Using Lazy–Evaluation to build the G.U.I.

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The aim of this work is to introduce and discuss a G.U.I. building approach that relies on the Lazy–Evaluation and Functional Programming capabilities the R enjoys. The main idea behind this approach is to separate G.U.I. building code from the proper statistical computation code through the Computation on the Language features exhibited by R. In this way, this strategy makes it easy for both, statistical code developer and the statistical user to interact with code. Furthermore, because of the flexibility this G.U.I. building strategy enjoys, the user interaction experience can be easily deployed in several different user interfaces frameworks as the Web or a Desktop with minimal coding costs in an elegant and efficient way.

Package miniGUI implements this strategy allowing simple, ready to use and fully customized interaction with functions coded in R by means of the tcltk package. It uses R capabilities to compute on the Language jointly with Lazy–Evaluation to access to the code of a function $f$ mapping its arguments to a tcltk widget that, once displayed, grants the execution of the function code. As it is also shown in this work by means of the C.G.I. machinery provided by FastRweb, the same strategy can be used to enable Web interaction with code at minimal coding costs, except possibly for that code related to the graphical customization of the Web pages. This is due to the fact this strategy is based on simple R functions to code the the way the user inputs the arguments, so simple function coding leads different user input methods.

References


