Week 3 Assignment

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* 3.7 #14
  1. Set up data

set.seed(1)  
x1 <- runif(100)  
x2 <- 0.5\*x1 + rnorm(100)/10  
y <- 2 + 2\*x1 + 0.3\*x2 + rnorm(100)

The form of the linear model is .

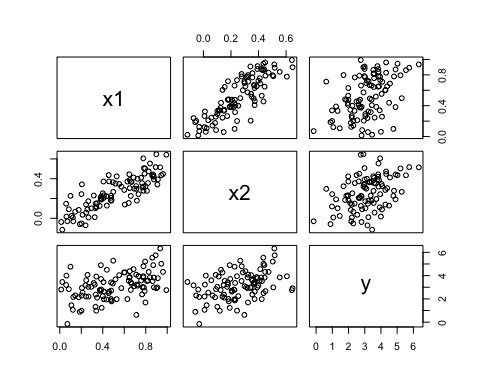
The coefficients are

* 1. cor() and pairs()

cor(x1, x2)

## [1] 0.8351212

pairs(data.frame(x1 = x1, x2 = x2, y = y))



The correlation between x1 and x2 is 0.8351.

* 1. lm() and summary()

lm1 <- lm(y ~ x1 + x2)  
summary(lm1)

##   
## Call:  
## lm(formula = y ~ x1 + x2)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.8311 -0.7273 -0.0537 0.6338 2.3359   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 2.1305 0.2319 9.188 7.61e-15 \*\*\*  
## x1 1.4396 0.7212 1.996 0.0487 \*   
## x2 1.0097 1.1337 0.891 0.3754   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 1.056 on 97 degrees of freedom  
## Multiple R-squared: 0.2088, Adjusted R-squared: 0.1925   
## F-statistic: 12.8 on 2 and 97 DF, p-value: 1.164e-05

* 3.7 #15