R Packages

A Simple Guide
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Motivation

Why Create One?

Organising your code.

Standard way of sharing.

"If you're creating tools in R for you or other people to use, they belong in a package." ~ Someone smart, probably.

Example

```r
# library(tidyverse)
# devtools::install_github("IPRT/datakindr")
datakindr::search_statbank_datasets("garda") %>% View() # A0518
datakindr::get_cso_dataset("A0518") %>%
  filter(Sex == "Both sexes", `Detailed Industrial Group` == "Fishing") %>%
  ggplot(aes(`Census Year`, value)) +
  geom_bar(stat="identity") +
  ggtitle("Irish People Working in Fishing")
```

This code will install a package I created while volunteering for Datakind, It will:

1. Scrape search results from the CSO
2. Retrieve a full CSO dataset
3. Plot it.

Packages & Tools

Prerequisites

1. Recent version of R Studio
2. `install.packages(c("devtools", "roxygen2", "testthat"))`

Packages

1. devtools
2. roxygen2
3. testthat

1. **devtools:** tools for making common development tasks simple, e.g. `install_github(`*"tidyverse/ggplot2"*`)` or `document()`
2. **roxygen2:** allows automatic generation of documentation, something like Sphinx or Javadoc.
3. **testthat:** assists with unit testing (helps write tests for functions you've written)

"The goal is to spend your time thinking about what you want your package to do rather than thinking about the minutiae of package structure."

———

- R Packages by Hadley Wickham

Demo!

Workshop!

Have fun.

devtools, roxygen2 and testthat will give you lots of feedback, don't be afraid to make mistakes!

Building packages without tests is like flying a plane without checking the fuel gauge first.

Thanks!

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Further reading:
- http://r-pkgs.had.co.nz/intro.html
- https://docs.travis-ci.com/user/languages/r/
- https://journal.r-project.org/archive/2011-1/RJournal_2011-1_Wickham.pdf
- https://katherinemwood.github.io/post/testthat/
- https://stackoverflow.com/questions/9508518/why-are-these-numbers-not-equal