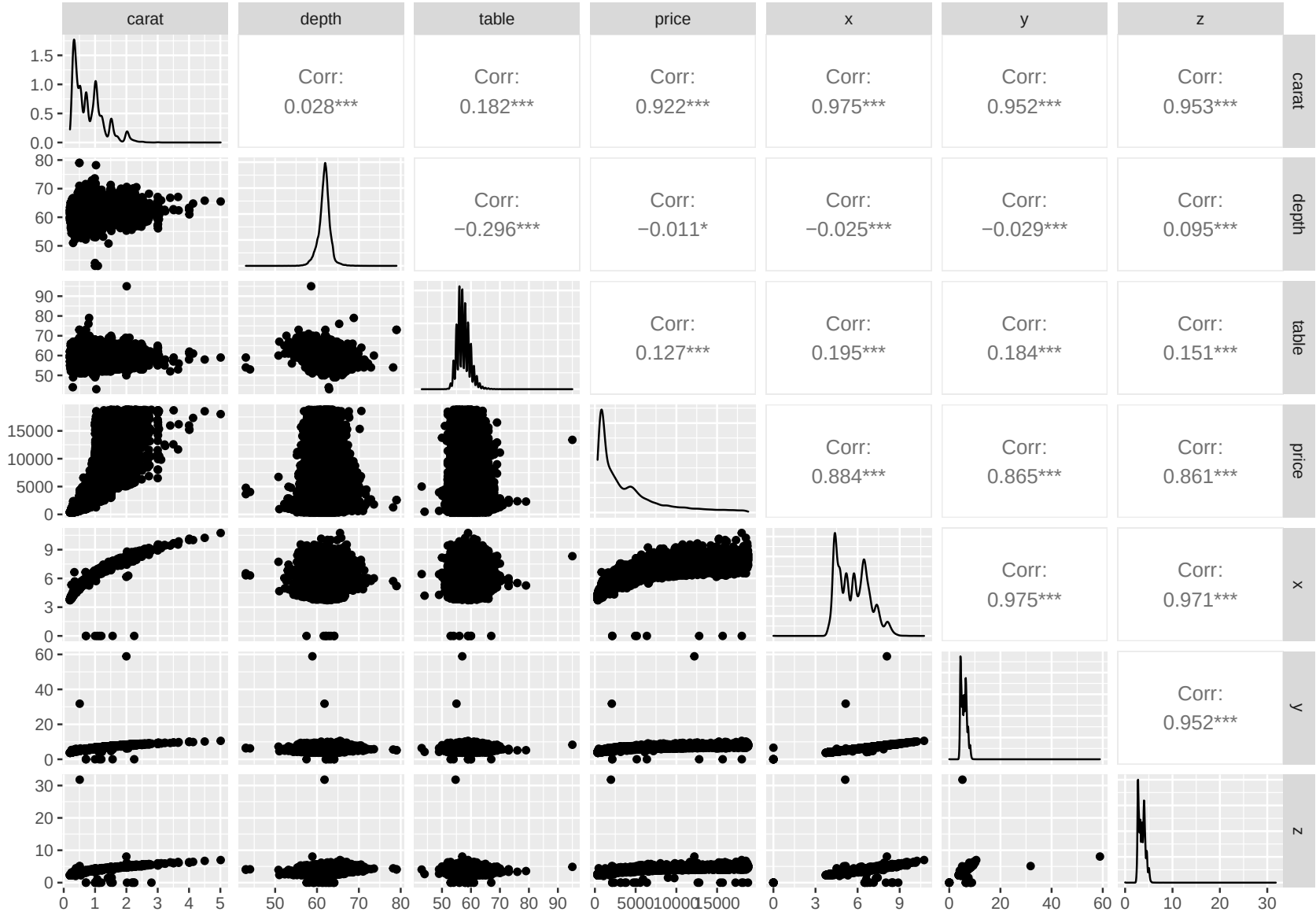
The Response Variable

'Price' seemed to us to be the obvious response variable.

Data Visualization (the dataset)

```
##   carat       cut color clarity depth table price    x
## 1  0.23     Ideal     E     SI2  61.5    55   326 3.95 3.9
## 2  0.21   Premium     E     SI1  59.8    61   326 3.89 3.8
## 3  0.23      Good     E     VS1  56.9    65   327 4.05 4.0
## 4  0.29   Premium     I     VS2  62.4    58   334 4.20 4.2
## 5  0.31      Good     J     SI2  63.3    58   335 4.34 4.3
```

Data Visualisation (pairs plot)



Other things of interest

The EDA revealed the following:

- some variables not Normally distributed
- long right tails due to a few very expensive diamonds
- some zero values

Next Steps

- Principal Component Analysis
- Find best predictor variable for price