

Fitted Regression Model Lines

Federico Lopez

2015-10-08

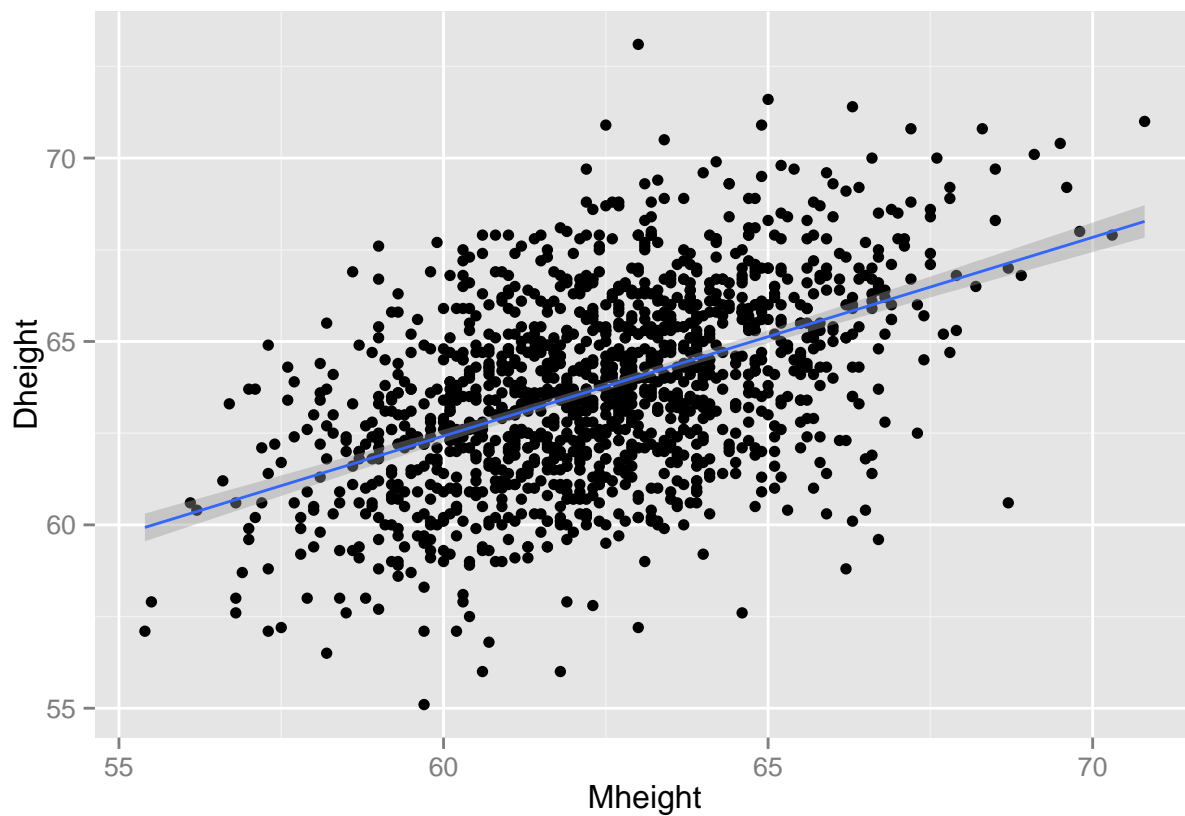
```
library(ggplot2)

#install.packages("alr3")
library(alr3)

#load Pearson-Lee data: collection of data, heights in inches of mothers
#and their daughters, on over 1100 families in England in the period 1893
#to 1898
ht <- heights
head(ht)
```

```
##   Mheight Dheight
## 1    59.7    55.1
## 2    58.2    56.5
## 3    60.6    56.0
## 4    60.7    56.8
## 5    61.8    56.0
## 6    55.5    57.9
```

```
#adding fitted regression model lines
#base plot with 95% confidence region
sp <- ggplot(ht, aes(x=Mheight, y=Dheight))
sp + geom_point() + stat_smooth(method=lm, level=0.95)
```

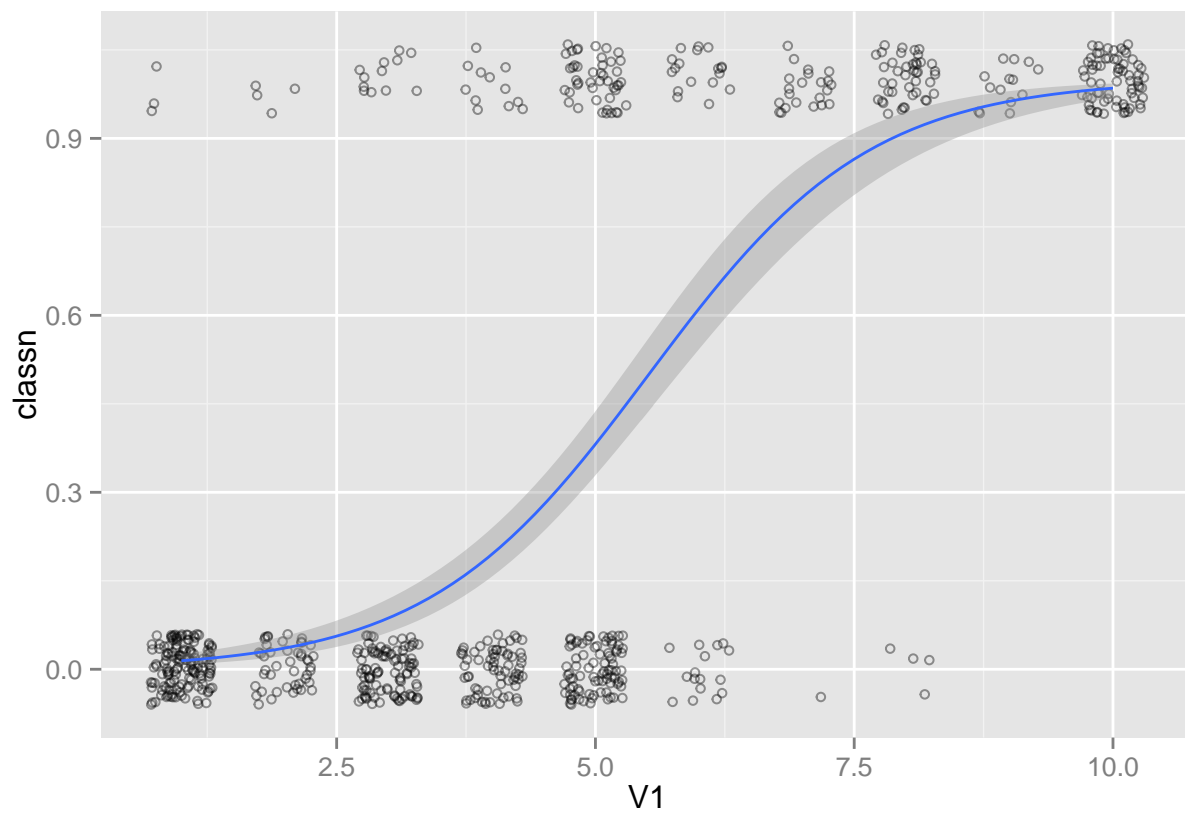


```
#fit logistic regression line
library(MASS) #for data
b <- biopsy
head(b)
```

```
##      ID V1 V2 V3 V4 V5 V6 V7 V8 V9      class
## 1 1000025 5 1 1 1 2 1 3 1 1      benign
## 2 1002945 5 4 4 5 7 10 3 2 1      benign
## 3 1015425 3 1 1 1 2 2 3 1 1      benign
## 4 1016277 6 8 8 1 3 4 3 7 1      benign
## 5 1017023 4 1 1 3 2 1 3 1 1      benign
## 6 1017122 8 10 10 8 7 10 9 7 1 malignant
```

```
b$classn[b$class=="benign"] <- 0
b$classn[b$class=="malignant"] <- 1
#b

#use smoothing method glm with binomial formula
ggplot(b, aes(x=V1, y=classn)) +
  geom_point(position=position_jitter(width=0.3, height=0.06), alpha=0.4,
    shape=21, size=1.5) +
  stat_smooth(method=glm, family=binomial)
```



```
#use the stat_smooth() loess (locally weighted polynomial) curve method  
sp + geom_point() + stat_smooth(method=loess)
```

