COSC 6323 - Statistical Methods in Research

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```r
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```
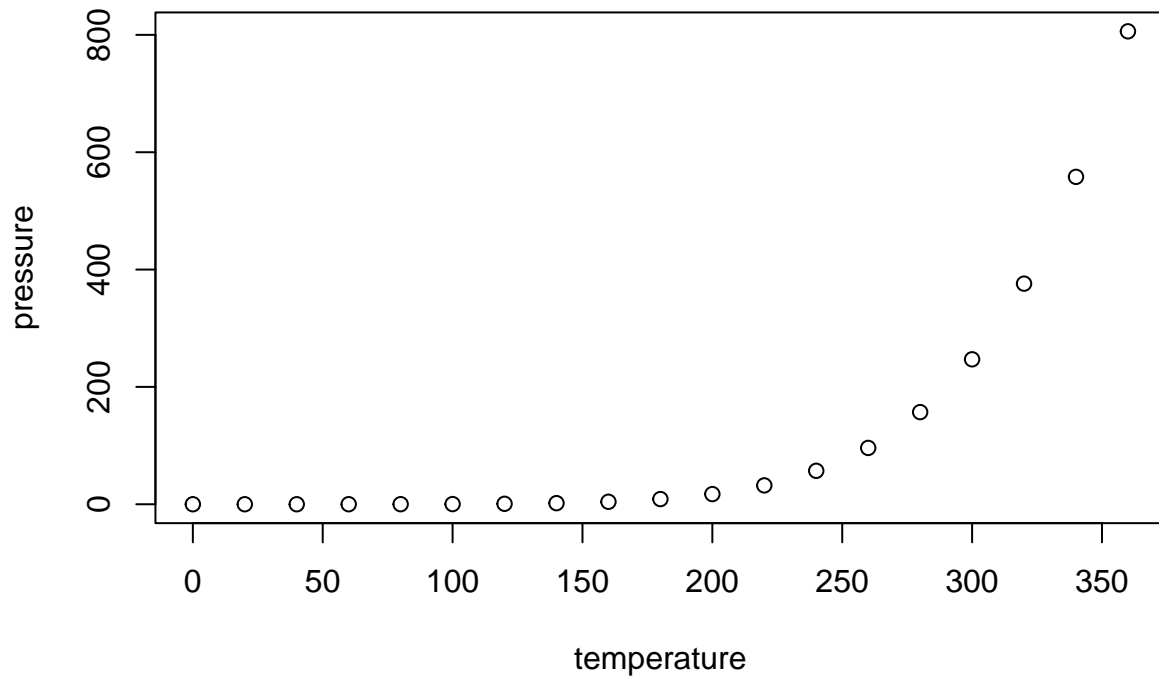
```r
str(cars)
```

```
## 'data.frame':    50 obs. of  2 variables:
##  $ speed: num  4 4 7 7 8 9 10 10 10 11 ...
##  $ dist : num  2 10 4 22 16 10 18 26 34 17 ...
```

Including Plots

You can also embed plots, for example:

```
## 'data.frame':    19 obs. of  2 variables:
##  $ temperature: num  0 20 40 60 80 100 120 140 160 180 ...
##  $ pressure   : num  0.0002 0.0012 0.006 0.03 0.09 0.27 0.75 1.85 4.2 8.8 ...
```

Temperature vs Pressure | $n = 19$ and B^2

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

More about code chunks:

```
library(ggplot2)
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

```
library(ggplot2)

p1 <- ggplot(data=cars)+geom_point(aes(x=speed,y=dist))

p2 <- ggplot(data=cars, aes(x=speed,y=dist))+geom_point() + geom_smooth() +
#p2 <- ggplot(data=cars, aes(x=speed,y=dist))+geom_point() + geom_smooth() +
  labs(title = "Speed vs. Stopping Distance") +
  theme_bw()
  #labs(title = "Speed vs. Stopping Distance", y = "") +

p3 <- ggplot(data=cars)+geom_line(aes(x=speed,y=dist)) +
  labs(title = "Speed vs. Stopping Distance", y = "", x= "Speed") +
```

```r
  theme_bw() +
  theme(plot.title = element_text(hjust = 0.5),
        axis.title.x = element_text(size = 12),
        axis.title.y = element_text(size = 12)
        )
```

```r
require(ggpubr)
R1 <- ggarrange(p1,p2,p3,ncol=3,nrow=1)
R2 <- ggarrange(p1,p2,p3,ncol=3,nrow=1, labels = "AUTO")
R3<- ggarrange(p1,p2,p3,ncol=3,nrow=1, labels = c("AA", "BB", "CC"), common.legend = TRUE)

ggarrange(R1,R2,R3,ncol=1,nrow=3)
```

A

B Speed vs. Stopping Distance **C**

AA

BB Speed vs. Stopping Distance **CC**
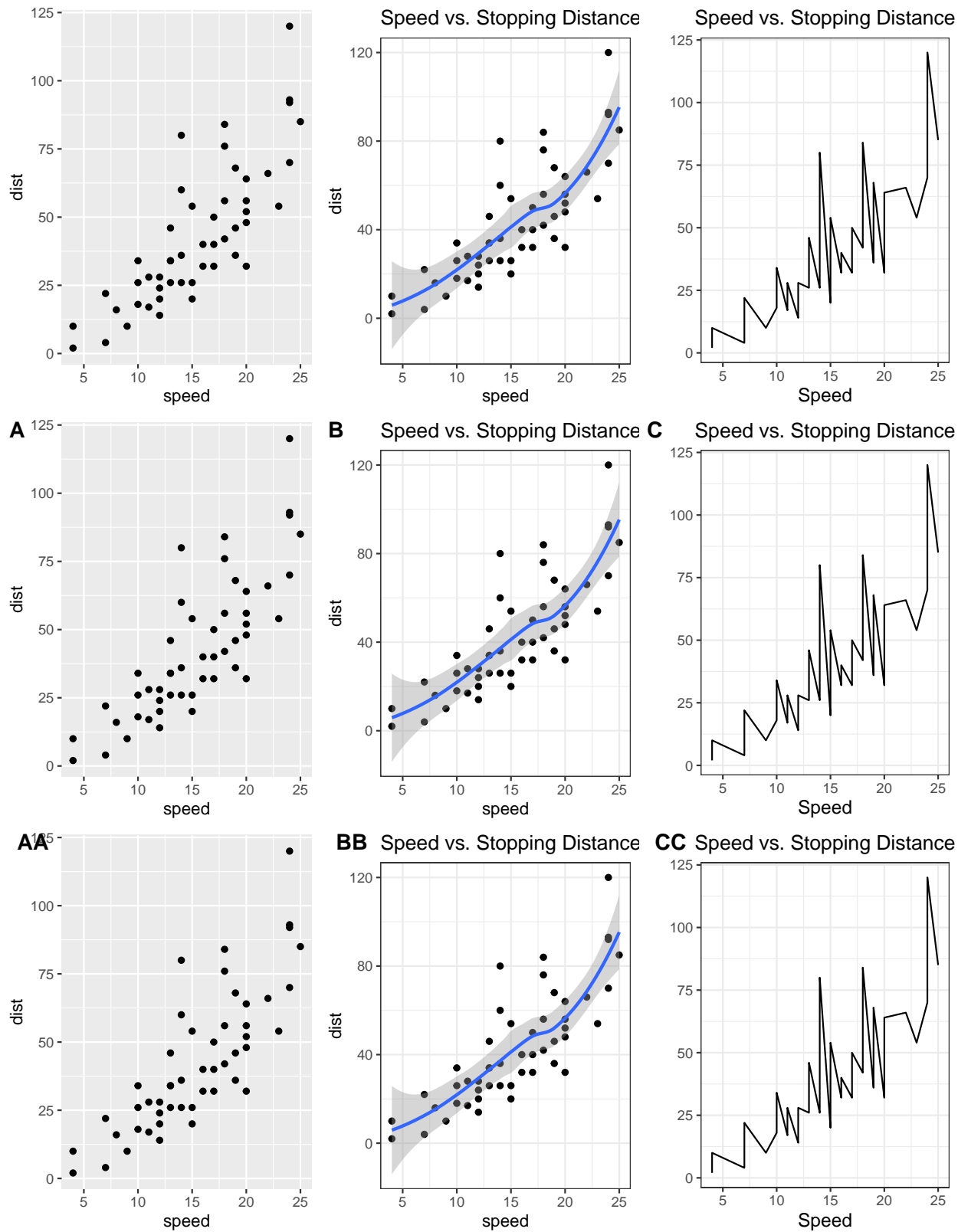
Embed LaTeX or Math<L equations, and cross-reference them. For example, we can write $\hat{\beta} = (X'X)^{-1}X'y$ and reference it later as Equation **??**.

$\frac{1}{n}\sum_{i=1}^{n}x_i$

Inline R code

I counted 6 blue cars on a highway.

The mean of the first column in iris.csv is 5.8433333.

Footnotes, citations, and a bibliography. [1]

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[1]Markdown is great

Table 1: Summary of the `iris` data set

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1          5.1         3.5          1.4         0.2  setosa
## 2          4.9         3.0          1.4         0.2  setosa
## 3          4.7         3.2          1.3         0.2  setosa
## 4          4.6         3.1          1.5         0.2  setosa
## 5          5.0         3.6          1.4         0.2  setosa
## 6          5.4         3.9          1.7         0.4  setosa
```

Table 1: Table 1: Summary of the `iris` data set

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa

Table 2: Table 1: Descriptive of the `iris` data set

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
Min. :4.300	Min. :2.000	Min. :1.000	Min. :0.100	setosa :50
1st Qu.:5.100	1st Qu.:2.800	1st Qu.:1.600	1st Qu.:0.300	versicolor:50
Median :5.800	Median :3.000	Median :4.350	Median :1.300	virginica :50
Mean :5.843	Mean :3.057	Mean :3.758	Mean :1.199	NA
3rd Qu.:6.400	3rd Qu.:3.300	3rd Qu.:5.100	3rd Qu.:1.800	NA
Max. :7.900	Max. :4.400	Max. :6.900	Max. :2.500	NA