

# Buillding packages: Self-Study Exercises

Chao-Jen Wong, Nishant Gopalakrishnan

20 May, 2010

The `AdvancedR` package contains the sources of the `nidemo` package. The exercises below will take the `nidemo` package code as a starting point, so you will want to have the source for this package at hand. If you have installed the `AdvancedR` package, you can find the sources for `nidemo` as follows:

```
> system.file("packages", package = "AdvancedR")  
[1] "/tmp/Rinst2381276910/AdvancedR/packages"
```

The main goal of this exercise is to learn how to add unit tests to the `nidemo` package, by making use of the unit testing framework provided by the `RUnit` package.

In the following exercises, we will be creating unit tests for two functions `alpha_freq_R` and `demo_which` from the `nidemo` package. The `alpha_freq_R` function returns a named array containing the number of occurrences of each character in a given file. The `demo_which` function returns the `TRUE` indices of a logical vector.

## Exercise 1

*Build and install the `nidemo` package and test out both `alpha_freq_R` and `demo_which` functions.*

## Exercise 2

*Create unit tests for functions `alpha_freq_R` and `demo_which` and save them to the `inst/unitTests` folder of the `nidemo` package.*

*Hint: write tests that check for...*

- *Correctness of output*
- *Exception conditions*

*Hint:*

- *`RUnit` relies on file naming conventions; place your tests in files whose names match the pattern `"._test\\..R$"`*
- *`RUnit` relies on function naming conventions; each unit test function should match `"^test.+"`. Each test should be a function with no arguments.*

The `writeRUnitRunner` creates a `.test` function that makes use of functions from the `RUnit` package to create a test suite, run the test suite and summarize results.

### Exercise 3

- Since we are making use of functions from the `RUnit` package, add `RUnit` to the `Suggests` field of the `DESCRIPTION` file.
- Create a `.test` function that runs all the unit tests for *nidemo* using the `writeRUnitRunner` function and save it to the `R` folder of the *nidemo* package.

### Exercise 4

Create an `R` script in the `tests` folder of the *nidemo* package that calls the `.test` function.

*Hint:* `.test` is not exported from the *nidemo* package. Use `:::`

### Exercise 5

Run `R CMD check` and verify that the *nidemo* passes all the unit tests.