Study about the relationship between parents' height and children's height

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Overview

- Loading dataset

```
library(HistData)
data(GaltonFamilies)
```

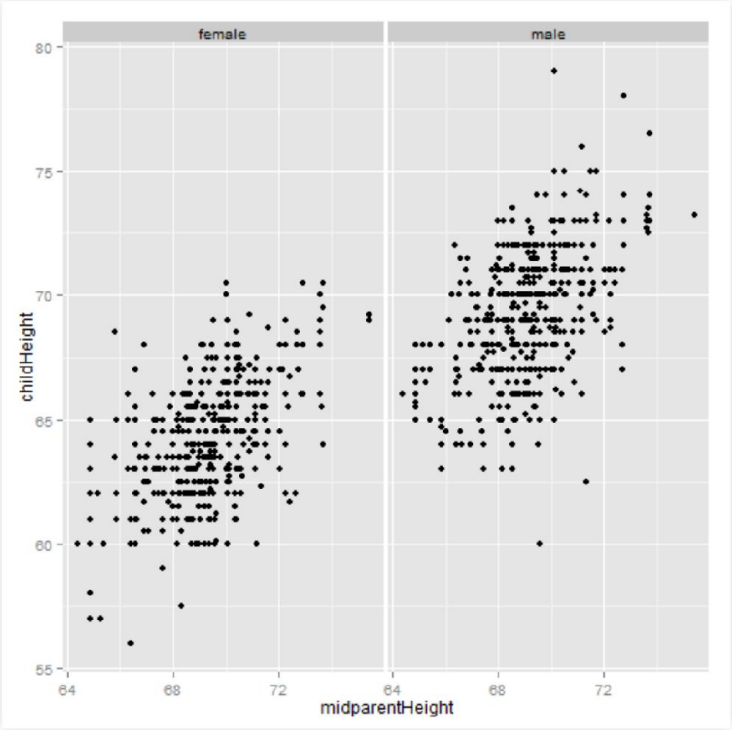
- Summary data

```
#summary(GaltonFamilies)
#head(GaltonFamilies)
names(GaltonFamilies)
```

```
[1] "family"           "father"
"mother"           "midparentHeight"
[5] "children"         "childNum"
"gender"           "childHeight"
```

Plotting a graph that depict the correlation

```
library(ggplot2)
qplot(x = midparentHeight, y = childHeight,
data = GaltonFamilies) +
  facet_wrap(~gender)
```



The relationship

- Graph demonstrated the positive correlation between midparentHeight (father + 1.8 * mother) and childHeight based on gender
- Correlation test

```
    Pearson's product-moment correlation

data:  GaltonFamilies$midparentHeight and
GaltonFamilies$childHeight
t = 10.35, df = 932, p-value < 2.2e-16
alternative hypothesis: true correlation is
not equal to 0
95 percent confidence interval:
 0.2622 0.3773
sample estimates:
   cor
0.3209
```

Providing predict model

- We need more variables to predict childHeight exactly
- We don't need family and midParentHeight variable
- caret package is used to make model

```
GaltonFamilies <- GaltonFamilies[,-c(1,4)]
library(caret)
set.seed(123)
inTrain <-
createDataPartition(y=GaltonFamilies$childHeight,p=0.85,
list=FALSE)
training <- GaltonFamilies[inTrain,]
testing <- GaltonFamilies[-inTrain,]
#modFit <- train(childHeight ~ ., data=
training, method = "rf", prox=TRUE)
```