Exploration of iris Dataset

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## Abstract

In this paper we explore the dataset "cars". The data give the speed of cars and the distances taken to stop. Note that the data were recorded in the 1920s.

## Data Set

dim(cars)

## [1] 50 2

The dataset consists of 50 observations and 50, 1 variables. The variable names are: speed, dist

head(cars, 5)

## speed dist  
## 1 4 2  
## 2 4 10  
## 3 7 4  
## 4 7 22  
## 5 8 16

## Theoretical Breaking Distance

The theoretical breaking distance is determined by the intial speed and the friction coefficient:

d … breaking distance

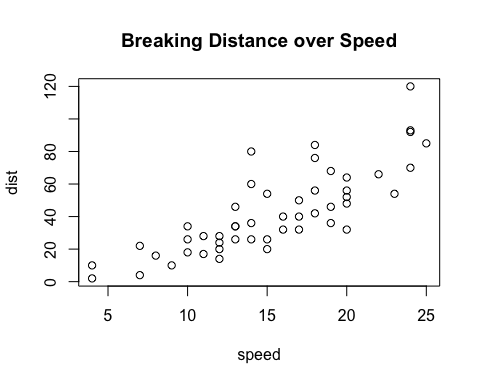
… friction coeficient

g … gravity of the Earth

Friction Coeficient:

## Measured Data

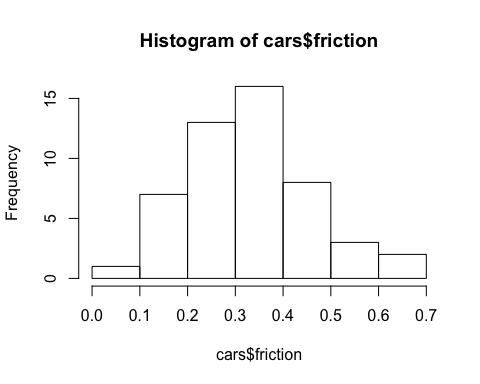
plot(dist ~ speed, data=cars,  
 main = "Breaking Distance over Speed")



g <- 9.81  
cars$friction <- cars$speed^2/(2 \* g \* cars$dist)  
summary(cars$friction)

## Min. 1st Qu. Median Mean 3rd Qu. Max.   
## 0.0815 0.2470 0.3230 0.3310 0.4060 0.6370

hist(cars$friction)



plot(friction ~ speed, data=cars)

