Module 4 – lesson 04: Create an R Package with an R Markdown Template

Script

For this lesson, since we’re creating an R package, let’s begin with a new Github repository and RStudio project. Create a Github repository called “WCtemplatePackage” WITHOUT a readme file. Type in a description such as “Weather Check - R Package with an R Markdown Template”.

Start RStudio. Click File/Close Project to close any previous Projects. In the Console window change to the RepTemplates folder on our computer using the setwd() function

setwd("C:/RepTemplates")

You can also set the working directory in RStudio, by clicking on Session/Set Working Directory/Choose Directory – find RepTemplates and click OPEN.

We’re going to need the devtools package to create a new R package. Click on Tools/Install Packages to install devtools. Then in the console window, load the devtools package

library(devtools)

Next use devtools to create a package named the same name as the Github repository you just created “WCtemplatePackage”

devtools::create(“WCtemplatePackage”)

There is now a new folder created for “WCtemplatePackage” in your RepTemplates folder. If you don’t see it in the Files TAB, click the refresh icon at the right (the circular arrow) and you should see the new directory. Go ahead and click on this folder to view the files in this new directory. Next click on the WCtemplatePackage.Rproj file. This will open this R Project in a new R session. Click OK.

Once the “WCtemplatePackage” opens in a new R session, click on Tools/Project Options – click on the TAB for Git/SVN and choose Git for the Version Control System. It will aks if you want to initialize a new Git repository for this project, click YES. And Click YES to restart R Studio. You should now have a GIT tab in the upper right window.

Now that we have the basic skeleton of an R package created and we have initialized using GIT, let’s link this folder to the Github repository we created. Open your Git Bash Window and go to the new folder for

C:\RepTemplates\WctemplatePackage

In the Git Bash Window type the following commands

git add .

git commit -m "first commit"

For this next command, remember to copy the URL from the Github repository to the clipboard and put in your Github URL here

git remote add origin <https://github.com/melindahiggins2001/WCtemplatePackage.git>

Then push everything using the modified push command

git push -u origin master

Then go to your Github repository and check to make sure the files synched up correctly.

It is worth noting that the workflow we wil be using to set up the rest of our R Package with an R Markdown template is based on the basic template tutorial by Chester Ismay posted online at <http://ismayc.github.io/ecots2k16/template_pkg/>

Your basic R package is now created. We next need to create the Skeleton directory for our article. Let’s name the R markdown template “weather”. In the Console window in RStudio, type in this command to create the skeleton folder for the weather template.

dir.create("inst/rmarkdown/templates/weather/skeleton", recursive = TRUE)

Now copy the “wcArticle.Rmd” file we created in the last lesson into this new skeleton directory – and change the name of this file to “skeleton.Rmd”. [THIS WILL BE DEMO’d on the COMPUTER]

In RStudio, let’s also create a “template.yaml” file. Click on File/New File/Text File. Type in the following:

name: Weather Check Report

Then Click File/Save As and make sure to name this file “template.yaml” and save it in the

“C:\RepTemplates\WctemplatePackage\inst\rmarkdown\templates\weather”

Folder – basically 1 level above the skeleton folder.

To see if everything worked, we need to install our package, which only exists locally at the moment. First we need to change our working directory. Click on Session/Set Working Directory/Choose Directory and choose

C:\RepTemplates

Then go back to the RStudio console window and type in

devtools::install(“WCtemplatePackage”)

Next restart your R session – click on Session/Restart R.

Now go to File/New File/R Markdown – click on Templates and you should now see the “Weather Check Report” template in your new WCtemplatePackage just installed. Click on the template and create a new R markdown file based on your new template.

Click File/Save As “wcArticleMountains.Rmd” – then click KNIT with Parameters and choose Mountains and click KNIT.

Now let’s go ahead and back everything up to your Github account.

Open Git Bash and make sure you are in the correct directory:

C:\RepTemplates\WCtemplatePackage

Once in that directory, type in the following 4 Git commands to check the status of your local files compared to your Github cloud repository; add or stage the modified files; commit your changes; and then push the changes to your Github cloud repository.

git add .

git commit –m “R package basics and and WC template”

git push

git status

Now go to your Github repository, refresh if necessary and see your newly committed files.

Finally, let’s make one last addition. In your Github repository, there is button at the bottom for adding a Readme file. Click Add a readme.

Type in the following instructions to your readers on how to install and use your new R package with your Weather Check template. Be sure to put in your username for your github account in this readme file.

[COMPUTER DEMO]

This R package provides an R markdown template for creating a report from the Weather Check dataset from the `fivethirtyeight` R package.

To install the development version of this package from Github, you may use the `devtools` package to run this R code `devtools::install\_github('melindahiggins2001/WCtemplatePackage')`.

Type in a commit comment and click Commit New File

To sync up this change made in the Github repository with your local drive, open the Git Bash window for this package directory and type in

git pull

check your file folder – you should now see a readme.md file in your local drive.

Let’s try installing this package from your Github repository. First we need to remove the previous local installation. In the Packages TAB in RStudio, find the WctemplatePackage and click the little X at the right to remove the package. You’ll notice that if you try to create an R markdown package that this template is now no longer shown since the package has been removed. [DEMO on COMPUTER]

Now go to the RStudio Console window and type in the devtools command to install from your Github repository.

devtools::install\_github('melindahiggins2001/WCtemplatePackage')

Now go to File/New File/R Markdown – template and you should now see the Weather Check Report template.

Congratulations, you have now created your first very basic R package with an R Markdown template and deployed it via Github for others to install and use within the RStudio environment!!