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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

"'{# load packages} pacman::p_load(pacman, dplyr, GGally, ggplot2, ggthemes, ggvis, httr, lubridate, plotly, rio, rmarkdown, shiny, stringr, tidyr, plyr, rootSolve)

Definir a semente

set.seed(1595)

Tamanho das amostras

n <- c(30, 50, 100, 200, 300, 500, 1000) # Probabilidade de sucesso da distribuição de Bernoulli prob <- 0.8 # Número de amostras k <- 3000 # Nível de confiança aproximado gamma <- 0.9 # Valor crítico para o nível de confiança aproximado gamma z <- qnorm((1 + gamma)/2)

Inicializar vetor para armazenar as médias das diferenças

mean_diff <- numeric(length(n))

Loop pelos valores de n

for (i in 1:length(n)) {

Inicializar vetor para armazenar as diferenças de cada amostra diff_intervals <- numeric(k)

Loop pelas amostras for (j in 1:k) { # Gerar amostras de uma distribuição de Bernoulli sample <- rbinom(n[i], 1, prob)

```
# Média amostral
x_bar <- mean(sample)

# Método 1
m1_function <- function(p) (x_bar^2 - (2 * p * x_bar) + (p^2) - ((z^2 * p * (1 - p)) / n[i]))
m1_roots <- uniroot.all(m1_function, interval = c(0, 1))
```

```
m1_len =  abs(m1_roots[2] - m1_roots[1])


# Método 2
m2_low_limit <- x_bar - (z * sqrt((x_bar * (1 - x_bar)) / n[i]))
m2_upper_limit <- x_bar + (z * sqrt((x_bar * (1 - x_bar)) / n[i]))
m2_len <- abs(m2_upper_limit - m2_low_limit)

# Diferença entre os comprimentos dos intervalos
diff_intervals[j] <- abs(m1_len - m2_len)

}
```

Média das diferenças mean_diff[i] <- mean(diff_intervals) }

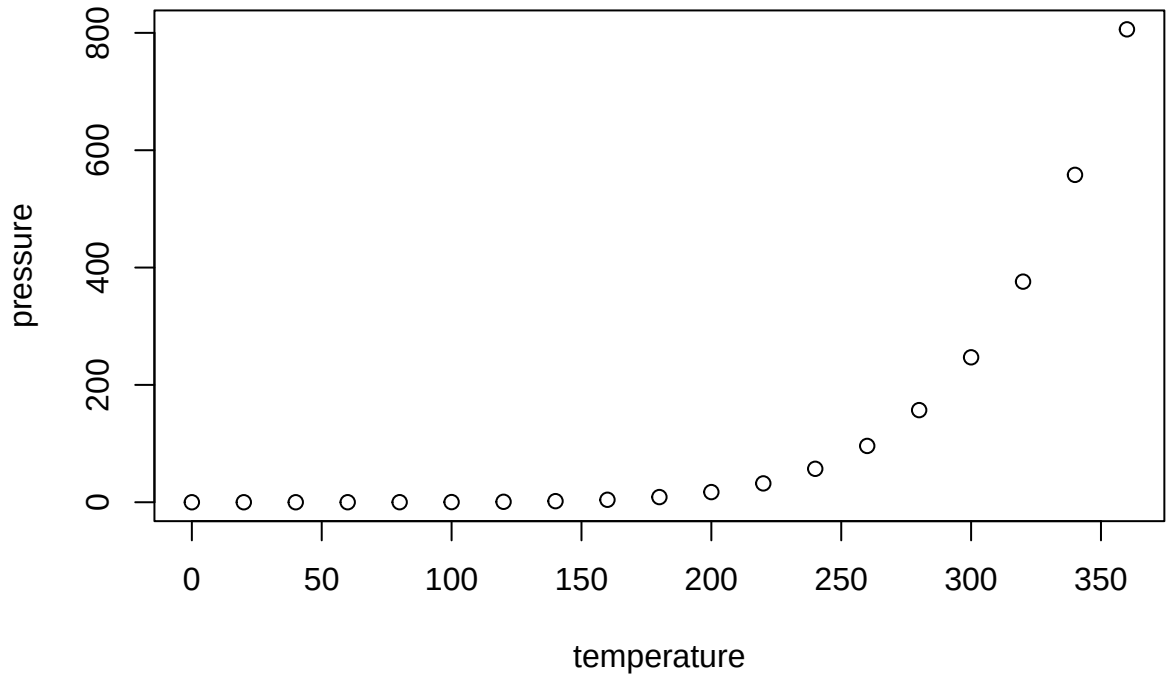
Construir o gráfico

plot(n, mean_diff, col="red", type = "b", pch = 19, xlab = "Tamanho da Amostra (n)", ylab = "Diferença Média", main = "Diferença Média dos Intervalos de Confiança")

‘‘‘

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.