Tarea-5.R

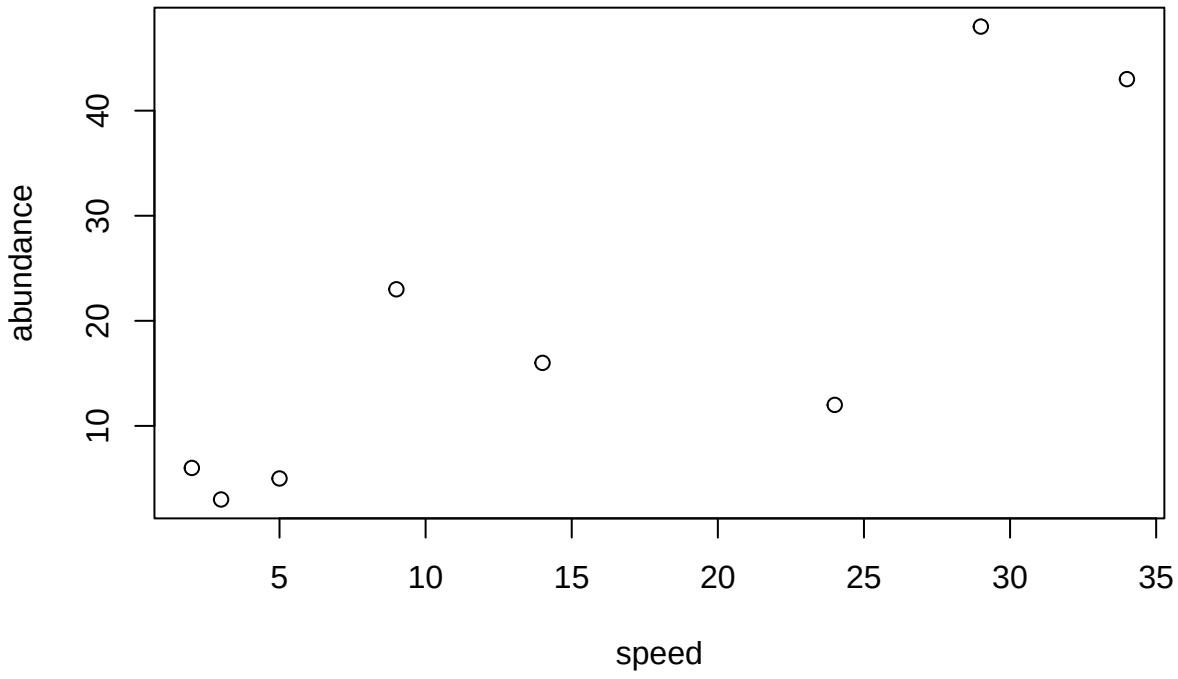
User

2021-09-09

```
# Itzel Reta Heredia
# 8/31/2021
# 2124992
############
#Tarea 5


# Ejercicio 1 ------------------------------------------------------------

speed <- c(2, 3, 5, 9, 14, 24, 29, 34)
abundance <- c(6, 3, 5, 23, 16, 12, 48, 43)
efim <- data.frame(speed, abundance)
plot(speed, abundance)
```



```r
efim$xmn <- (efim$speed - mean(efim$speed))

efim$ymn <- (efim$abundance - mean(efim$abundance))

efim$xmn2 <- (efim$speed - mean(efim$speed))^2

beta <- sum(efim$xmn * efim$ymn)/sum(efim$xmn2)
alfa <- (mean(efim$abundance))-(beta*mean(efim$speed))

efim$yef <- alfa + (beta*efim$speed)

efim.lm <- lm(efim$abundance ~ efim$speed)
summary(efim.lm)
```

```
##
## Call:
## lm(formula = efim$abundance ~ efim$speed)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -18.080  -2.481  -0.580   3.975  12.042
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   1.8667     5.7912   0.322  0.75813
## efim$speed    1.1756     0.3048   3.857  0.00839 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.05 on 6 degrees of freedom
## Multiple R-squared:  0.7126, Adjusted R-squared:  0.6647
## F-statistic: 14.87 on 1 and 6 DF,  p-value: 0.008393
```

```r
efim.lm$df
```

```
## [1] 6
```

```r
sqrt( 0.7126)
```

```
## [1] 0.8441564
```

```r
#¿Es estadisticamente significativa la correlacion?
# R: H1 si es alternativa si es sifnificativa


# Ejercicio 2 ------------------------------------------------------------------


setwd("C:/estadistica/Analisis-estadisticos-2021")
suelo <- read.csv("suelo.csv", header = TRUE)
head(suelo)
```

```
##   X Group Contour Depth Gp Block   pH     N Dens   P    Ca   Mg    K   Na
## 1 1     1     Top  0-10 T0     1 5.40 0.188 0.92 215 16.35 7.65 0.72 1.14
## 2 2     1     Top  0-10 T0     2 5.65 0.165 1.04 208 12.25 5.15 0.71 0.94
## 3 3     1     Top  0-10 T0     3 5.14 0.260 0.95 300 13.02 5.68 0.68 0.60
```

```
## 4 4     1     Top  0-10 T0     4 5.14 0.169 1.10 248 11.92 7.88 1.09 1.01
## 5 5     2     Top 10-30 T1     1 5.14 0.164 1.12 174 14.17 8.12 0.70 2.17
## 6 6     2     Top 10-30 T1     2 5.10 0.094 1.22 129  8.55 6.92 0.81 2.67
##   Conduc
## 1   1.09
## 2   1.35
## 3   1.41
## 4   1.64
## 5   1.85
## 6   3.18
```

```
cor.test(suelo$pH, suelo$N)
```

```
##
##  Pearson's product-moment correlation
##
## data:  suelo$pH and suelo$N
## t = 5.5994, df = 46, p-value = 1.149e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4303716 0.7797377
## sample estimates:
##      cor
## 0.636654
```

```
cor.test(suelo$pH, suelo$Dens)
```

```
##
##  Pearson's product-moment correlation
##
## data:  suelo$pH and suelo$Dens
## t = -4.9436, df = 46, p-value = 1.062e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.7479775 -0.3661760
## sample estimates:
##        cor
## -0.5890264
```

```
cor.test(suelo$pH, suelo$P)
```

```
##
##  Pearson's product-moment correlation
##
## data:  suelo$pH and suelo$P
## t = 4.9694, df = 46, p-value = 9.74e-06
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.3688348 0.7493286
## sample estimates:
##       cor
## 0.5910303
```

```
cor.test(suelo$pH, suelo$Ca)
```

```
##
##  Pearson's product-moment correlation
```

```
##
## data:  suelo$pH and suelo$Ca
## t = 9.3221, df = 46, p-value = 3.614e-12
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.6809493 0.8885997
## sample estimates:
##       cor
## 0.8086293
```

```
cor.test(suelo$pH, suelo$Mg)
```

```
##
##  Pearson's product-moment correlation
##
## data:  suelo$pH and suelo$Mg
## t = -2.923, df = 46, p-value = 0.005361
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.6111857 -0.1257936
## sample estimates:
##        cor
## -0.3957821
```

```
cor.test(suelo$pH, suelo$K)
```

```
##
##  Pearson's product-moment correlation
##
## data:  suelo$pH and suelo$K
## t = 4.8236, df = 46, p-value = 1.585e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.3536810 0.7415855
## sample estimates:
##       cor
## 0.5795727
```

```
cor.test(suelo$pH, suelo$Na)
```

```
##
##  Pearson's product-moment correlation
##
## data:  suelo$pH and suelo$Na
## t = -6.5242, df = 46, p-value = 4.724e-08
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.8165520 -0.5094849
## sample estimates:
##        cor
## -0.6932614
```

```
cor.test(suelo$pH, suelo$Conduc)
```

```
##
##  Pearson's product-moment correlation
##
```

```
## data:  suelo$pH and suelo$Conduc
## t = -8.0515, df = 46, p-value = 2.484e-10
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.8616916 -0.6141322
## sample estimates:
##        cor
## -0.7648104
```