Pasos para instalar cmdstanr

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Paso 1: Instalando software

A continuación listamos los software necesario para el desarrollo adecuado del entrenamiento, se recomienda realizar la instalación de estos paquetes antes de iniciar con el desarrollo práctico.

1. Descargar e instalar **Rbase** (https://cran.r-project.org/bin/windows/base/)
2. Descargar e instalar **Rtools** (https://cran.r-project.org/bin/windows/Rtools/)
3. Descargar e instalar **Rstudio** (https://posit.co/download/rstudio-desktop/)
4. Descargar e instalar **Quarto** (https://quarto.org/docs/get-started/)
5. Descargar e instalar **Anaconda** (https://www.anaconda.com/products/individual)

Paso 2: Instalar las siguientes librerías en *R*.

```
install.packages("patchwork")
install.packages("lme4")
install.packages("tidyverse")
install.packages("rstan")
install.packages("rstanarm")
install.packages("magrittr")
install.packages("reticulate")
install.packages("rgee")
install.packages("sf")
install.packages("tmap")
install.packages("trafo")
install.packages("scales")
install.packages("srvyr")
install.packages("survey")
install.packages("haven")
install.packages("sampling")
install.packages("sp")
```

```r
install.packages("RColorBrewer")
install.packages("maptools")
install.packages("data.table")
install.packages("forcats")
install.packages("tidyr")
install.packages("reshape2")
install.packages("bayesplot")
install.packages("posterior")
install.packages("gridExtra")
install.packages("ggalt")
install.packages("usmap")
install.packages("kableExtra")
install.packages("formatR")
install.packages("printr")
install.packages("remotes")
install.packages("latex2exp")
install.packages("gtsummary")
remotes::install_github("stan-dev/cmdstanr")
```

Paso 3: Descargando e instalando STAN

Los siguientes pasos son tomados de la pagina del autor de **cmdstanr** (https://mc-stan.org/cmdstanr/index.html)

1. Cargar la librería `cmdstanr`

```r
library(cmdstanr)
```

```
This is cmdstanr version 0.5.2

- CmdStanR documentation and vignettes: mc-stan.org/cmdstanr

- CmdStan path: C:/Users/sguerrero/Documents/.cmdstan/cmdstan-2.30.1

- CmdStan version: 2.30.1


A newer version of CmdStan is available. See ?install_cmdstan() to install it.
To disable this check set option or environment variable CMDSTANR_NO_VER_CHECK=TRUE.
```

2. Instalar `STAN`, este proceso puede tardar unos minutos.

```
cmdstanr::install_cmdstan()
```

3. Validar instalación, si `STAN` quedo instalado de forma correcta el siguiente código debe ejecutar sin problema.

```
library(cmdstanr)
library(posterior)
library(bayesplot)

# ?cmdstan_model
file <- file.path(cmdstan_path(), "examples/bernoulli/bernoulli.stan")
mod <- cmdstan_model(file)

stan_data <- list(N = 10, y = c(0,1,0,0,0,0,0,0,0,1))


fit_mcmc <- mod$sample(
  data = stan_data,
  seed = 123,
  chains = 2,
  parallel_chains = 2,
  refresh = 1000
)
```

```
Running MCMC with 2 parallel chains...

Chain 2 Iteration:    1 / 2000 [  0%]  (Warmup)
Chain 2 Iteration: 1000 / 2000 [ 50%]  (Warmup)
Chain 2 Iteration: 1001 / 2000 [ 50%]  (Sampling)
Chain 2 Iteration: 2000 / 2000 [100%]  (Sampling)
Chain 2 finished in 0.2 seconds.
The remaining chains had a mean execution time of 3.1 seconds.
```

```
fit_mcmc$summary(variables = "theta")
```

```
# A tibble: 1 x 10
  variable  mean median    sd   mad     q5   q95  rhat ess_bulk ess_tail
  <chr>    <dbl>  <dbl> <dbl> <dbl>  <dbl> <dbl> <dbl>    <dbl>    <dbl>
1 theta    0.245  0.225 0.121 0.120 0.0741 0.473 0.999     326.     360.
```

Error durante la instalación de STAN

```
Error: RtoolsXX installation found but the toolchain was not installed. Run
cmdstanr::check_cmdstan_toolchain(fix = TRUE) to fix the issue.
```

Solución 1

Ejecutar: `cmdstanr::check_cmdstan_toolchain(fix = TRUE)` y hacer la instalción de nuevo.

Solución 2

Actualizar R, Rtools y realizar el proceso de instalción de nuevo.

Solución 3

Consultar en la pagina oficial de stan (<https://discourse.mc-stan.org/>)