

Reproducible Reports with R , TEX , & Sweave

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Introduction

This is a brief intro and template to Reproducible Reports with R , TEX , & Sweave. For a great overview of why you might want to do this see: Scott, T. A. (n.d.). Reproducible Research with R , TEX , & Sweave: A common (flawed) approach for generating statistical reports. Retrieved from <http://biostat.mc.vanderbilt.edu/wiki/Main/SweaveLatex>

For the header with palatino see <http://cran.r-project.org/web/packages/lazyWeave/lazyWeave.pdf>

For eg:

```
install.packages("lazyWeave")
require(lazyWeave)
lazy.file.start(docClass="report",
packages=c("pslatex", "palatino", "avant"),
title="Report Name", author="Your Name")
```

For the intro to including R calculations in the paragraphs (ie using 'Sexpr') see: <http://tex.stackexchange.com/a/22392>.

0.1 Inline R output

Say we want to calculate a number and report it we can use this code:

```
One and One is 2.
```

Which will look like this: One and One is 2.

We might want to write multiple lines of R code:

```
Lm returns -0.322671000012202.
```

Which will look like this: Lm returns -0.104693497041258.

0.2 Inline R output with functions

Including Functions can be tricky:

```
> sayhi <- function(k=2) {for(i in 1:k) cat("hi",i,"| ") }
> sayhi()

hi 1 | hi 2 |
```

But with `Sexpr`, `sayhi()` prints `<>`.

Note that `sayhi()` returns nothing; that's why `Sexpr` doesn't work.

```
> a <- sayhi()

hi 1 | hi 2 |

> cat(a)

> savehi <- function(k=2) {
+   out <- c()
+   for(i in 1:k) {
+     out <- paste(out, "hi", i,"| ")
+   }
+   out
+ }
> hi <- savehi()
> cat(hi)

hi 1 | hi 2 |
```

And with `Sexpr`, `savehi()` prints `<hi 1 | hi 2 | >`.