

Building GUIs with R TclTk

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GUI Packages

There are many packages that allow GUI creation in R, e.g.

- `R-wxPython`
- `RGtk`
- `rpanel`
- `gWidgets`
- `Rpad`

Why the R-Tcl/Tk Package?

Valid reasons for using the `tcltk` package are

- It is distributed with R
- Tcl/Tk is an established language for building GUIs
- Prior knowledge of Tcl/Tk is not essential
- It is quick and accessible

Widgets

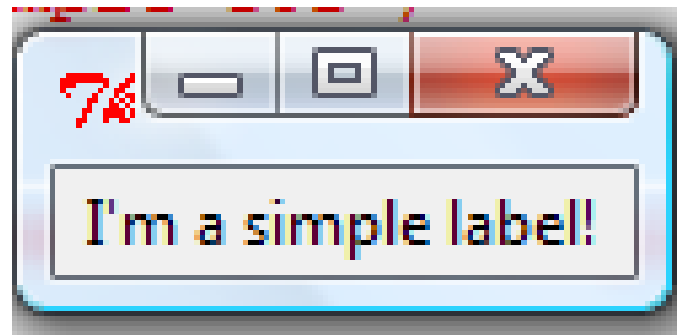
- A widget is a GUI element, e.g. buttons, labels, etc
- The packages comes with a wide selection of widgets

```
> library(tcltk)
```

```
> tt <- tktoplevel()
```

```
> tbl <- tklabel(tt, text="I'm a simple label!")
```

```
> tkpack(tbl)
```



Layout Management - Packing

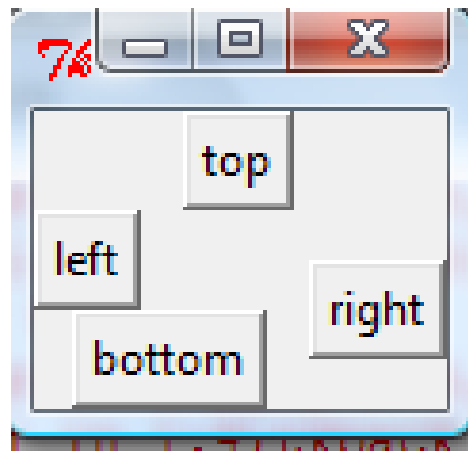
- Packing “packs” widgets in order around the edges of the container

```
> tt <- tktoplevel()
```

```
> edge <- c("top", "right", "bottom", "left")
```

```
> buttons <- lapply(1:4,function(i)tkbutton(tt, text=edge[i]))
```

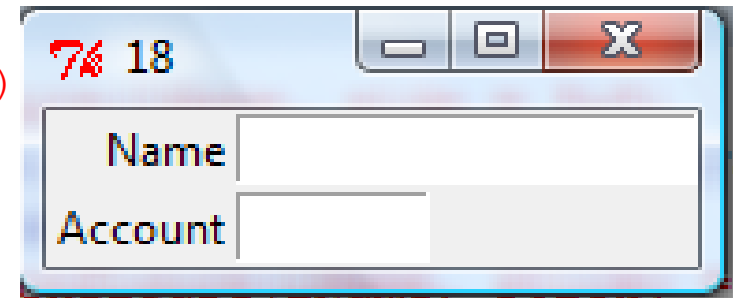
```
> for (i in 1:4)tkpack(buttons[[i]], side=edge[i])
```



Layout Management - Grids

- The grid manager lays widgets out in rows and columns

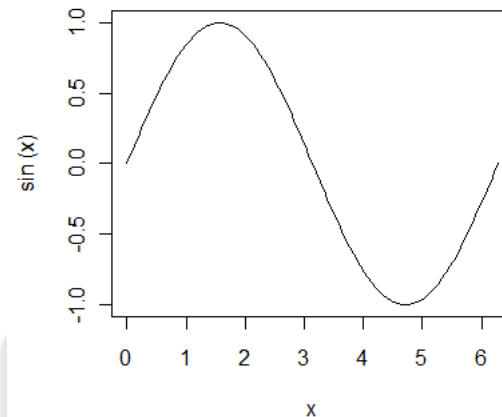
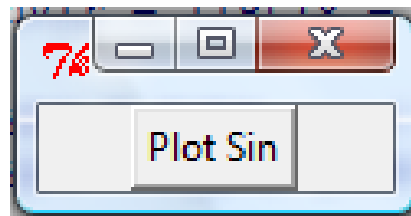
```
> tt <- tktoplevel()  
> lName <- tklabel(tt, text="Name")  
> eName <- tkentry(tt, width=20)  
> lAcc <- tklabel(tt, text="Account")  
> eAcc <- tkentry(tt, width=8)  
> tkgrid(lName, eName)  
> tkgrid(lAcc, eAcc)  
> tkgrid.configure(lAcc, eAcc, sticky="w")  
> tkgrid.configure(lName, eName, sticky="e")
```



Interaction using Callbacks

- Callbacks are functions that are linked to GUI events
- They are initialised using the `command` argument

```
> sinFun <- function() curve(sin, from = 0, to = 2*pi)
> tt <- tktoplevel()
> sinF <- tkbutton(tt, text="Plot Sin", command = sinFun)
> tkpack(sinF)
```



Let's Look at Some Examples...