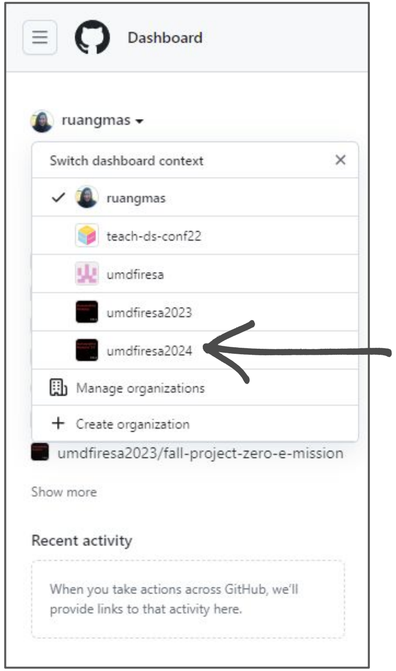
Week 3 Lab Agenda

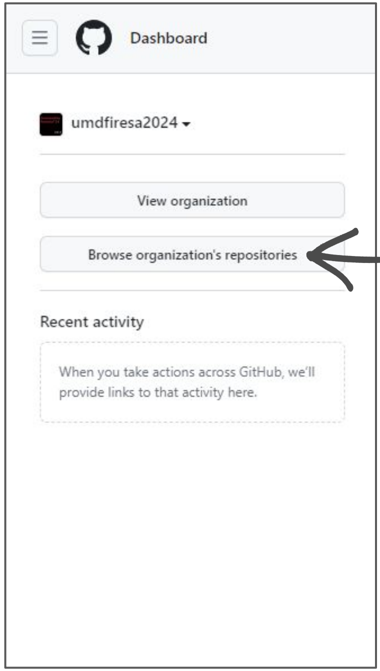
1. Clone an assignment from GitHub into Posit Cloud
2. Understand RStudio’s interface
3. Create vectors
4. Create a matrix from vectors using cbind()
5. Change a dataframe into a matrix
6. Summarize a dataframe
7. Change a variable’s class
8. Storing the code back in GitHub

1. Cloning an assignment

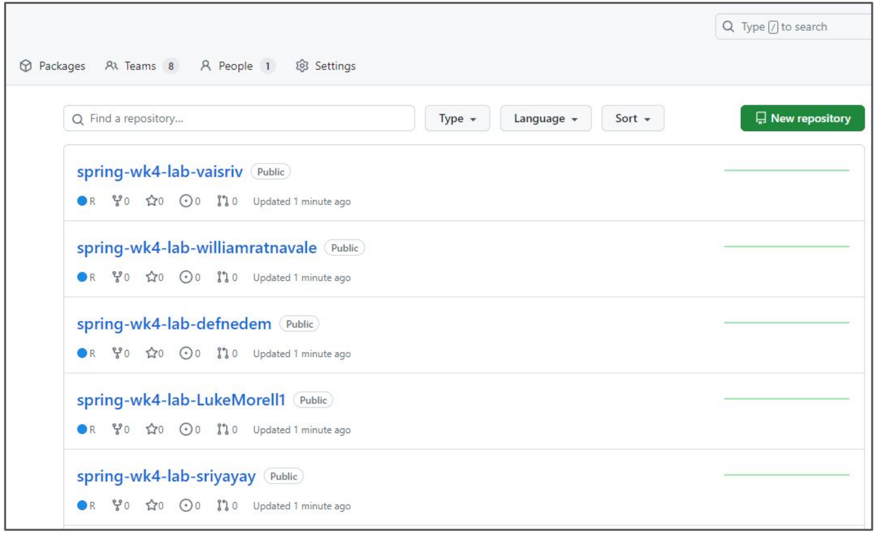
Step 1: Find the GitHub repository with your username



When you take actions across GitHub, we'll provide links to that activity here.

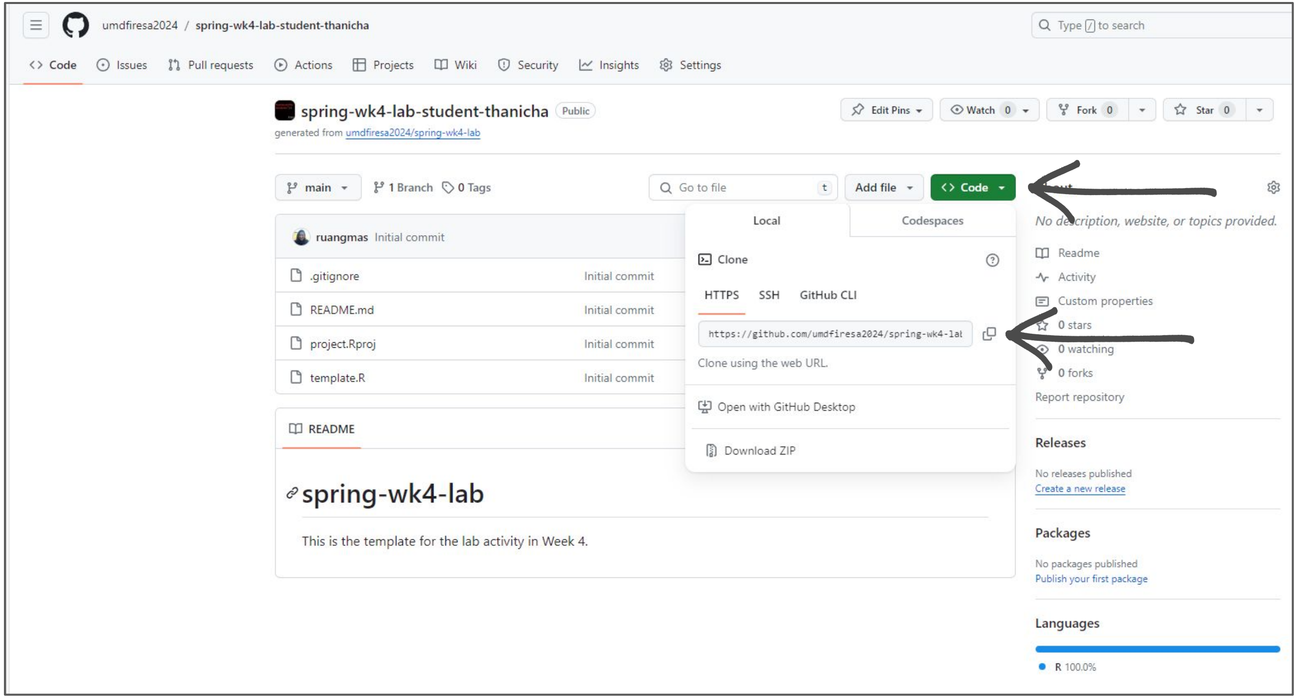


When you take actions across GitHub, we'll provide links to that activity here.


Type / to search
Packages
Teams 8
People 1
Settings
Find a repository...
Type
Language
Sort
New repository
spring-wk4-lab-vaisriv Public
R 0 0 0 0 Updated 1 minute ago
spring-wk4-lab-williamratnavale Public
R 0 0 0 0 Updated 1 minute ago
spring-wk4-lab-defnedem Public
R 0 0 0 0 Updated 1 minute ago
spring-wk4-lab-LukeMorell1 Public
R 0 0 0 0 Updated 1 minute ago
spring-wk4-lab-sriyayay Public
R 0 0 0 0 Updated 1 minute ago

1. Cloning an assignment

Step 2: Copy the HTTPS URL



spring-wk4-lab-student-thanicha Public

generated from umdfiresa2024/spring-wk4-lab

ruangmas Initial commit	
.gitignore	Initial commit
README.md	Initial commit
project.Rproj	Initial commit
template.R	Initial commit

```
https://github.com/umdfiresa2024/spring-wk4-lal
```

Clone using the web URL.

No description, website, or topics provided.

No releases published
Create a new release

No packages published
Publish your first package

R 100.0%

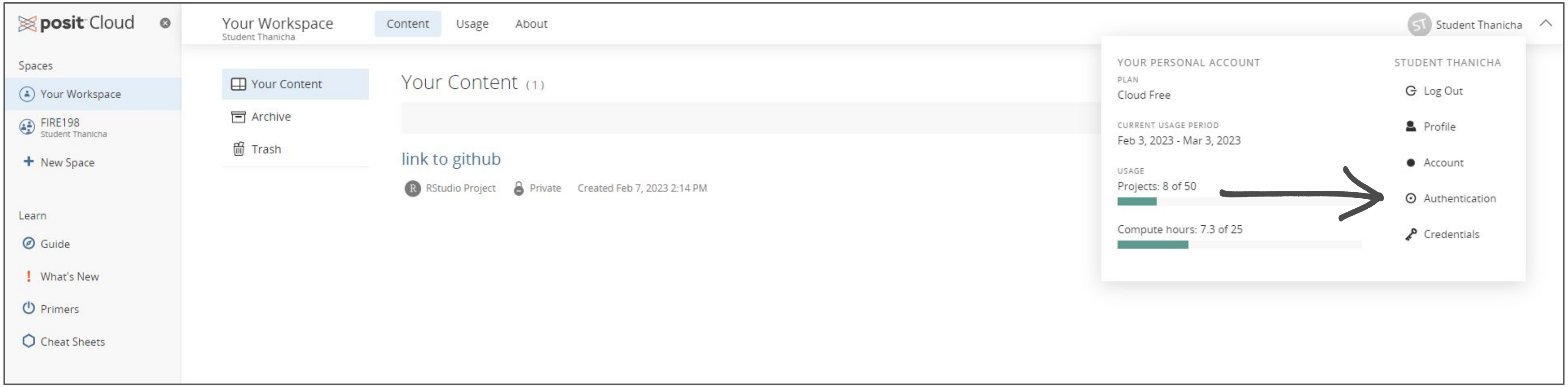
spring-wk4-lab

This is the template for the lab activity in Week 4.

1. Cloning an assignment

Step 3: Login to Posit Cloud.

Step 4: Go to your username in the upper right corner. Choose **Authentication**.



Your Content (1)

link to github

RStudio Project Private Created Feb 7, 2023 2:14 PM

YOUR PERSONAL ACCOUNT

PLAN
Cloud Free

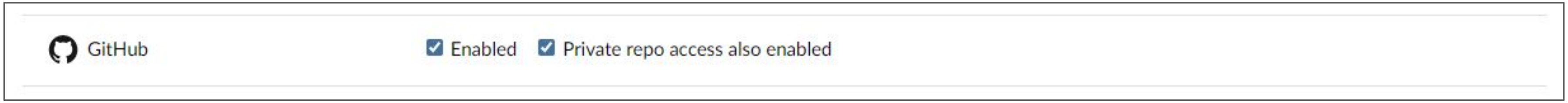
CURRENT USAGE PERIOD
Feb 3, 2023 - Mar 3, 2023

USAGE
Projects: 8 of 50

Compute hours: 7.3 of 25

1. Cloning an assignment

Step 5: Check both boxes



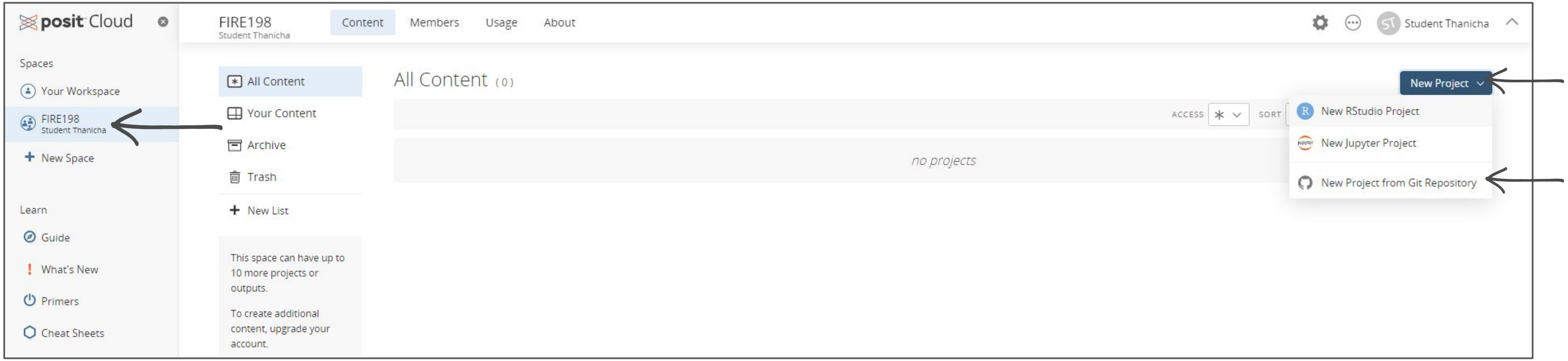
GitHub ☑ Enabled ☑ Private repo access also enabled

1. Cloning an assignment

Step 6: Go to the FIRE198 Workspace in Posit Cloud

Step 7: Choose New Project > New Project from Git Repository

Step 8: Paste the HTTPs URL from the previous step



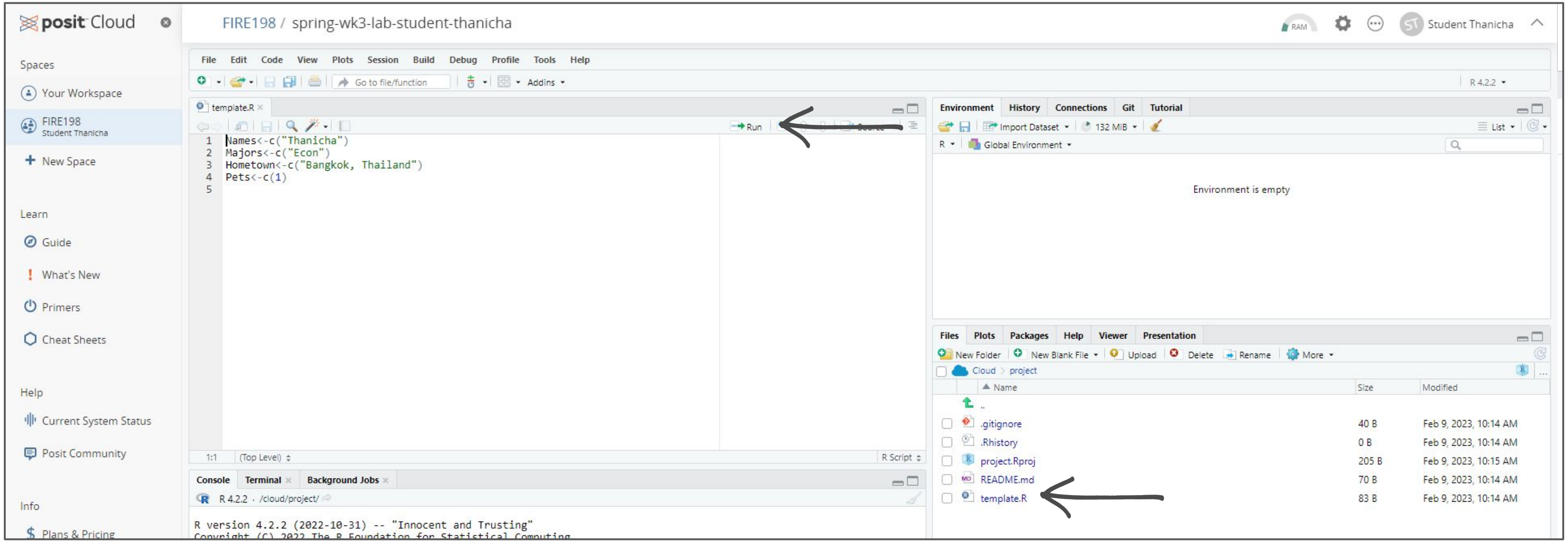
This space can have up to 10 more projects or outputs.

To create additional content, upgrade your account.

2. Understanding RStudio’s Interface

Step 1: Click on template.R to open the code

Step 2: Click Run or Press Cntrl+Enter to process each line of code

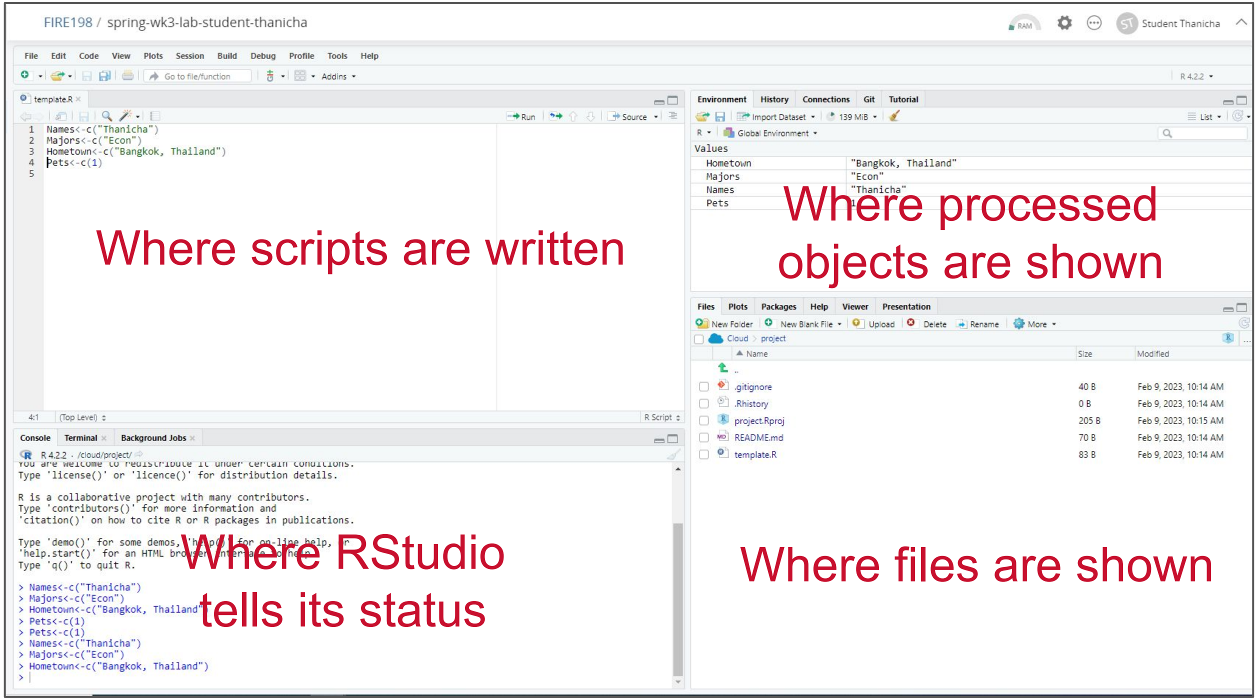


```
Names<-c("Thanicha")
Majors<-c("Econ")
Hometown<-c("Bangkok, Thailand")
Pets<-c(1)
```

```
R 4.2.2 · /cloud/project/

R version 4.2.2 (2022-10-31) -- "Innocent and Trusting"
Copyright (C) 2022 The R Foundation for Statistical Computing
```

Name	Size	Modified
..		
.gitignore	40 B	Feb 9, 2023, 10:14 AM
.Rhistory	0 B	Feb 9, 2023, 10:14 AM
project.Rproj	205 B	Feb 9, 2023, 10:15 AM
README.md	70 B	Feb 9, 2023, 10:14 AM
template.R	83 B	Feb 9, 2023, 10:14 AM

RStudio’s Interface


FIRE198 / spring-wk3-lab-student-thanicha
RAM
Student Thanicha
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
R 4.2.2
template.R
Run
Source
Environment History Connections Git Tutorial
Import Dataset
139 MiB
List
R
Global Environment
Files Plots Packages Help Viewer Presentation
New Folder
New Blank File
Upload
Delete
Rename
More
Cloud > project
4:1
(Top Level)
R Script
Console Terminal Background Jobs
R 4.2.2 · /cloud/project/

```
Names<-c("Thanicha")
Majors<-c("Econ")
Hometown<-c("Bangkok, Thailand")
Pets<-c(1)
```

Where scripts are written

Values

Hometown	"Bangkok, Thailand"
Majors	"Econ"
Names	"Thanicha"
Pets	1

Where processed objects are shown

```
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> Names<-c("Thanicha")
> Majors<-c("Econ")
> Hometown<-c("Bangkok, Thailand")
> Pets<-c(1)
> Pets<-c(1)
> Names<-c("Thanicha")
> Majors<-c("Econ")
> Hometown<-c("Bangkok, Thailand")
>
```

Where RStudio tells its status

Name	Size	Modified
..		
.gitignore	40 B	Feb 9, 2023, 10:14 AM
.Rhistory	0 B	Feb 9, 2023, 10:14 AM
project.Rproj	205 B	Feb 9, 2023, 10:15 AM
README.md	70 B	Feb 9, 2023, 10:14 AM
template.R	83 B	Feb 9, 2023, 10:14 AM

Where files are shown

3. Creating vectors

If I want to create a vector of everyone’s names. How can I do it?

3. Creating vectors

If I want to create a vector of everyone’s names. How can I do it?

```
Names<-c("Thanicha","Anna","Zoe","Maggie")
```

3. Creating vectors

I would like each one of you to create vectors that records

1. Each person’s name
2. Each person’s major
3. Each person’s hometown
4. The number of pets that each person has

4. Creating a matrix from vectors using cbind()

When you combine multiple vectors together, you can create a matrix.

```
mat<-cbind(Names,Majors,Hometown,Pets)
```

5. Creating a matrix from a dataframe

You can change the matrix to a dataframe (a data format for analysis) by using the function **as.data.frame()**

```
df<-as.data.frame(mat)
```

6. Summarizing a dataframe

Use the **summary()** function

```
summary(df)
```

What should we fix?

7. Changing a variable’s class

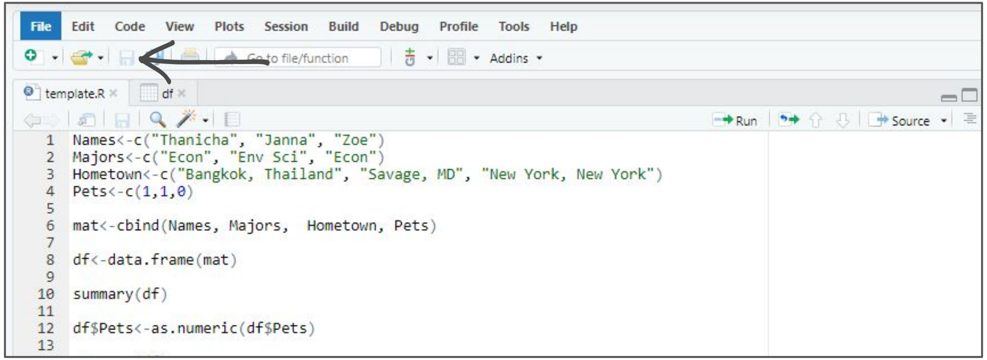
- Pets need to be numeric
- We can do this with the **as.numeric()** function

```
df$Pets<-as.numeric(df$Pets)
```

The $ sign indicates that **Pets** is a variable or column in **df**

7. Changing a variable's class

1. Try using **summary()** again
2. Try changing **Majors** into a factor
3. Try using **summary()** again
4. Save the code



```
Names<-c("Thanicha", "Janna", "Zoe")
Majors<-c("Econ", "Env Sci", "Econ")
Hometown<-c("Bangkok, Thailand", "Savage, MD", "New York, New York")
Pets<-c(1,1,0)

mat<-cbind(Names, Majors,  Hometown, Pets)

df<-data.frame(mat)

summary(df)

df$Pets<-as.numeric(df$Pets)

```

8. Storing the new code back into GitHub

There are three steps:

1. **Stage**
2. **Commit** - add a message to record what you just did.
3. **Push** - replace/add the updated files into the GitHub repository.

Caveat:

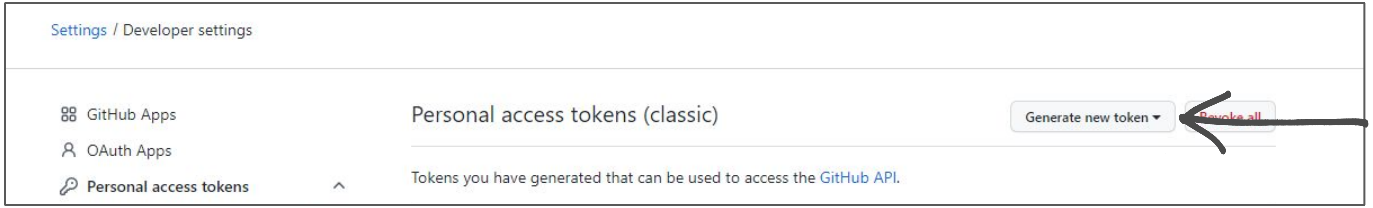
You need a PAT (Personal Access Tokens, or a GitHub-generated password) to verify your identity and **push** the files.

8. Storing the new code back into GitHub

Getting a PAT

Step 1: Go to https://github.com/settings/tokens

Step 2: Choose “Generate new token” and “Generate new token (classic)”



Settings / Developer settings

Personal access tokens (classic)

Tokens you have generated that can be used to access the GitHub API.

8. Storing the new code back into GitHub

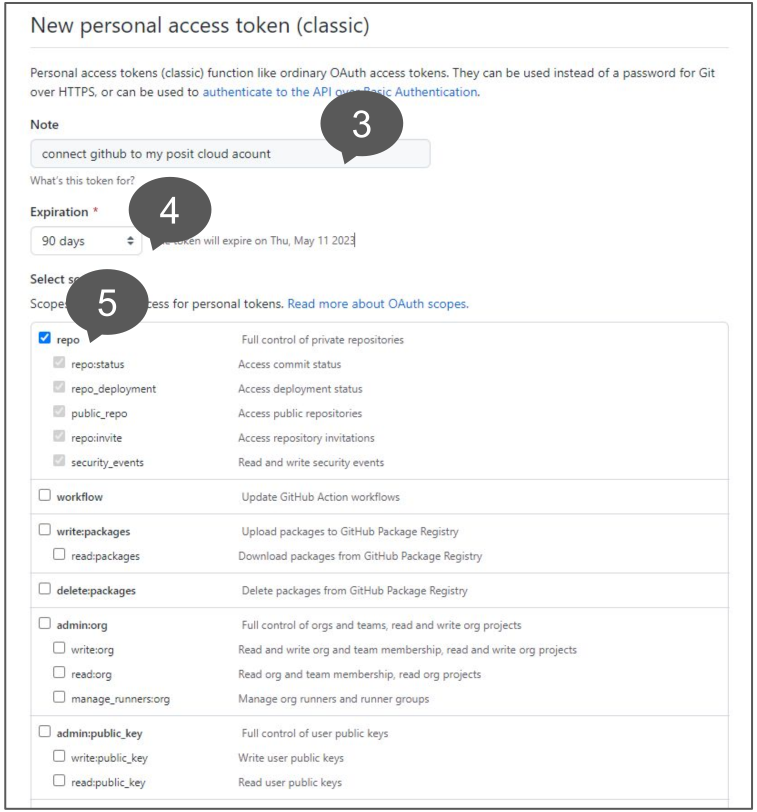
Getting a PAT

Step 3: Write a Note

Step 4: Change **Expiration to 90 days**

Step 5: Check **repo, user, and project** and Click **Generate Token**

Step 6: Store the token in a secure location, such as lastpass.com



New personal access token (classic)

Personal access tokens (classic) function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.

Note

connect github to my posit cloud acount

What's this token for?

Expiration *

90 days — token will expire on Thu, May 11 2023

Select s

Scope cess for personal tokens. Read more about OAuth scopes.

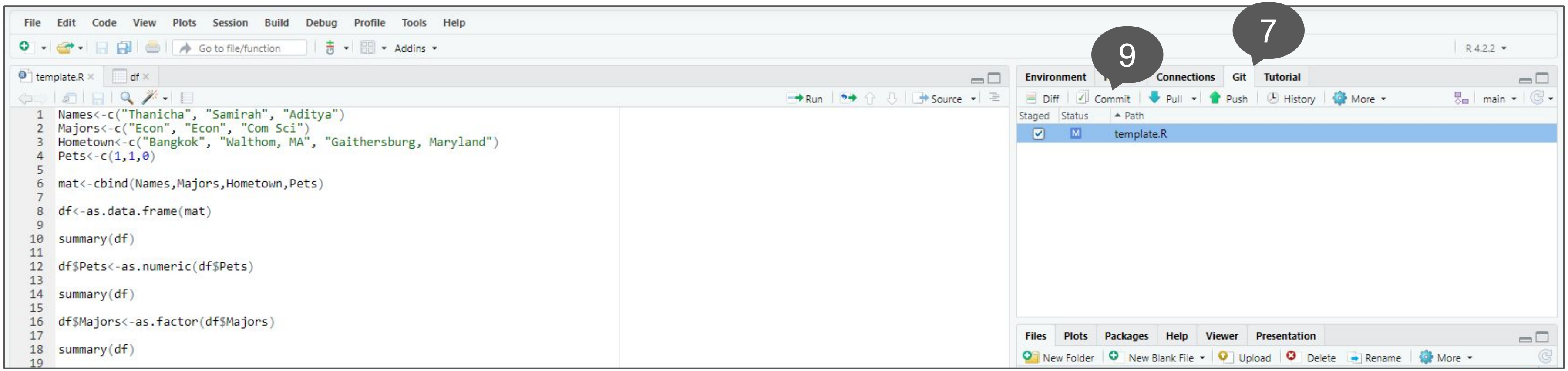
☑ repo	Full control of private repositories
☑ repo:status	Access commit status
☑ repo_deployment	Access deployment status
☑ public_repo	Access public repositories
☑ repo:invite	Access repository invitations
☑ security_events	Read and write security events
□ workflow	Update GitHub Action workflows
□ write:packages	Upload packages to GitHub Package Registry
□ read:packages	Download packages from GitHub Package Registry
□ delete:packages	Delete packages from GitHub Package Registry
□ admin:org	Full control of orgs and teams, read and write org projects
□ write:org	Read and write org and team membership, read and write org projects
□ read:org	Read org and team membership, read org projects
□ manage_runners:org	Manage org runners and runner groups
□ admin:public_key	Full control of user public keys
□ write:public_key	Write user public keys
□ read:public_key	Read user public keys

8. Storing the new code back into GitHub

Step 7: Go to the Git tab.

Step 8: Check all files that have been saved. This is the stage process.

Step 9: Click Commit.



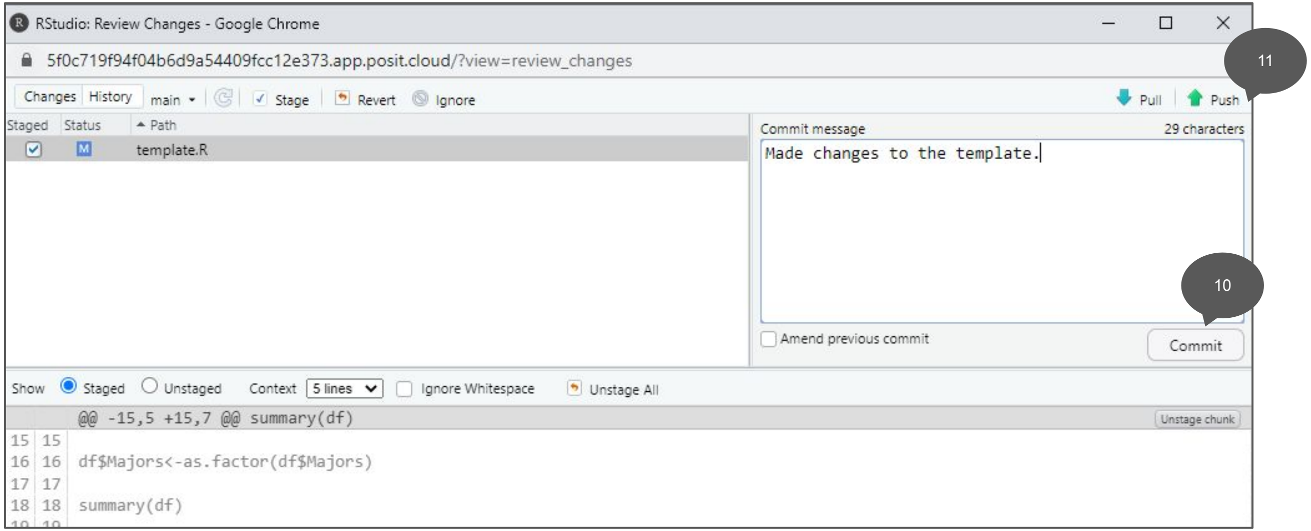
```
Names<-c("Thanicha", "Samirah", "Aditya")
Majors<-c("Econ", "Econ", "Com Sci")
Hometown<-c("Bangkok", "Walthom, MA", "Gaithersburg, Maryland")
Pets<-c(1,1,0)

mat<-cbind(Names,Majors,Hometown,Pets)

df<-as.data.frame(mat)

summary(df)

df$Pets<-as.numeric(df$Pets)

summary(df)

df$Majors<-as.factor(df$Majors)

summary(df)
```

Staged	Status	Path
☑	M	template.R

8. Storing the new code back into GitHub

Step 10: Write a Commit message to briefly describe what you did. Click Commit.

Step 11: Click Push.


RStudio: Review Changes - Google Chrome
5f0c719f94f04b6d9a54409fcc12e373.app.posit.cloud/?view=review_changes
Changes
History
main
Stage
Revert
Ignore
Pull
Push
11
10
Commit
Unstage chunk

Staged	Status	Path
☑	M	template.R

Commit message — 29 characters

```
Made changes to the template.
```

□ Amend previous commit

Show ● Staged ○ Unstaged   Context 5 lines   □ Ignore Whitespace   Unstage All

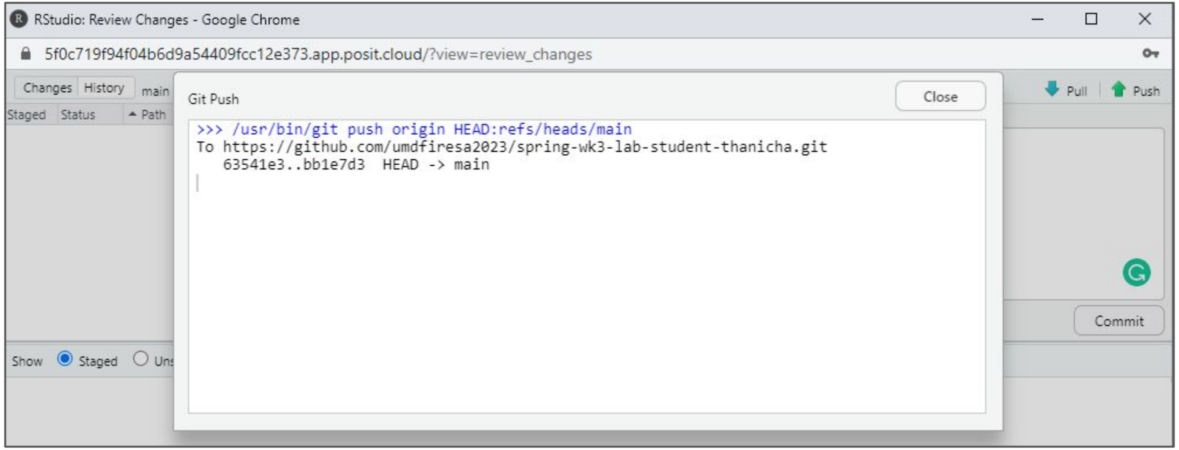
```
@@ -15,5 +15,7 @@ summary(df)

df$Majors<-as.factor(df$Majors)

summary(df)
```

8. Storing the new code back into GitHub

Step 12: Type your GitHub username

Step 13: Insert the newly generated PAT as your password.

A message similar to the one shown below means that you have successfully push your file in GitHub.



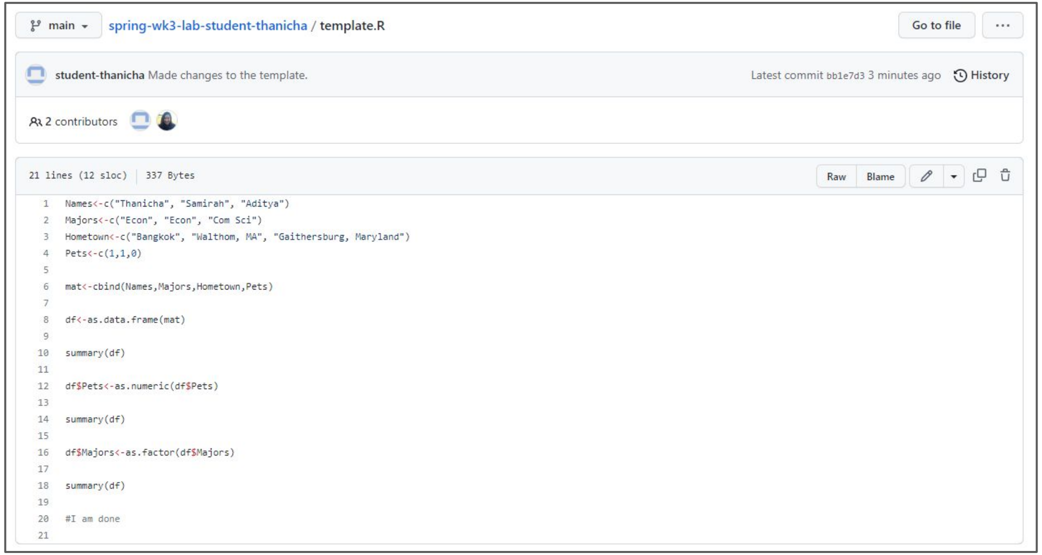
RStudio: Review Changes - Google Chrome
5f0c719f94f04b6d9a54409fcc12e373.app.posit.cloud/?view=review_changes
Changes
History
main
Staged
Status
Path
Git Push
Close
Pull
Push
Commit
Show
Staged
Uns

```
>>> /usr/bin/git push origin HEAD:refs/heads/main
To https://github.com/umdfiresa2023/spring-wk3-lab-student-thanicha.git
   63541e3..bb1e7d3  HEAD -> main
```

8. Storing the new code back into GitHub

Step 14: Remember to close your Posit Cloud tab.

Step 15: Check if your GitHub repository has been updated.



student-thanicha Made changes to the template.

Latest commit bb1e7d3 3 minutes ago

21 lines (12 sloc) | 337 Bytes

```r
Names<-c("Thanicha", "Samirah", "Aditya")
Majors<-c("Econ", "Econ", "Com Sci")
Hometown<-c("Bangkok", "Walthom, MA", "Gaithersburg, Maryland")
Pets<-c(1,1,0)

mat<-cbind(Names,Majors,Hometown,Pets)

df<-as.data.frame(mat)

summary(df)

df$Pets<-as.numeric(df$Pets)

summary(df)

df$Majors<-as.factor(df$Majors)

summary(df)

#I am done

```

Questions?