

## tarea\_5.R

Usuario

2021-04-27

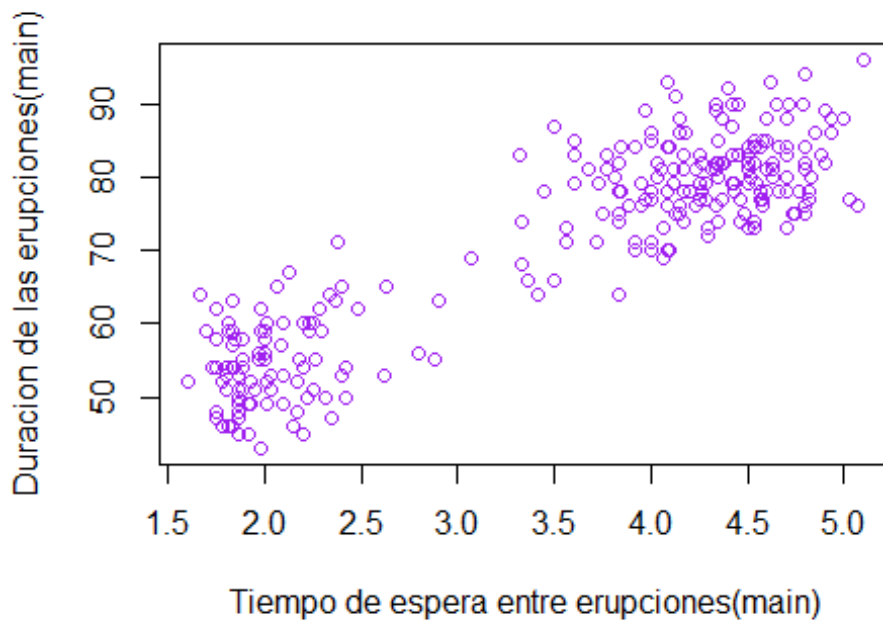
```
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# 27.04.2021
# Tarea 6

# Ejercicio 1 -----
--

Erupciones <-
read.csv("https://raw.githubusercontent.com/Marimari02/PrincipiosEstadistica2021/main/erupciones.csv")
head(Erupciones)

##   eruptions waiting
## 1      3.600      79
## 2      1.800      54
## 3      3.333      74
## 4      2.283      62
## 5      4.533      85
## 6      2.883      55

plot(Erupciones, xlab= "Tiempo de espera entre erupciones(main)",
      ylab= "Duracion de las erupciones(main)", col= "purple")
```



```
# Correlacion -----  
--  
  
# Media  
mean(Erupciones$eruptions)  
## [1] 3.487783  
  
mean(Erupciones$waiting)  
## [1] 70.89706  
  
# Desviacion estandar  
sd(Erupciones$eruptions)  
## [1] 1.141371  
  
sd(Erupciones$waiting)  
## [1] 13.59497  
  
# Varianza  
var(Erupciones$eruptions)  
## [1] 1.302728  
  
var(Erupciones$waiting)  
## [1] 184.8233
```

### *# Correlacion*

```
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
```

### *# correlacion significativa*

### *# Regresion Lineal*

```
summary(Erupciones$eruptions)
```

```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 1.600   2.163   4.000   3.488   4.454   5.100
```

```
Erupciones.lm <- lm(Erupciones$eruptions ~ Erupciones$waiting)
Erupciones.lm
```

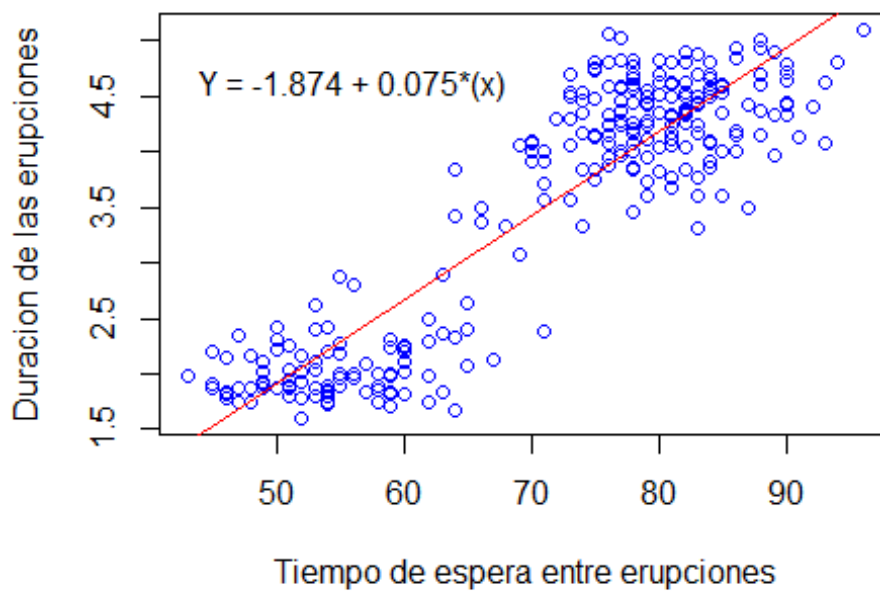
```
##
## Call:
## lm(formula = Erupciones$eruptions ~ Erupciones$waiting)
##
## Coefficients:
##      (Intercept) Erupciones$waiting
##      -1.87402      0.07563
```

```
summary(Erupciones.lm)
```

```
##
## 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

plot(Erupciones$waiting, Erupciones$eruptions, xlab= "Tiempo de espera
entre erupciones",
      ylab= "Duracion de las erupciones", col= "blue")
abline(Erupciones.lm, col= "red")
text(56,4.6, "Y = -1.874 + 0.075*(x)")
```



```
# alfa = -1.8740, beta = 0.756

valores <- c(80, 40, 45, 53, 61)

-1.874 + 0.075*(valores)
## [1] 4.126 1.126 1.501 2.101 2.701

-1.874 + 0.075*(80)
## [1] 4.126

-1.874 + 0.075*(40)
## [1] 1.126

-1.874 + 0.075*(45)
## [1] 1.501
```

```
-1.874 + 0.075*(53)
```

```
## [1] 2.101
```

```
-1.874 + 0.075*(61)
```

```
## [1] 2.701
```