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R Studio Summary:

R studio is a completely free R-analytic IDE (Integrated development environment). It can be found by going to the R-analytic website, selecting RGUI's and on the left toolbar, selecting Rstudio. Or you can simply go to their website: RSTUDIO.ORG (way easier). Rstudio runs on all operating systems including; Windows, Mac, and linux.

It is used to allow users to interact with the R programming in a more accessible and easier way.

Its main (and kind of best feature) is its text workspace that allows the user to edit code before submitting it to the console. (The console is the actual R-programming so all of the R functions run through that.)

All of the windows can be enlarged or shrunk by clicking the squares in the top, right portion of each individual section.

By using an **R-SCRIPT EDITOR**, users can type up the normal code, and then hit the run button to send and run the code to the R-console. *LOCATED IN THE TOP-LEFT PORTION OF THE SCREEN* You can either highlight the desired sections and click the run button, or go to the edit toolbar, select run code, and pick a desired option there. The R-script editor has a lot of cool functions within it that make typing code a lot easier. One easily noticed one is whenever a bracket or parenthesis is typed, it automatically types the closing one for you, and when the closing one is selected, the opening bracket or parenthesis is highlighted. This helps to make sure you close all of your brackets, and don't have any extras. Another cool function is, what I am calling it **"a FUNCTION FINISHER"**. Sounds awesome and it is. When typing a function, simply press the TAB key, a little list will pop up of all of the possible entries within that function. This works with functions, as well as data imports. (it will give a list of possible files from your directory open on the files portion of the screen). This works in both the r-script editor as well as the console. It also give a brief description of the code selected (only for some of them).

*BE AWARE, the run button only sends the code of the line selected and not everything you have typed. This allows you to be selective in what you run, but it also requires you to select

EXACTLY what you are running. For example if you have a function in the code that consists of multiple lines, you must select ALL of the lines of code for that function to be sent to the R-console. *

THE CONSOLE IS LOCATED IN THE BOTTOM LEFT PORTION OF THE SCREEN

You can type directly into the console if you would like, The R-console acts exactly the same as the regular R-analytic GUI (graphical user interface) and cannot be edited except with fix functions. The R-console will also show you any errors that may occur in your coding.

This **r-script editor** also allows you to edit your code, since it is all saved on the top screen. If you are typing a function and make an error, instead of re-typing EVERYTHING like you would have to in R, you can simply go back, make the adjustments, and re-send the code to the r-console. There is also an undo and re-do function. Undo is CTR+Z and re-do is CTR+Y. just like in word. The r-script editor also has a **search** function that allows you to search through the entire r-script. It also has an **extract function** button that……extracts functions…..although to be honest I'm not really sure how this works. It seems like it takes whatever function you highlight, and sets a new function (of whatever you name it,) to that function. However be aware if it is copied and has the > symbol in front of any line that is not the top line of the code, the function won't work. You can also change the file type of the R-script editor by the click of a button. In the bottom right portion of the **r-script editor**, it says "R Script", if you click that you can change the window to a text file, or a few other file types (but I wouldn't use the others since they require separate software to interact with). This allows you to save your r-script as a text file then continue working on it as an r-script. This also allows you to take imported text files and instantly change them to working R-Scripts. Note all

BEWARE WHEN COPYING ALREADY SAVED CODE, THE CONSOLE WILL AUTOMATICALLY INSERT THE ">" SYMBOL INTO YOUR CODE. IF YOUR CODE HAS THE ">" SYMBOL AT THE BEGINNING OF THE CODE, IT WILL NOT WORK. THIS ALSO APPLIES TO THE "+" AT THE BEGINNING LINES OF CODE.

You can have multiple r-script editors open at once, but as long as they are within the same project they will have the same variables and locally saved data.

The r-studio also has a few other helpful tools.

The Import tool is extremely useful for new users. It allows you to import all types of data, without having to code specifically for the file. The data must still be properly formatted into columns. It says import text, but it works with properly formatted excel sheets as well. It also allows users to import data from the internet if they know the location of the data. You can still use all of the code for importing data if you wish, but the import function works well.

Once the data is imported, it is saved to the **WORKSPACE** which can be accessed at any time. The data can be viewed separately from the r-script editor, so no extra code is needed to check your data. Also you can set variable to the data using the data's name, instead of its entire file location since the data becomes locally saved as part of the workspace. The workspace will show an organized list of all, locally saved/defined variables, all data imports, and all defined functions. It also allows a quick edit of any of the functions. By clicking on the function, a small window will pop up showing the code for the function, which can be directly edited and the saved.

WORKSPACE IS LOCATED IN THE TOP RIGHT PORTION OF THE SCREEN, THE HISTORY IS ALSO THERE

The history tab allows you to see exactly what was entered into the r-console. This can be beneficial if multiple errors show up and allows you to view the code without any extra lines that may have been added by the console. You can even copy lines from the history tab, and put them into a new R-script. This is done by highlighting the lines desired and clicking the "To source button". You can also re-run the selected code by clicking the "To console" button.

The broomstick clears the history.

RStudio also allows easy access to "projects". Basically each project is its own work in RStudio. A project consists of the r-script editor, the console, the workspace, all the data saved, and the history (which shows you what was run in the r-console). They are all saved into one project and can be loaded together when the project is opened instead of re-loading each individually. You can also save each portion individually if you desire.

RStudio also allows quick access to any files saved in the directory. The directory is the folder that RStudio assumes you save all of your documents. It will show all documents in the directory folder in the bottom right portion of the screen, under "Files". The directory can be changed by going to "Tools→Set Working Directory→Change directory. (Or CTR+SHIFT+K).

Each project can be considered as a separate entity within RStudio. However be noted, *IF YOU START A NEW PROJECT WITH A PRE-EXISTING DIRECTORY, ALL DATA, FUNCTIONS, AND OTHER FILES SAVED IN THE DIRECTORY WILL BE AUTOMATICALLY LOADED INTO THE NEW PROJECT. IF YOU WANT THEM SEPARATE, WHEN GIVEN THE OPTION SELECT CREATE NEW DIRECTORY*

You can change the auto load function by going into the project toolbar, selecting project options, and altering the project options. You can also change the auto-save options in this window.

Also beware that RStudio will automatically load the last project worked on, upon start up. Also if the data you want is in your directory, you still need to import it.

The bottom right section of the screen also has the **Help Tab, the Files Tab, the Plots Tab, and the Packages tab**. The help tab which loads up the r-website when typing in ?? in front of any line of code. You can also search for something more specific.

The "**Files Tab"** allows you to browse files just like you would do with the explorer. When you click a file, it automatically loads. If it is a text file, or R-script file, RStudio will import it into the TOP LEFT portion of the screen and can be edited from there.

Although the "**Files Tab**" portion of the screen seems to be of little use, you can click on plots, to view any plots you have created. You can also easily export them from this window to allow quick and easy printing.

And lastly the bottom right section has the "Packages" tab. This allows you to view all of the R-analytic packages that you currently have installed or running. You can select new ones if needed, de-select packages you don't need/want, and install any new ones. It also has a search for updates button, so as new packages are released, you can check and keep updated. Of course you have to select which CRAN ("Comprehensive R Archive Network") you want. This means you're looking at the new programs designed by a specific region or network.

Also on the RSTUDIO website click Screencast, for a brief introduction to Rstudio……I unfortunately didn't notice that until I finished typing this 4 page summary.