

## Group 11, diamonds dataset

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## Group Members

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## The Diamonds dataset

- ▶ This large dataset has 53940 rows (diamonds) of ten variables (approx 540,000 values)
- ▶ Slow to process!
- ▶ Nine of the variables are various measures of diamond size and quality, while the tenth is the price
- ▶ We selected diamonds because it was simple to understand what each variable was measuring, and to have the opportunity to work with a large dataset
- ▶ Particularly interested in which variables are most predictive of diamond price

# 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).

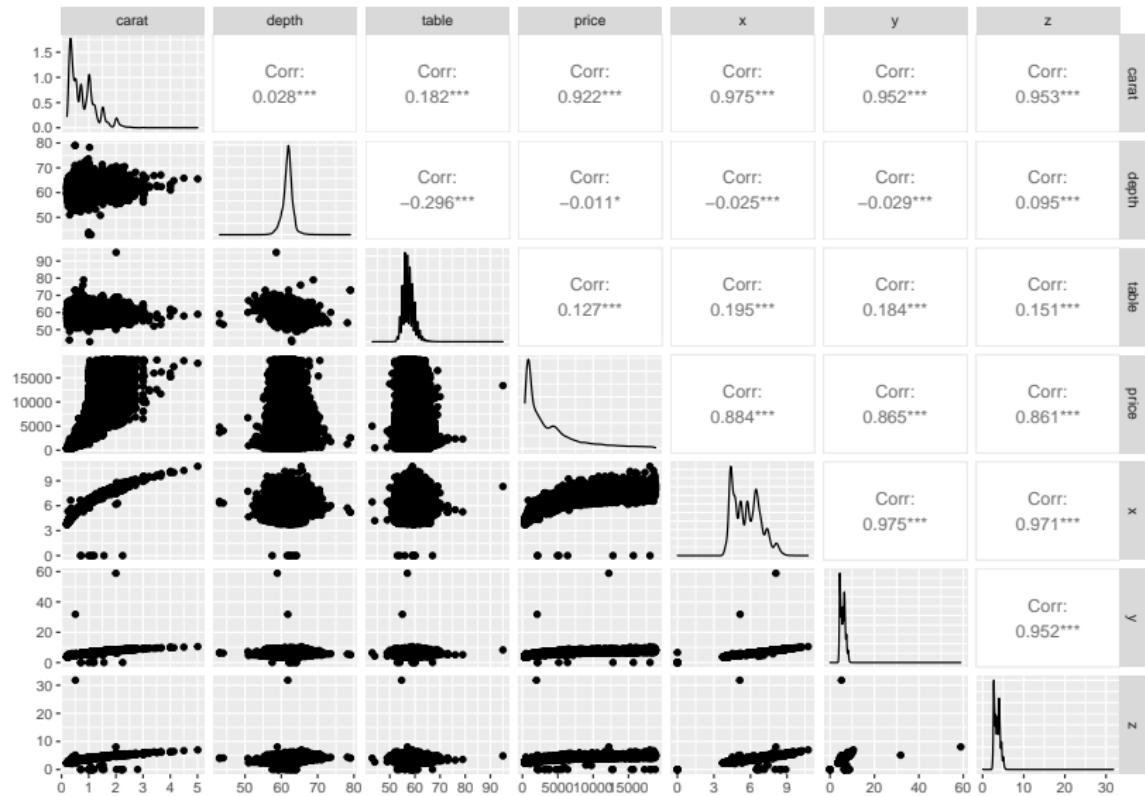
## The Response Variable

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

## Data Visualization (the dataset)

```
##   carat      cut color clarity depth table price     x     y     z
## 1  0.23    Ideal     E     SI2  61.5     55   326 3.95 3.98 2.43
## 2  0.21 Premium     E     SI1  59.8     61   326 3.89 3.84 2.31
## 3  0.23     Good     E     VS1  56.9     65   327 4.05 4.07 2.31
## 4  0.29 Premium     I     VS2  62.4     58   334 4.20 4.23 2.63
## 5  0.31     Good     J     SI2  63.3     58   335 4.34 4.35 2.75
```

# 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
- ▶ Regression using the Principal Components
- ▶ Find best predictor variable for price