

A little demonstration of R Markdown and Pandoc

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A little simulation

Here is a basic setup to illustrate linear regression. Let's generate some data like $y = 1.1 + 0.8x + \varepsilon$, where $\varepsilon \sim \mathcal{N}(0; 1)$:

```
n <- 40
x <- runif(n, min=0, max=10)
y <- 1.1 + 0.8*x + rnorm(n)
```

and a basic scatter display of the artificial dataset

```
xyplot(y ~ x, type=c("p","g","r"))
```

Here is model output from `lm`:

```
##
## Call:
## lm(formula = y ~ x)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.0730 -0.6397 -0.0151  0.6168  2.6067
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   0.9839     0.2922   3.37   0.0017 **
## x             0.7840     0.0583  13.44  5.1e-16 ***
```

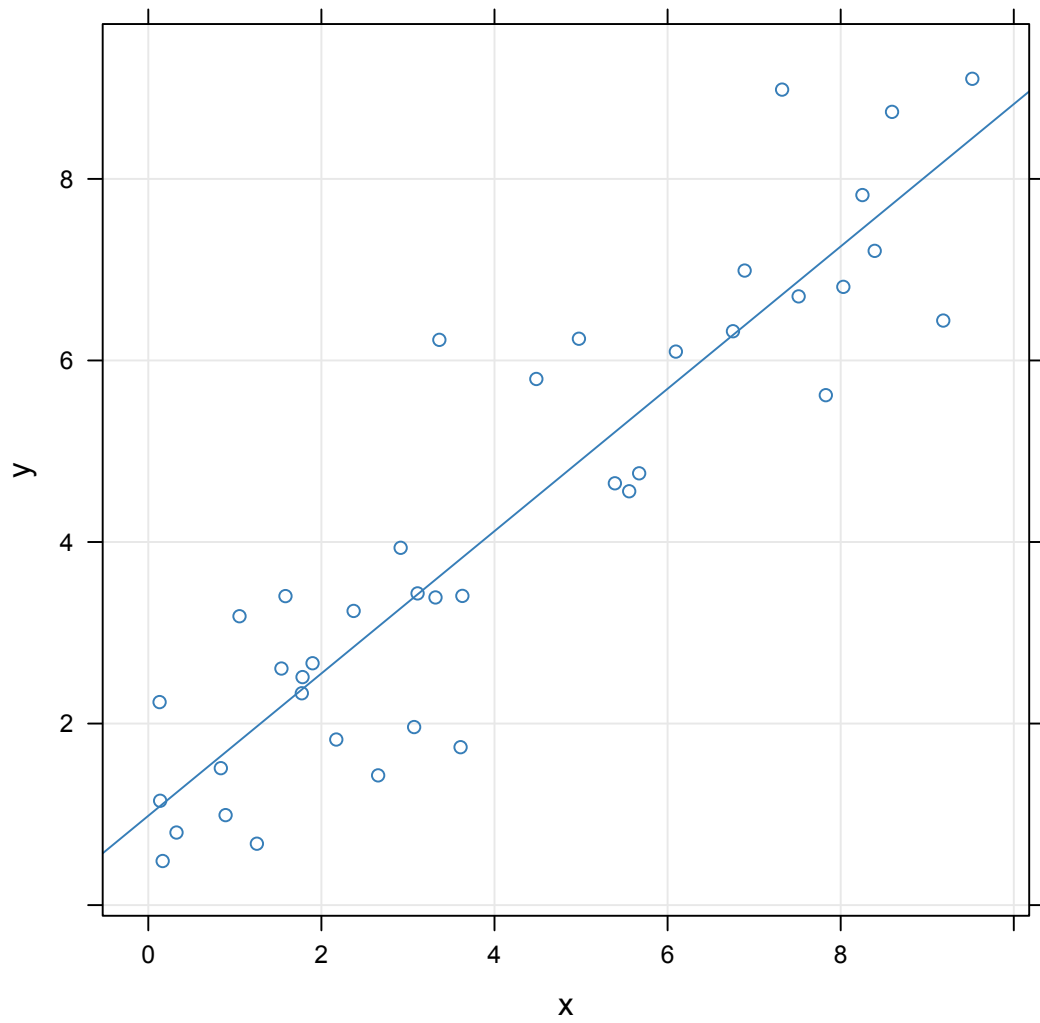


Figure 1: Figure caption goes here.

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.06 on 38 degrees of freedom
## Multiple R-squared:  0.826,    Adjusted R-squared:  0.822
## F-statistic: 181 on 1 and 38 DF,  p-value: 5.14e-16
##
```

Of course, we can do many other fancy things, but see [knitr Chunk options and package options](#). For example, if you have the Hmisc package (you should really have it), you can try the following:

```
library(Hmisc)
f <- function(x, digits=1)
  c(mean=round(colMeans(x), digits=digits),
    range=paste(apply(x, 2, range), collapse="-"))
summary(low ~ ., data=birthwt, method="reverse",
  overall=TRUE)
```

```
##
##
## Descriptive Statistics by low
##
## +-----+-----+-----+
## |          |No          |Yes          |Combined     |
## |          |(N=130)     |(N=59)      |(N=189)     |
## +-----+-----+-----+
## |age       | 19.0/23.0/28.0 | 19.5/22.0/25.0 | 19.0/23.0/26.0 |
## +-----+-----+-----+
## |lwt       |113.0/123.5/147.0|104.0/120.0/130.0|110.0/121.0/140.0|
## +-----+-----+-----+
## |race : White| 56% (73) | 39% (23) | 51% (96) |
## +-----+-----+-----+
## |  Black  | 12% (15) | 19% (11) | 14% (26) |
## +-----+-----+-----+
## |  Other  | 32% (42) | 42% (25) | 35% (67) |
## +-----+-----+-----+
## |smoke : Yes | 34% ( 44) | 51% ( 30) | 39% ( 74) |
## +-----+-----+-----+
## |ptl : 0   | 91% (118) | 69% ( 41) | 84% (159) |
## +-----+-----+-----+
## |  1     | 6% ( 8) | 27% ( 16) | 13% ( 24) |
## +-----+-----+-----+
## |  2     | 2% ( 3) | 3% ( 2) | 3% ( 5) |
## +-----+-----+-----+
## |  3     | 1% ( 1) | 0% ( 0) | 1% ( 1) |
## +-----+-----+-----+
## |ht : Yes  | 4% ( 5) | 12% ( 7) | 6% ( 12) |
## +-----+-----+-----+
##
```

```
## |ui : Yes      |    11% ( 14) |    24% ( 14) |    15% ( 28) |
## +-----+-----+-----+-----+
## |ftv : 0       |    49% ( 64) |    61% ( 36) |    53% (100) |
## +-----+-----+-----+-----+
## | 1           |    28% ( 36) |    19% ( 11) |    25% ( 47) |
## +-----+-----+-----+-----+
## | 2           |    18% ( 23) |    12% (  7) |    16% ( 30) |
## +-----+-----+-----+-----+
## | 3           |     2% (  3) |     7% (  4) |     4% (  7) |
## +-----+-----+-----+-----+
## | 4           |     2% (  3) |     2% (  1) |     2% (  4) |
## +-----+-----+-----+-----+
## | 6           |     1% (  1) |     0% (  0) |     1% (  1) |
## +-----+-----+-----+-----+
## |bwt          | 2948/3267/3651 | 1928/2211/2396 | 2414/2977/3487 |
## +-----+-----+-----+-----+
```

```
summary(bwt ~ ., data=birthwt, fun=f)
```

```
## bwt      N=189
##
## +-----+-----+-----+-----+
## |      |      |N |mean.bwt|range  |
## +-----+-----+-----+-----+
## |low   |No    |130|3329.1 |2523-4990|
## |      |Yes   | 59|2097.3 |709-2495 |
## +-----+-----+-----+-----+
## |age   |[14,20) |51 |2973.5 |1885-4238|
## |      |[20,24) |56 |2919.6 |1588-4111|
## |      |[24,27) |36 |2828.4 |1330-4593|
## |      |[27,45] |46 |3033.8 |709-4990 |
## +-----+-----+-----+-----+
## |lwt   |[ 80,112) |53 |2656.3 |1330-3997|
## |      |[112,122) |43 |3058.7 |709-4593 |
## |      |[122,141) |46 |3074.6 |1021-4990|
## |      |[141,250] |47 |3038   |1135-4174|
## +-----+-----+-----+-----+
## |race  |White   |96 |3102.7 |1021-4990|
## |      |Black   |26 |2719.7 |1135-3860|
## |      |Other   |67 |2805.3 |709-4054 |
## +-----+-----+-----+-----+
## |smoke |No      |115|3055.7 |1021-4990|
## |      |Yes     |74 |2771.9 |709-4238 |
## +-----+-----+-----+-----+
## |ptl   |0       |159|3013.5 |1021-4990|
## |      |1       |24 |2496.3 |709-4174 |
## |      |2       |5  |2766.8 |1885-3317|
## |      |3       |1  |3637   |3637-3637|
## +-----+-----+-----+-----+
```

```
## |ht      |No      |177|2972.2 |709-4990 |
## |        |Yes     |12 |2536.8  |1135-3790|
## +-----+-----+-----+-----+
## |ui      |No      |161|3030.7  |1135-4990|
## |        |Yes     |28 |2449.4  |709-3912 |
## +-----+-----+-----+-----+
## |ftv     |0       |100|2865.1  |709-4238 |
## |        |1       |47 |3108    |1588-4990|
## |        |2       |30 |3010.3  |1021-4167|
## |        |3       |7  |2521.9  |2126-2835|
## |        |4       |4  |3167.8  |2301-3860|
## |        |6       |1  |3303    |3303-3303|
## +-----+-----+-----+-----+
## |Overall|        |189|2944.6  |709-4990 |
## +-----+-----+-----+-----+
```

```
summary(low ~ smoke + ht + ui, data=birthwt, fun=table)
```

```
## low      N=189
##
## +-----+-----+-----+-----+
## |        |  |N  |No |Yes|
## +-----+-----+-----+-----+
## |smoke  |No |115| 86|29 |
## |        |Yes| 74| 44|30 |
## +-----+-----+-----+-----+
## |ht      |No |177|125|52 |
## |        |Yes| 12| 5 | 7 |
## +-----+-----+-----+-----+
## |ui      |No |161|116|45 |
## |        |Yes| 28| 14|14 |
## +-----+-----+-----+-----+
## |Overall|   |189|130|59 |
## +-----+-----+-----+-----+
```

More with Pandoc

Pandoc allows to customize HTML or PDF output through default or custom theme. It is also easy to include bibliographic entries the usual way, e.g. @wickham11 will read Wickham (2011).

References

Wickham, H. 2011. "The Split-Apply-Combine Strategy for Data Analysis." *Journal of Statistical Software* 40.