`ProcData` Installation Guide

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`ProcData` is an `R` package for process data analysis. This guide provides instructions on the installation of `ProcData`. If you need help during the installation process, please post your issue on our [Github page](). We will respond as soon as possible.

1. Preparation. `ProcData` depends on R packages `Rcpp` for incorporating C++ code in R code and `keras` for training neural networks. If you would like to install `ProcData` from source, then compiler tools are needed. `ProcData` calls Python library Keras for building and training neural networks in Python. Some functions in `ProcData` require Python to work. Note that the following two steps do not have to be performed before installing `ProcData`. You will be prompted if R detects a missing component.

   (a) Installing compiler tools.

      - For Windows users, Rtools provides tools for building R packages from source. One can download Rtools and find its installation guide at [`https://cran.r-project.org/bin/windows/Rtools/`]().

      - For Mac users, Xcode provides tools necessary for compiling `ProcData`. Xcode can be obtained from Apple AppStore and the [Xcode developer page](). An Apple developer account is needed. More information about compiling R packages for macOS can be found at [`https://mac.r-project.org/tools/`]().

(b) Installing Python. We recommend using Anaconda for creating and managing Python environments. An installer can be found on its official website.

2. Install `ProcData`. `ProcData` is available on CRAN. The package and its dependent packages can be installed by executing the following command in R.

```
install.packages("ProcData", dependencies=T)
```

The development version of `ProcData` can be installed from Github in R by the following command.

```
devtools::install_github("xytangtang/ProcData")
```

3. Install `keras`. To finish installing R package `keras`, run the following commands in R.

```
library(keras)
install_keras()
```

Note:

(a) This step installs Python libraries Keras and Tensorflow. You will be asked if you would like to install Miniconda if R could not find an appropriate Python environment. Miniconda is a light-weight version of Anaconda. We recommend selecting yes to let R installs Miniconda if you have little experience with Anaconda or Python.

(b) You can test whether `keras` is installed properly by running

```
mnist <- dataset_mnist()
```

More detailed information on installing `keras` can be found at https://keras.rstudio.com/.