Make GitHub Your Web-based Version-controlled Code Repository

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Outline

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Motivation

• R ecosystem embraces collaboration
  – Hosting services like CRAN and GitHub promote exchange of code

• SAS ecosystem is less open
  – SAS provides base functionality
  – Code appears in PDFs, not on a hosting service

• Collaboration helps improve methods

• GitHub hosts and tracks changes to code
Technical Background: **Code Libraries**

- A collection of programs
- Stored locally, on a network, or remotely
- Accessing individual programs:
  - R: `source('program.R')`
  - SAS: `%include 'program.sas';`

- Accessing libraries:
  - R: `.libPaths('code-library')`
  - SAS: `option sasautos = 'code-library';`
Technical Background: GitHub

• *How people build software*
• Web-based or enterprise hosting service
• Code libraries organized by owner and repo
• Accessible by browser and by an application programming interface (API)
• Public and private repos
• Cloud-based and enterprise offerings
Technical Background: **git**

- Distributed version control system
- Tracks changes to files including code
Accessing Remote Code Libraries: **Manually**

- Navigate to the repo
- Download the repo
- Unzip the repo
- Source the repo
- Use that code
Accessing Remote Code Libraries: **Programmatically**

**with R**

```r
# source install_github
install.packages('devtools')

# download repo
devtools::install_github('owner/repo')

# source downloaded library
library(repo)
```

**with SAS**

```sas
* source install_github ;
%include 'install_github.sas';

* point to repo ;
%install_github(
    repo = owner/repo,
    /* source file or folder */
    file = <file path>,
    folder = <folder path>
);
```
Sourcing a single remote file:

```plaintext
filename fileURL url "&fileURL";
%include fileURL;
filename fileURL clear;
```
%install_github Source Code

Hitting the GitHub API:

```
filename inFolder temp;   *assign fileref;
proc http
  url = "&folderURL" /*point to GitHub*/
  method = 'GET'     /*request data*/
  out = inFolder;  /*direct response to fileref*/
run;
libname inFolder json
  fileref = inFolder;  *assign libref to fileref;
```
```
devtools::install_github(
  'RhoInc/datadigest'
)
datadigest::codebook(
  data = mtcars
)
```
SAS Example

%install_github(
  repo = RhoInc/sas-codebook,
  folder = Macros
);

%codebook_generic(
  data = sashelp.cars
);
Questions, Comments, Excellent

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