Chapter 6 Exercise 19

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19.

You are given the following script in R:

```
myData <- data.frame(y=numeric(0), x1=numeric(0),
                                   x2=numeric(0),
                                   x3=numeric(0),
                                   x4=numeric(0),
                                   x5=numeric(0),
                                   x6=numeric(0))

for (i in 1:4){
    myData[i,] <- runif(7, min=1, max=10)
}
rModel<-lm( y ~ ., data=myData)
print(rModel$coefficients)
```

After you execute the above program, answer the following questions:

- I) Explain what exactly the program you just executed does
- II) Explain the values of the estimated coefficients that have been obtained. Specifically, what events do you believe some of these coefficient values are attributed to? To better understand the origins of certain coefficient values, try rerunning the provided program with changes to the dataset used for estimating the coefficients.
- III) Based on the program you have executed and the interpretation of the results obtained, what general conclusion can you draw about the method of least squares? Provide a mathematical proof of this conclusion in the general case.