

Online Applications with Rpad

www.Rpad.org

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What is Rpad?

- Browser-based interface to R.
- Easy way to make web-based front-ends to analytical applications.
- AJAX-style interface – all updates are done within the page dynamically – no browser refreshes.
- R code is embedded in the HTML and can be displayed to the user (use view page source to see the HTML and R code).
- End user doesn't need R installed.

Here is a basic R input section followed by the output:

```
data(iris)
dataset = iris
options(width=50)
summary(dataset)
```

R input block

```
Sepal.Length Sepal.Width Petal.Length
Min. :4.300 Min. :2.000 Min. :1.000
1st Qu.:5.100 1st Qu.:2.800 1st Qu.:1.600
Median :5.800 Median :3.000 Median :4.350
Mean :5.843 Mean :3.057 Mean :4.758
3rd Qu.:6.400 3rd Qu.:3.300 3rd Qu.:5.100
Max. :7.900 Max. :4.400 Max. :6.900
Petal.Width Species
Min. :0.100 setosa :50
1st Qu.:0.300 versicolor:50
Median :1.300 virginica :50
Mean :1.199
3rd Qu.:1.800
Max. :2.500
```

R output block

Now let's do some fancy HTML output:

```
HTMLon ()
HTML(head (dataset))
```

All text and input blocks are WYSIWYG editable.

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.1	3.5	1.4	0.2	setosa
2	4.9	3	1.4	0.2	setosa
3	4.7	3.2	1.3	0.2	setosa
4	4.6	3.1	1.5	0.2	setosa
5	5	3.6	1.4	0.2	setosa
6	5.4	3.9	1.7	0.4	setosa

Here's a simple distribution plotting example with a lognormal distribution with meanlog=10 and variable logsd:

```
Standard deviation
plot(function(x) dblnorm(x, meanlog = 5, sdlog = sdlog)
0, 100, main = "lognormal density", ylab = "
xlab="", col="red")
HTMLon ()
showgraph ()
```

HTML input that's translated into an R variable

Here is another graphic (with the R input section hidden):

Server installation

- Works with Apache or other web server.
 - Perl backend based on Statistics-R by Graciliano Monteiro Passos.
 - Use CGI or mod_perl.
- Runs a separate R process for each web page.
 - Good isolation between pages and processes but a resource hog.
- Some security issues.

Local installation

- Runs a mini-web server in a local copy of R.
- <http://127.0.0.1:8079/>
- Mini-web server is in tcl.
- Use the R command prompt and the browser interface.
- Good for testing and developing Rpad pages.

HTML with Inline R

```
<p>Data frames
</p>
<pre dojoType="Rpad" rpadType="R">
data(iris)
HTMLon()
HTML(head(iris))
</pre>
```

HTML Generation

```
<pre dojoType="Rpad" rpadType="R">
HTMLon()
H("div",id="mainTabSet", dojoType="TabPane",
  style="width: 50%; height: 10em;",
  H("div", dojoType="ContentPane", label="Tab 1",
    HTMLselect("mystate", state.name, default=3),
    BR,
    HTMLinput("myvar", value = 3),
    BR,
    HTMLcheckbox("isAL", text = "Alabama"),
    HTMLcheckbox("isWY", text = "Wyoming"),
    HTMLcheckbox("isMT", text = "Montana")),
  H("div", dojoType="ContentPane", label="Tab 2",
    "here's another tab",
    HTMLradio("AL", commonName = "myState", text = "Alabama"),
    HTMLradio("WY", commonName = "myState", text = "Wyoming"),
    HTMLradio("MT", commonName = "myState", text = "Montana")))
</pre>
```