

Clase-4-regresion-lineal.R

Usuario

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# Martin Lopez Ortiz
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# Clase 4

# Ejercicio 1
# Subir datos -----

erupciones <-read.csv("C:/MCF202_2019/Datos/erupciones.csv", header = T)
summary(erupciones)

##      eruptions      waiting
## Min.   :1.600   Min.   :43.0
## 1st Qu.:2.163   1st Qu.:58.0
## Median :4.000   Median :76.0
## Mean   :3.488   Mean   :70.9
## 3rd Qu.:4.454   3rd Qu.:82.0
## Max.   :5.100   Max.   :96.0

plot(erupciones$waiting, erupciones$eruptions, pch=17, col= "blue",
     xlab= "Tiempo de espera (min)",
     ylab= "Duracion (min)")
library(pastecs)
stat.desc(erupciones$eruptions, basic = FALSE, norm = TRUE)

##      median      mean      SE.mean  CI.mean.0.95      var
## 4.000000e+00 3.487783e+00 6.920580e-02 1.362494e-01 1.302728e+00
##      std.dev      coef.var      skewness      skew.2SE      kurtosis
## 1.141371e+00 3.272483e-01 -4.135498e-01 -1.399854e+00 -1.511605e+00
##      kurt.2SE      normtest.W      normtest.p
## -2.567516e+00 8.459156e-01 9.036119e-16

shapiro.test(erupciones$eruptions)

##
## Shapiro-Wilk normality test
##
## data:  erupciones$eruptions
## W = 0.84592, p-value = 9.036e-16

shapiro.test(erupciones$waiting)

##
## Shapiro-Wilk normality test
##
## data:  erupciones$waiting
## W = 0.92215, p-value = 1.015e-10

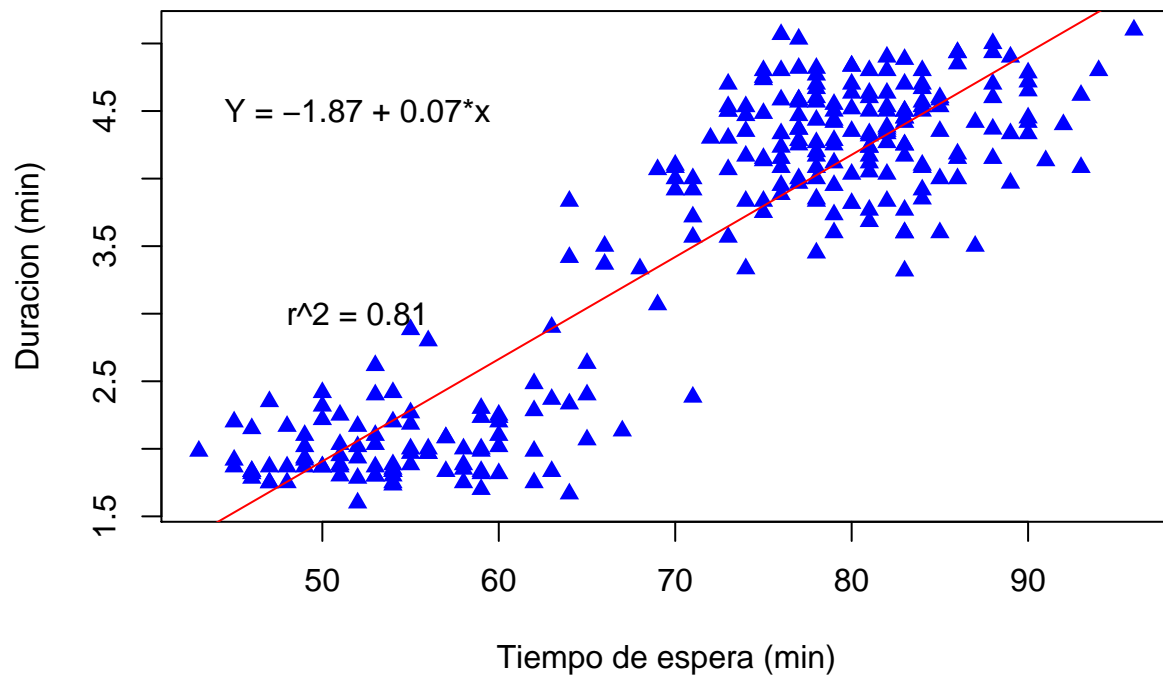
cor.test(erupciones$eruptions, erupciones$waiting)

##
```

```
## Pearson's product-moment correlation
##
## data: erupciones$eruptions and erupciones$waiting
## t = 34.089, df = 270, p-value < 2.2e-16
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## 0.8756964 0.9210652
## sample estimates:
## cor
## 0.9008112
```

Regresion lineal -----

```
lm.erup <- lm(erupciones$eruptions ~ erupciones$waiting)
plot(erupciones$waiting, erupciones$eruptions, pch=17, col= "blue",
     xlab= "Tiempo de espera (min)",
     ylab= "Duracion (min)")
abline(lm.erup, col= "red")
text(52, 4.5, "Y = -1.87 + 0.07*x")
text(52, 3, "r^2 = 0.81")
```



```
lm.erup
```

```
##
## Call:
## lm(formula = erupciones$eruptions ~ erupciones$waiting)
##
```

```
## Coefficients:
##      (Intercept)  erupciones$waiting
##      -1.87402      0.07563

summary(lm.erup)

##
## Call:
## lm(formula = erupciones$eruptions ~ erupciones$waiting)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.29917 -0.37689  0.03508  0.34909  1.19329
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -1.874016   0.160143  -11.70  <2e-16 ***
## erupciones$waiting  0.075628   0.002219   34.09  <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4965 on 270 degrees of freedom
## Multiple R-squared:  0.8115, Adjusted R-squared:  0.8108
## F-statistic: 1162 on 1 and 270 DF,  p-value: < 2.2e-16

length(erupciones$eruptions)

## [1] 272

y.60 <- -1.87 + 0.7*60
y.60

## [1] 40.13
```