A Simple Article

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Contents

1   Getting Started

This is the first section of our article. the only thing it will talk about is writing simple LaTeX.

This is the first thing I am writing in LaTeX. Just something simple for right now to test things out. More will come later.

This is my second paragraph. It was created by leaving a blank line. Just writing more so the paragraph it is physically longer. This is to show you how text wraps.

Now I am writing a third paragraph. Notice the blank line again. Just writing more so the paragraph it is physically longer. This is to show you how text wraps.

2   More Information

Here is another section. In Section 1 we learned some basics and now we will see just a bit more. Suppose this section is getting too long so it should be broken

up into subsections.

2.1 First Subsection

Content for a subsection.

2.2 Another Subsection

More content that is nested in Section 2.

3 Last Bit

This section was just created to show how to stop a preceding subsection, section or chapter. Note that chapters are only available in books, not articles.

4 R Code Time

First let's test if R is working.

```r
1 + 1
```

```
## [1] 2
```

```r
x <- 1:10
x
```

```
## [1]  1  2  3  4  5  6  7  8  9 10
```

```r
x * 2
```

```
## [1]  2  4  6  8 10 12 14 16 18 20
```

That was fun, now let's fit a regression.

```r
# load ggplot
require(ggplot2)
```

```
## Loading required package:  ggplot2
```

```r
# load and view the diamonds data
data(diamonds)
head(diamonds)
```

```
##   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
## 6  0.24 Very Good    J    VVS2  62.8    57    336 3.94 3.96 2.48

# fit a model
mod1 <- lm(price ~ carat + cut, data = diamonds)

summary(mod1)

##
## Call:
## lm(formula = price ~ carat + cut, data = diamonds)
##
## Residuals:
##    Min     1Q Median    3Q    Max
## -17541   -792    -38   522  12721
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -2701.4       15.4 -175.06  < 2e-16 ***
## carat         7871.1       14.0  563.04  < 2e-16 ***
## cut.L         1239.8       26.1   47.50  < 2e-16 ***
## cut.Q         -528.6       23.1  -22.85  < 2e-16 ***
## cut.C          367.9       20.2   18.20  < 2e-16 ***
## cut^4           74.6       16.2    4.59  4.4e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1510 on 53934 degrees of freedom
## Multiple R-squared:  0.856,Adjusted R-squared:  0.856
## F-statistic: 6.44e+04 on 5 and 53934 DF,  p-value: <2e-16
```

You can see a scatterplot of the `diamonds` data in Figure 1.

```
ggplot(diamonds, aes(x = carat, y = price, color = color)) + geom_point()
```

5   Math

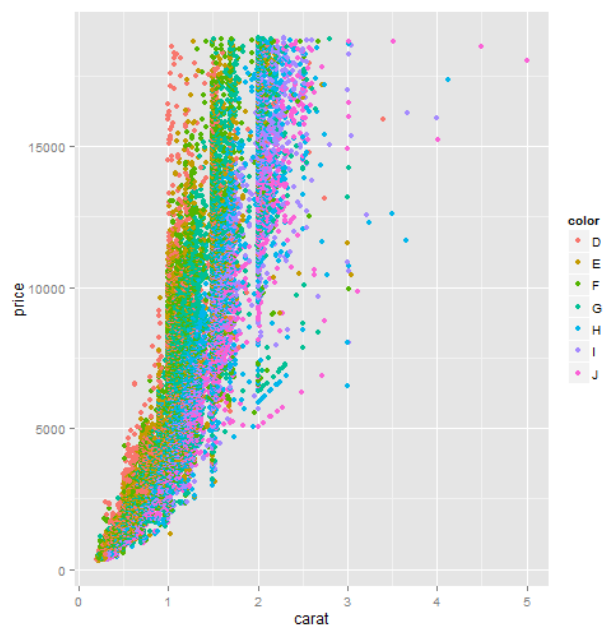The world's most famous equation is in Equation 1.

$$e = mc^2 \tag{1}$$

Figure 1: A scatterplot of diamonds. Carat is on the x-axis, price on the y-axis and color is mapped to color.

Let's see some greek letters and square roots in Equation 2.

$$\alpha = \sqrt{\Gamma} + \gamma \tag{2}$$

$$E[X] = \frac{1}{n} \sum_{i=1}^{n} x_i \tag{3}$$

6 Some Odds and Ends

To quote text you have to use backticks and single quote. The bird said, "It sure is sunny today." This might be a bit complex[1] but so what.

List of Figures

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[1]All of life can be comxplex.