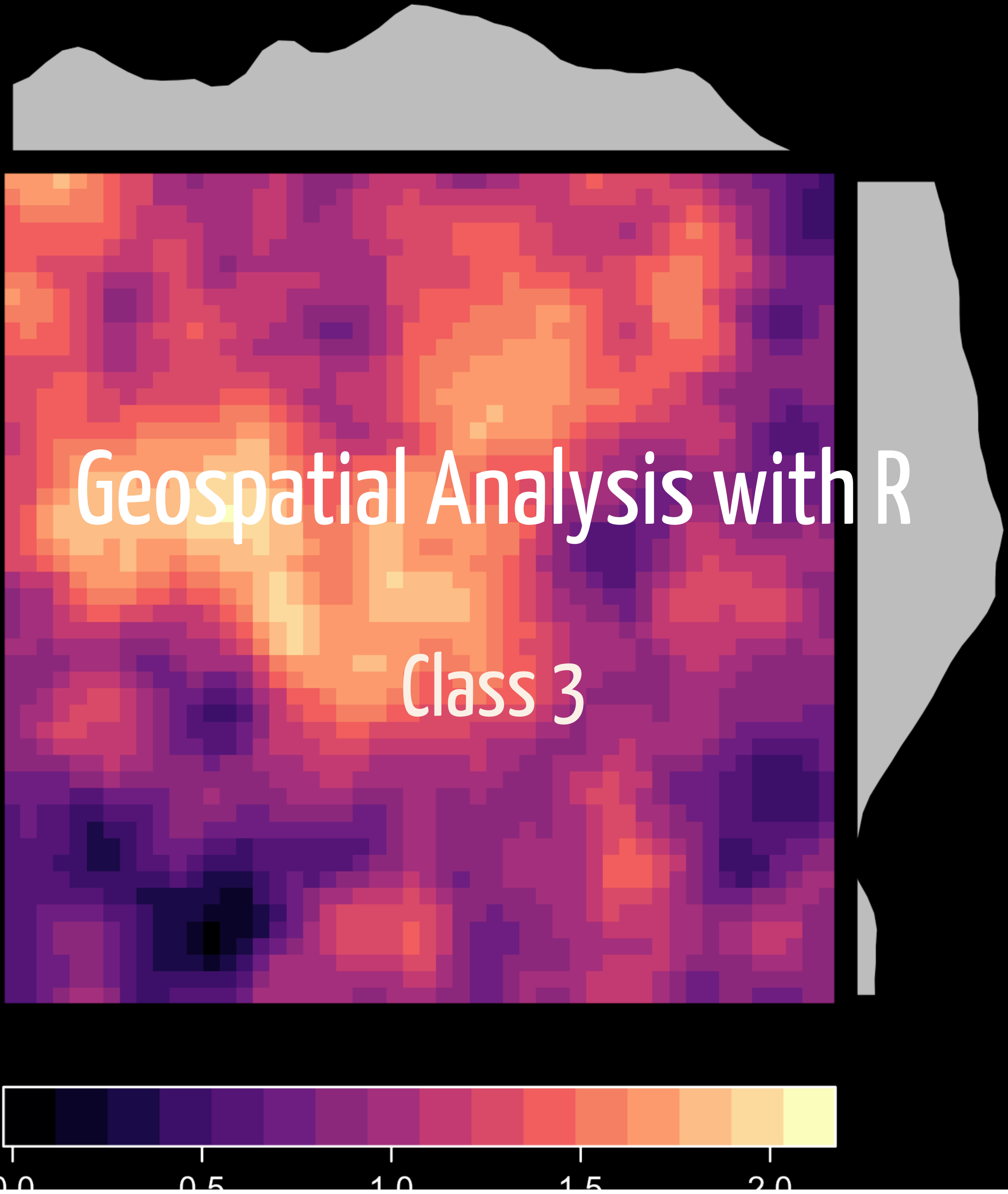


Geospatial Analysis with R

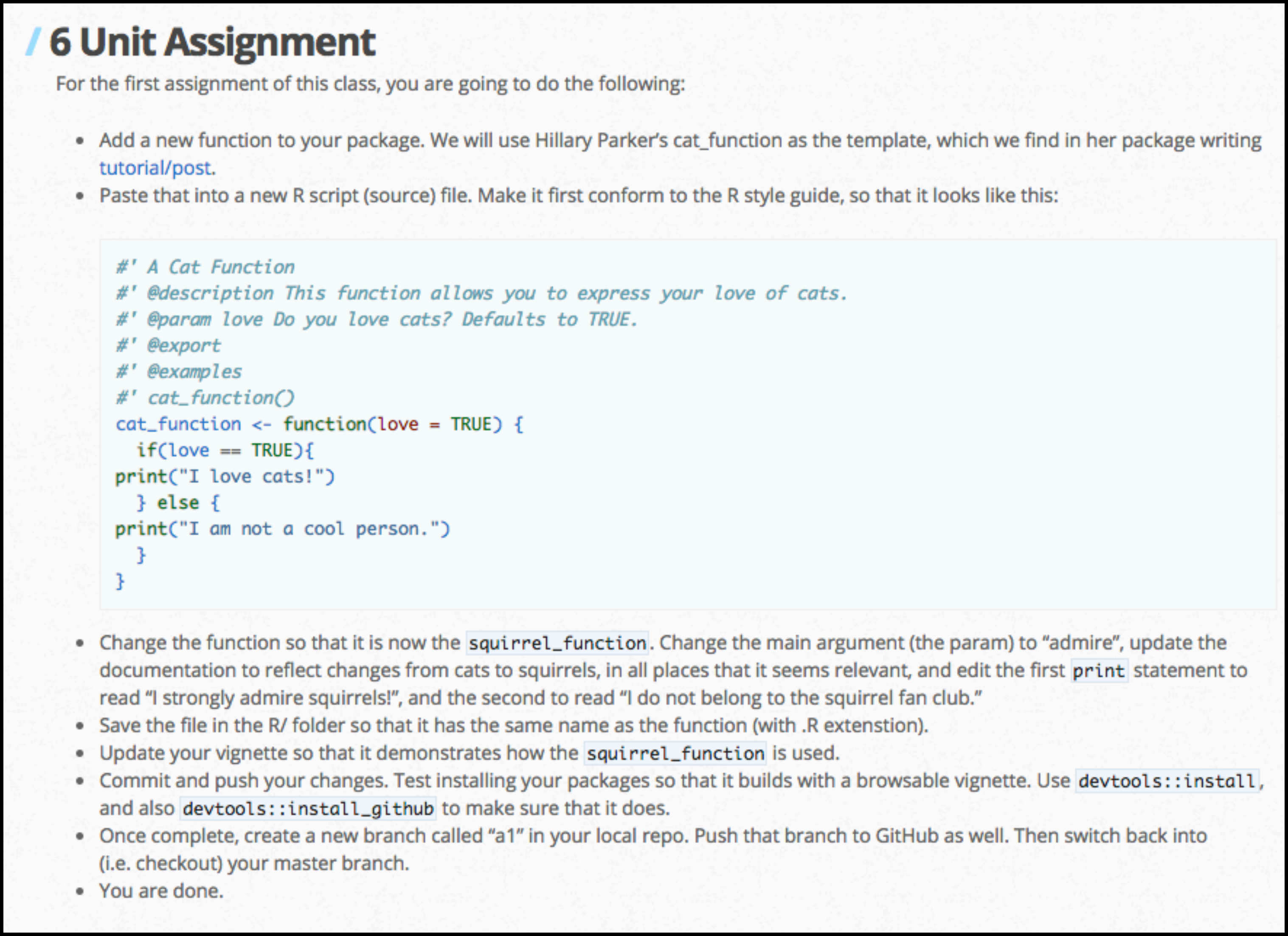
Class 3

```r
library(raster)
library(ggplot2)
library(rasterVis)
library(gstat)

# dummy grids, with spatial autocorrelation, normalized
xy <- expand.grid(1:50, 1:50)
names(xy) <- c('x', 'y')

set.seed(2)  # 2
gdummy <- gstat(formula = z ~ 1, locations = ~x + y, dummy = TRUE, beta = 1,
                model = vgm(psill = 0.35, range = 30, model = 'Sph'),
                nmax = 20)

yy <- predict(gdummy, newdata = xy, nsim = 4)
gridded(yy) <- ~x + y
yy <- raster(yy)
yy <- focal(yy, w = matrix(1, 3, 3), mean, na.rm = TRUE, pad = TRUE)

png("inst/slides/figures/random-raster.png", height = 5, width = 5, res = 300,
    units = "in", bg = "transparent")
lattice.options(layout.heights = list(bottom.padding = list(x = 0),
                                      top.padding = list(x = 0)),
                layout.widths = list(left.padding = list(x = 0),
                                     right.padding = list(x = 0)))
levelplot(yy, scales = list(draw = FALSE), axes = FALSE,
          colorkey = list(axis.line = list(col = "white"),
                          axis.text = list(col = "white")))
dev.off()
```

Today's Topics

- Overview of assignment
- Keeping up to date with class materials
- More on installing `R` packages
- Seeking help as a skillset
- More on `git` / GitHub
- Next module

Clarification on Assignment 1



6 Unit Assignment

For the first assignment of this class, you are going to do the following:

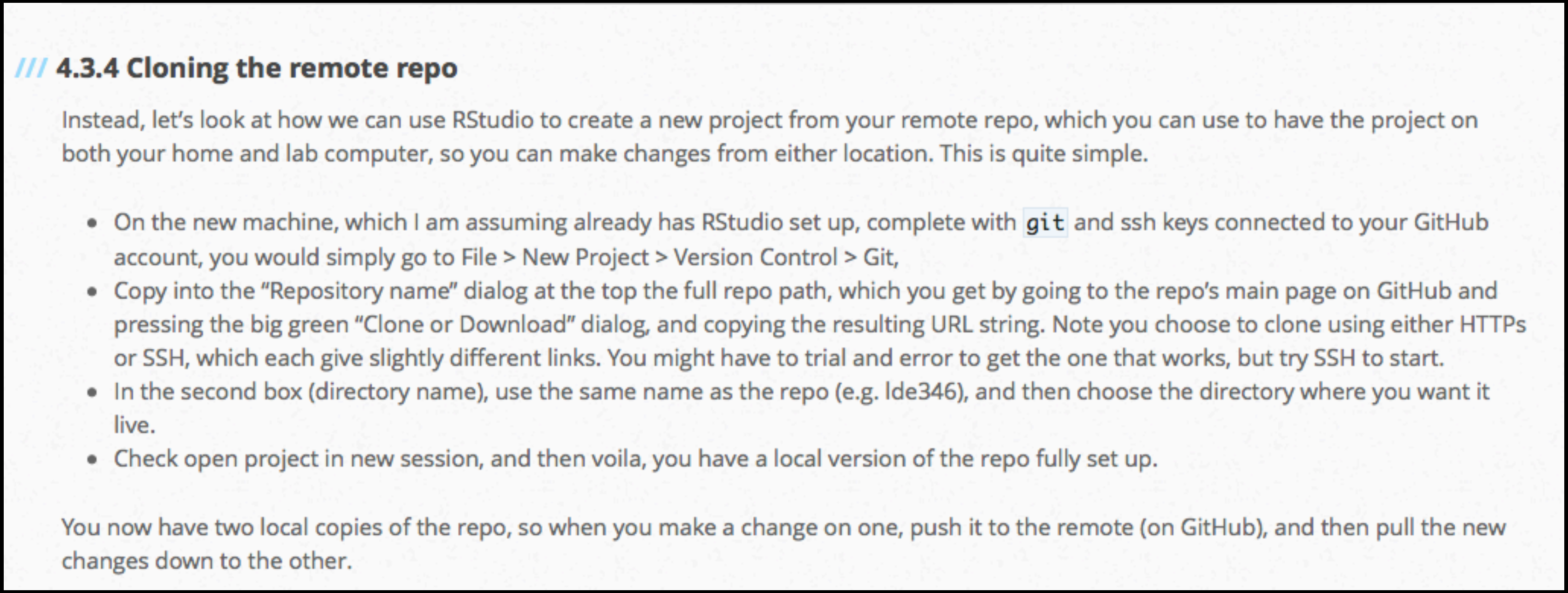
- Add a new function to your package. We will use Hillary Parker's cat_function as the template, which we find in her package writing tutorial/post.
- Paste that into a new R script (source) file. Make it first conform to the R style guide, so that it looks like this:

```r
#' A Cat Function
#' @description This function allows you to express your love of cats.
#' @param love Do you love cats? Defaults to TRUE.
#' @export
#' @examples
#' cat_function()
cat_function <- function(love = TRUE) {
  if(love == TRUE){
print("I love cats!")
  } else {
print("I am not a cool person.")
  }
}
```

- Change the function so that it is now the `squirrel_function`. Change the main argument (the param) to "admire", update the documentation to reflect changes from cats to squirrels, in all places that it seems relevant, and edit the first `print` statement to read "I strongly admire squirrels!", and the second to read "I do not belong to the squirrel fan club."
- Save the file in the R/ folder so that it has the same name as the function (with .R extenstion).
- Update your vignette so that it demonstrates how the `squirrel_function` is used.
- Commit and push your changes. Test installing your packages so that it builds with a browsable vignette. Use `devtools::install`, and also `devtools::install_github` to make sure that it does.
- Once complete, create a new branch called "a1" in your local repo. Push that branch to GitHub as well. Then switch back into (i.e. checkout) your master branch.
- You are done.

Keeping current

- Using `git` and GitHub
- Following 4.3.4. of Unit 1 - Module 1



/// 4.3.4 Cloning the remote repo

Instead, let's look at how we can use RStudio to create a new project from your remote repo, which you can use to have the project on both your home and lab computer, so you can make changes from either location. This is quite simple.

- On the new machine, which I am assuming already has RStudio set up, complete with `git` and ssh keys connected to your GitHub account, you would simply go to File > New Project > Version Control > Git,
- Copy into the "Repository name" dialog at the top the full repo path, which you get by going to the repo's main page on GitHub and pressing the big green "Clone or Download" dialog, and copying the resulting URL string. Note you choose to clone using either HTTPs or SSH, which each give slightly different links. You might have to trial and error to get the one that works, but try SSH to start.
- In the second box (directory name), use the same name as the repo (e.g. lde346), and then choose the directory where you want it live.
- Check open project in new session, and then voila, you have a local version of the repo fully set up.

You now have two local copies of the repo, so when you make a change on one, push it to the remote (on GitHub), and then pull the new changes down to the other.

More on R packages

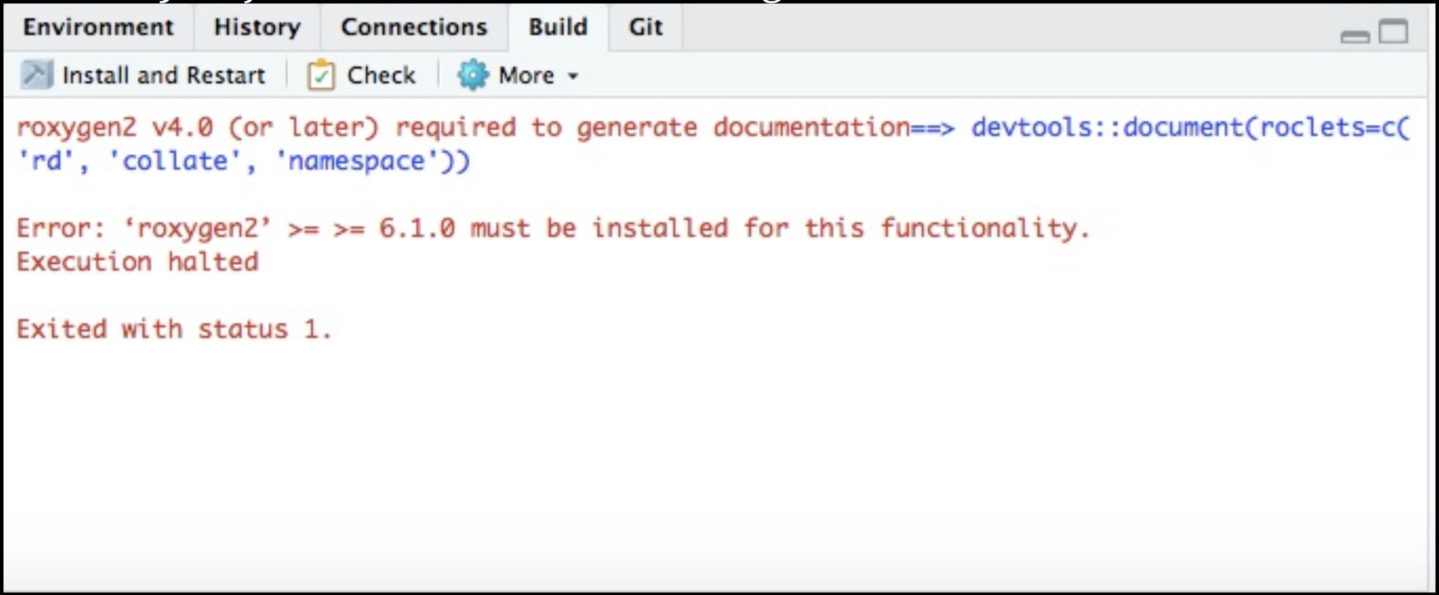
- `devtools::install(build_vignettes = TRUE)`
- Necessary folders and files
- Package dependencies (imports/depends)

Knowing how to get help as a skillset

- Slack posting guide
- Getting help via the search engine
- (Eventually) posting to listserves

Search Engine Science

- Sometimes you just need the error message



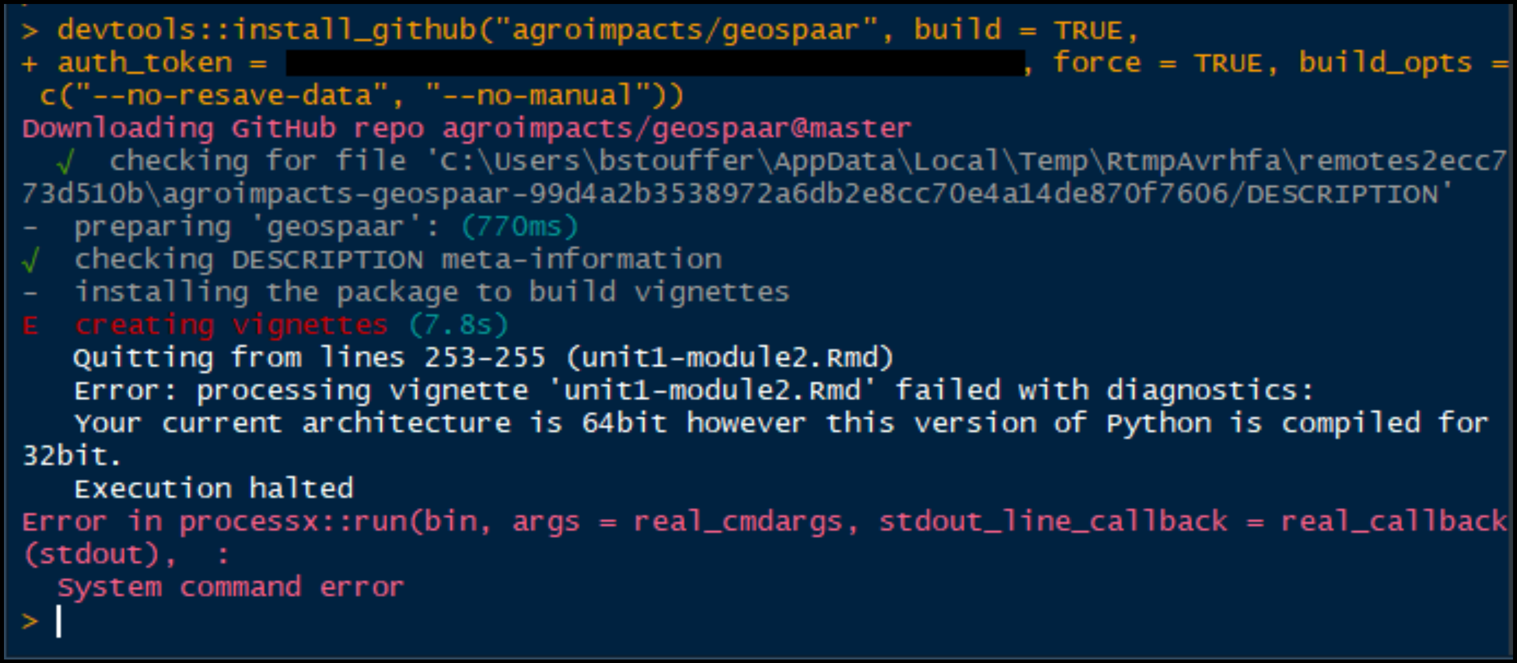
```
roxygen2 v4.0 (or later) required to generate documentation==> devtools::document(roclets=c(
'rd', 'collate', 'namespace'))

Error: ‘roxygen2’ >= >= 6.1.0 must be installed for this functionality.
Execution halted

Exited with status 1.
```

Search Engine Science

- Sometimes you need to search

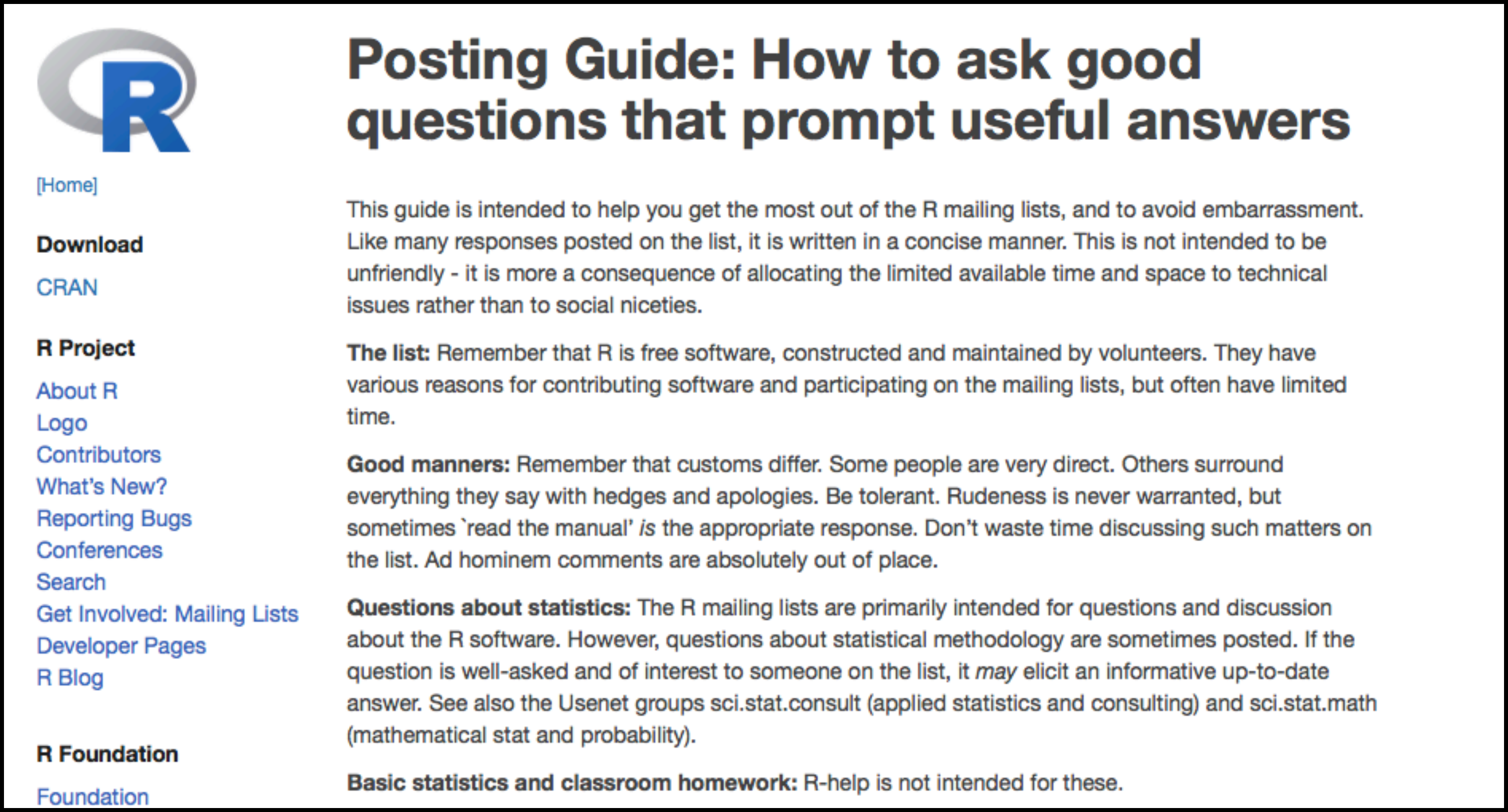
```
fatal: unable to access 'https://github.com/agroimpacts/xyz346.git/':
error setting certificate verify locations:
CAfile: C:/Users/xyz/Desktop/ADP/RStudio/xyz346/Git/mingw64/ssl/
certs/ca-bundle.crt
CApath: none
```

- How you search matters



```
> devtools::install_github("agroimpacts/geospaar", build = TRUE,
+ auth_token = [redacted], force = TRUE, build_opts =
 c("--no-resave-data", "--no-manual"))
Downloading GitHub repo agroimpacts/geospaar@master
  √  checking for file 'C:\Users\bstouffer\AppData\Local\Temp\RtmpAvrhfa\remotes2ecc7
73d510b\agroimpacts-geospaar-99d4a2b3538972a6db2e8cc70e4a14de870f7606/DESCRIPTION'
-  preparing 'geospaar': (770ms)
√  checking DESCRIPTION meta-information
-  installing the package to build vignettes
E  creating vignettes (7.8s)
   Quitting from lines 253-255 (unit1-module2.Rmd)
   Error: processing vignette 'unit1-module2.Rmd' failed with diagnostics:
   Your current architecture is 64bit however this version of Python is compiled for
32bit.
   Execution halted
Error in processx::run(bin, args = real_cmdargs, stdout_line_callback = real_callback
(stdout),  :
  System command error
> 
```

Listserves


[Home]

Download

CRAN

R Project

About R
Logo
Contributors
What's New?
Reporting Bugs
Conferences
Search
Get Involved: Mailing Lists
Developer Pages
R Blog

R Foundation

Foundation

Posting Guide: How to ask good questions that prompt useful answers

This guide is intended to help you get the most out of the R mailing lists, and to avoid embarrassment. Like many responses posted on the list, it is written in a concise manner. This is not intended to be unfriendly - it is more a consequence of allocating the limited available time and space to technical issues rather than to social niceties.

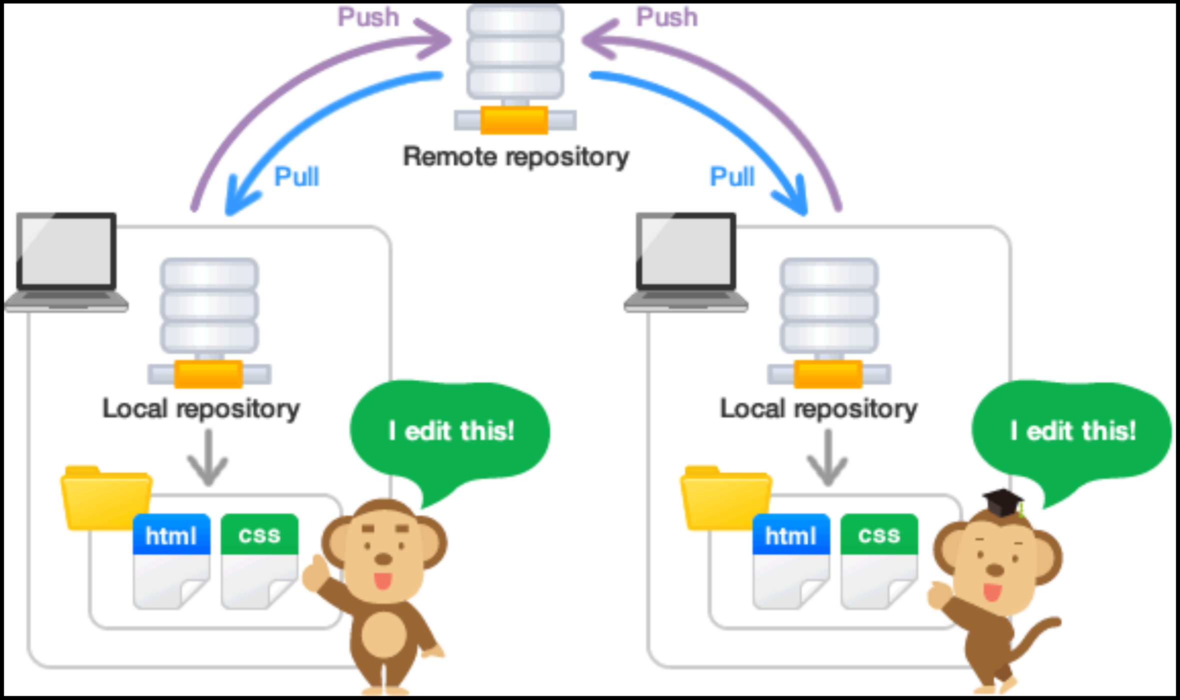
The list: Remember that R is free software, constructed and maintained by volunteers. They have various reasons for contributing software and participating on the mailing lists, but often have limited time.

Good manners: Remember that customs differ. Some people are very direct. Others surround everything they say with hedges and apologies. Be tolerant. Rudeness is never warranted, but sometimes `read the manual' *is* the appropriate response. Don't waste time discussing such matters on the list. Ad hominem comments are absolutely out of place.

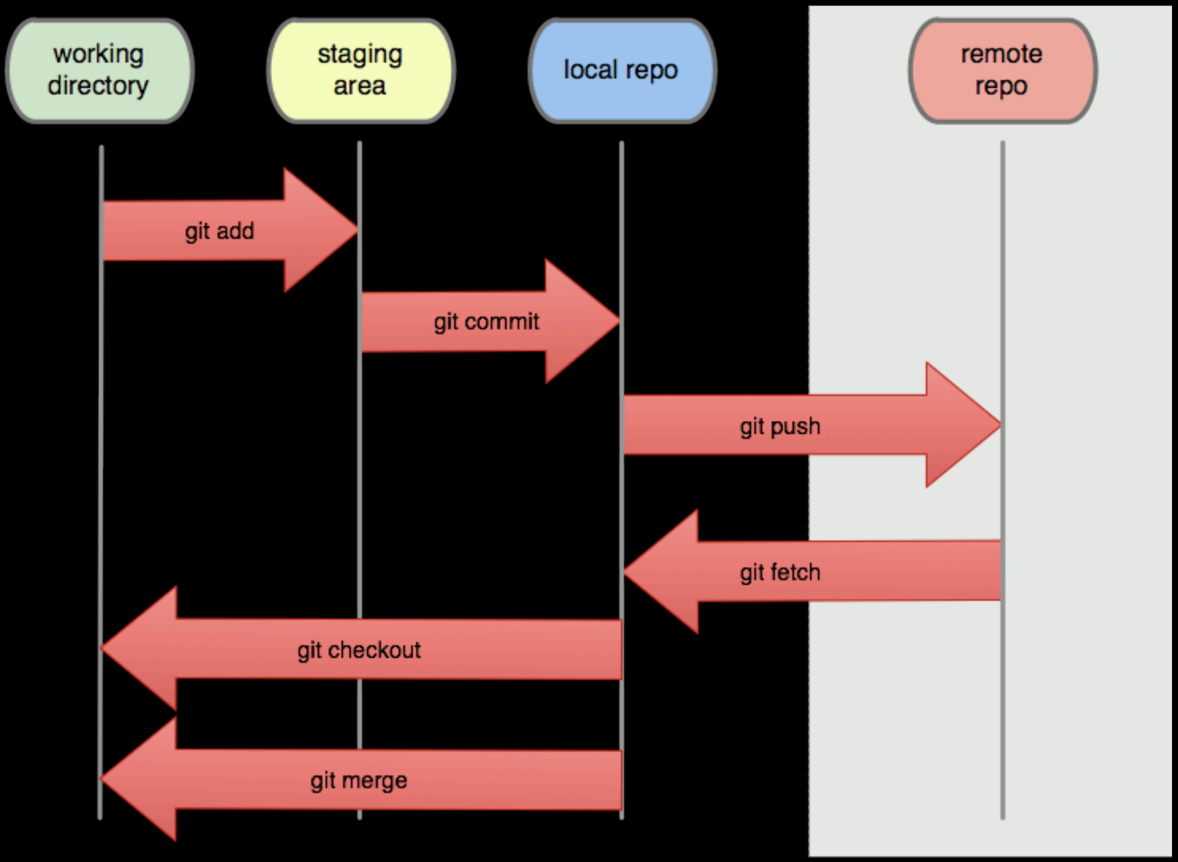
Questions about statistics: The R mailing lists are primarily intended for questions and discussion about the R software. However, questions about statistical methodology are sometimes posted. If the question is well-asked and of interest to someone on the list, it *may* elicit an informative up-to-date answer. See also the Usenet groups sci.stat.consult (applied statistics and consulting) and sci.stat.math (mathematical stat and probability).

Basic statistics and classroom homework: R-help is not intended for these.

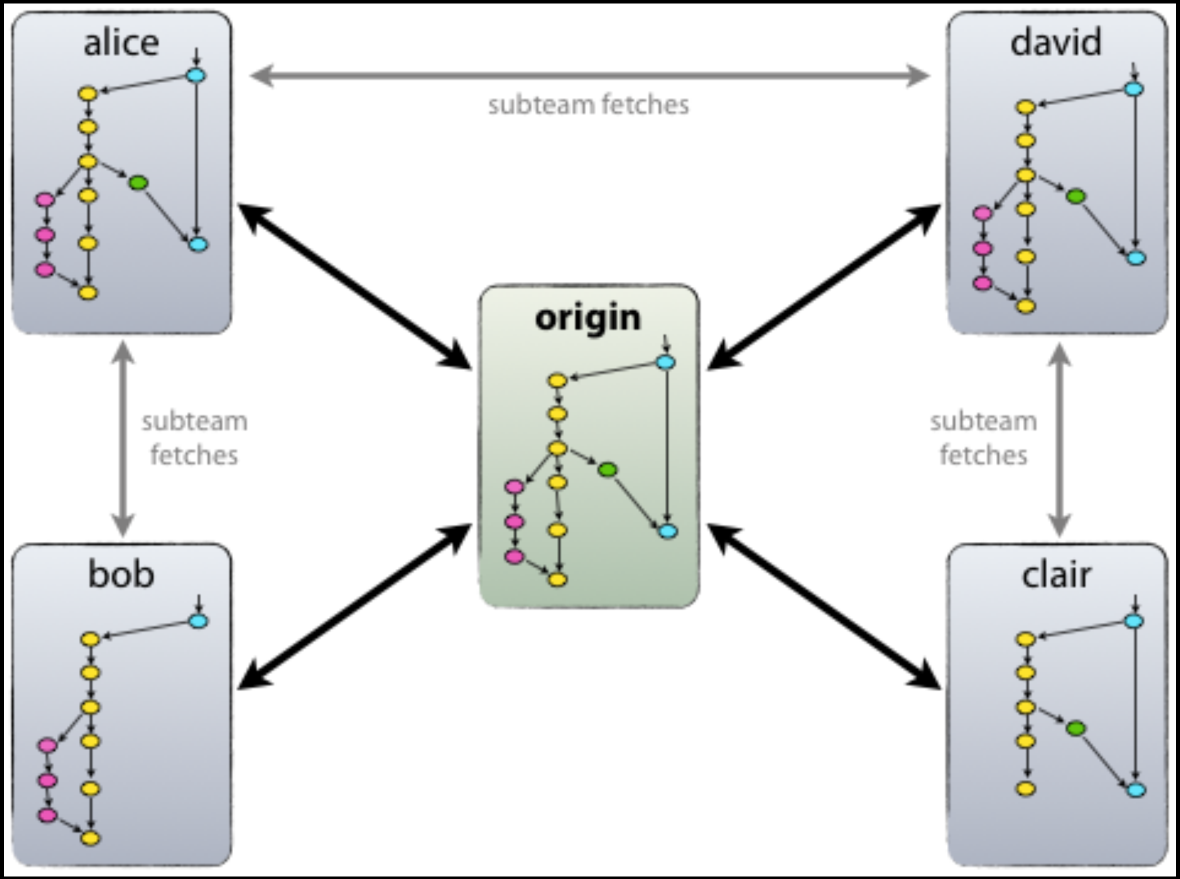
git/GitHub



kevintshoemaker.github.io/StatsChats/GIT_tutorial

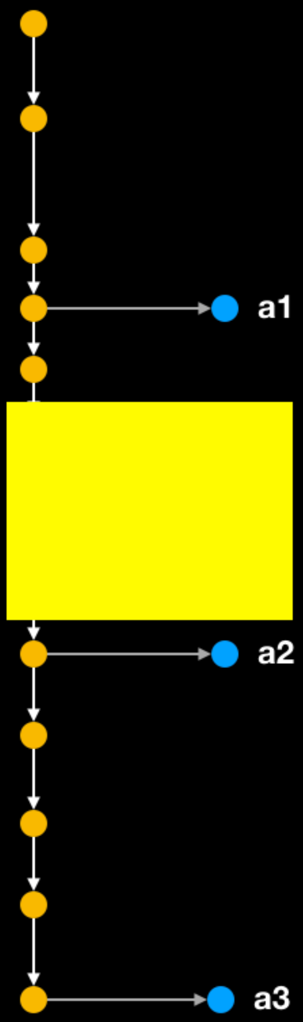


kevintshoemaker.github.io/StatsChats/GIT_tutorial

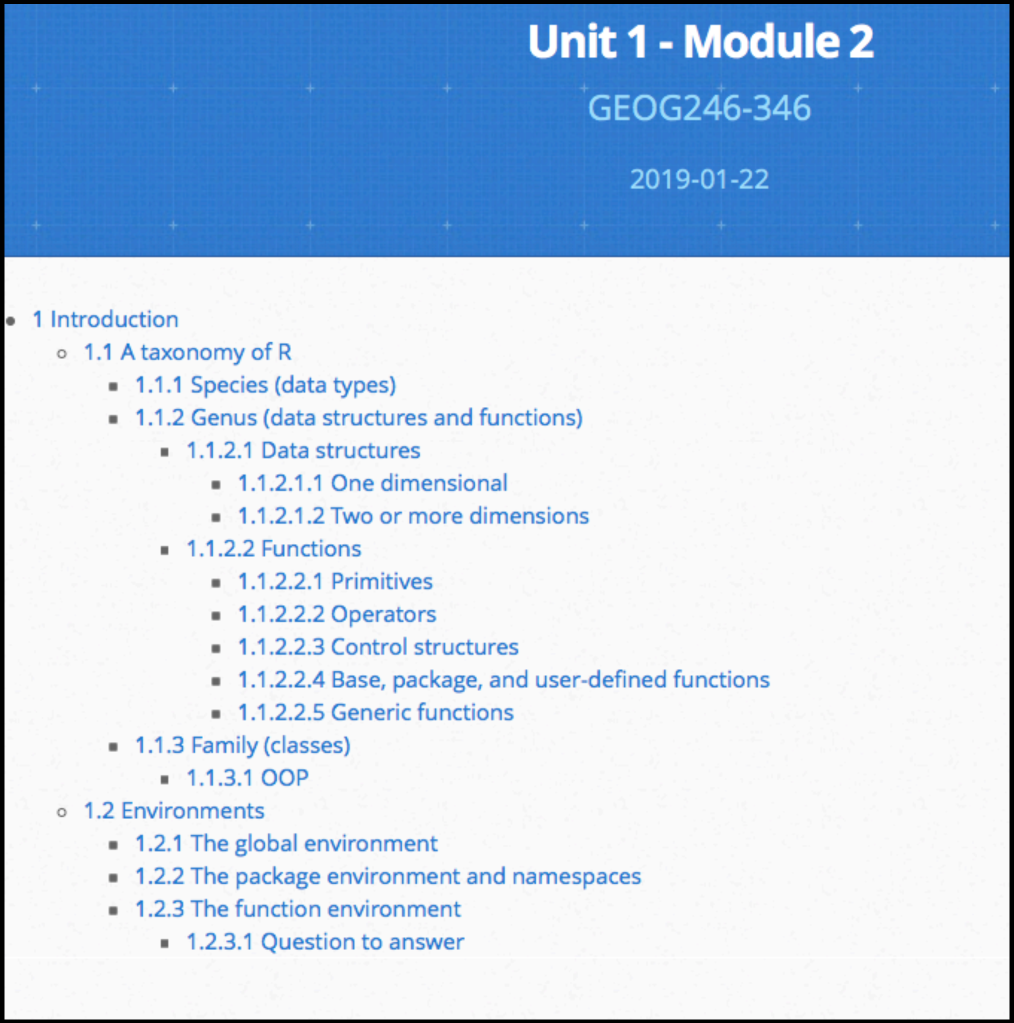


stackoverflow.com/questions/7212740/why-git-is-called-a-distributed-source-control-system

Our Branching Model



Next Module



Unit 1 - Module 2

GEOG246-346

2019-01-22