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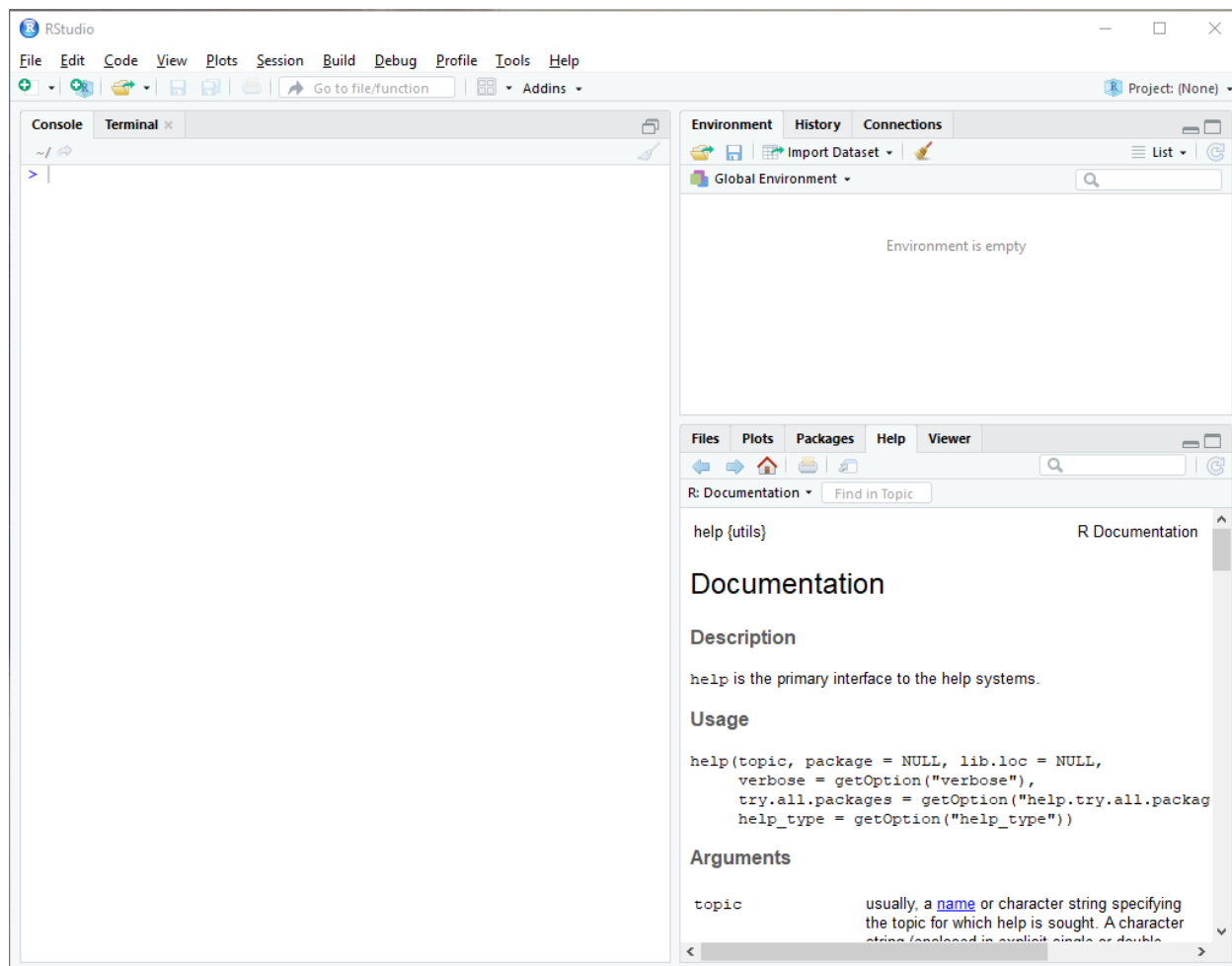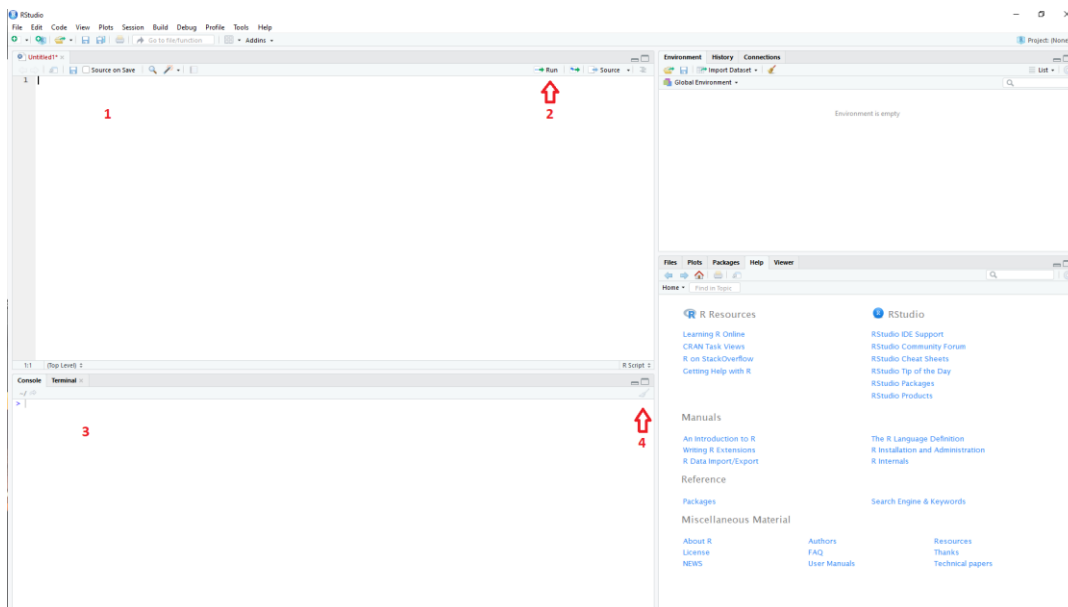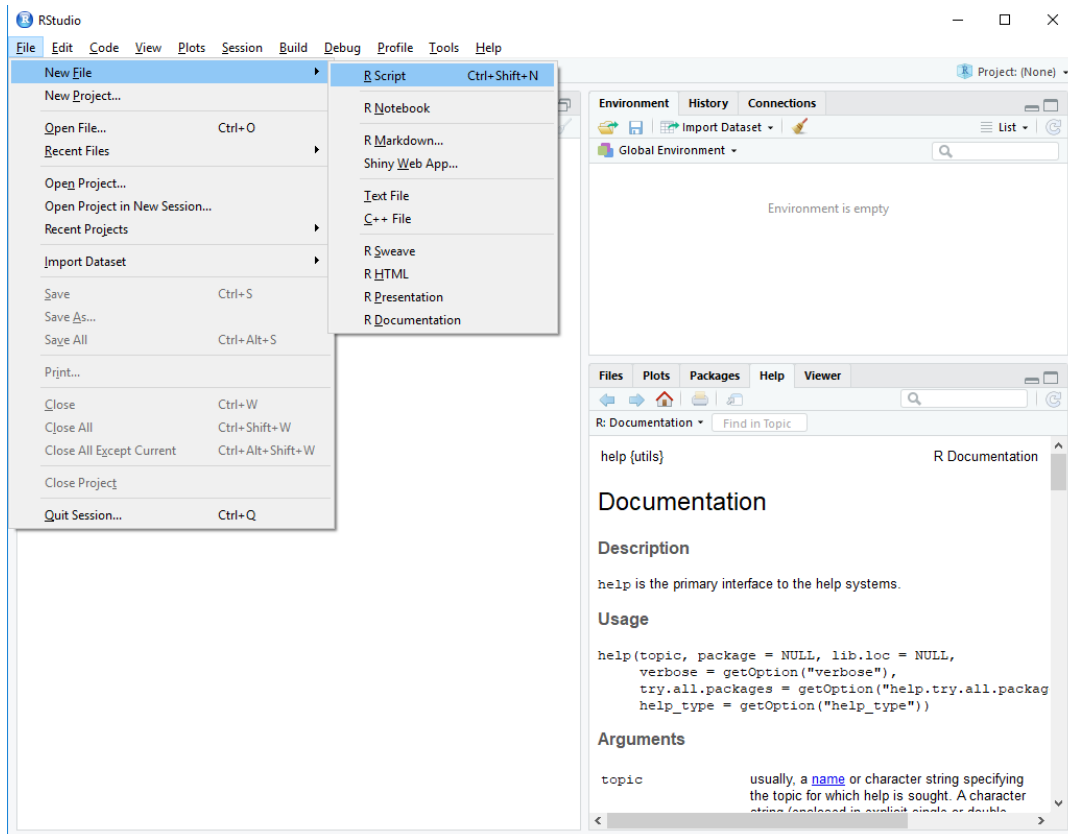5F Paseo Center Bldg., Paseo de Roxas, Makati city.

Intro to R:

R is a language and environment for statistical computing and graphics that is supported by the R Foundation of Statistical Computing. Before we begin with this activity, we will provide you some information regarding the use of the environment.

Found on your desktop is a shortcut for the RStudio IDE. This will where you will be working out throughout this activity. Start the program and you will be greeted with this blank work space.

https://cloudswyft.com/ • getstarted@cloudswyft.com • sales@cloudswyft.com • support@cloudswyft.com

5th Level, Paseo Center Bldg., Paseo De Roxas, Makati City 1226.

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To begin, click **File**, select **New File** then **R Script.**

Basing from the indicators at the above image, these are the few elements that you will be utilizing:
1. **The Editor** – This is where you will be entering your codes for the activity.
2. **Run Button** – This button will execute the codes entered on the editor. You will need to highlight the line/lines with your mouse in order to indicate the codes you wanted to run.
3. **The Console** – This is where the result of the codes in the editor will be displayed after pressing run.
4. **Clear Console Button** – In instances where the console may appear cluttered, clicking this button will remove all current texts on the console.

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The Basics:
Lesson
Copy the following syntax to the Editor:
Calculate 3+7
3 + 7
"#" is used to turn the line into a comment. Try running the code to view the results.
Comments are ignored and only serve as information to the coder.
To do:
 Now, based one the code above, add a line of code that will provide a sum of "7"

R ithmetic:
Lesson:
One of the basic functions of R is to calculate. Take note of the following arithmetic operators:
+   addition
-        subtraction
*   multiplication
/   division
^ or ** exponentiation
x %% y   modulus (x mod y) 5%%2 is 1

The exponentiation simply raises a number to the power of another number. For example **3 ^ 3** is **27**,   **2 ^ 5** is **27**.
The modulo returns the remainder after the division of one number by another number. For example   **5 %% 2** is **1**.

To do:
Copy the following syntax and follow the instructions indicated by the comments.
        #Add 7 and 4
        #Subtract 2 from 17
        #Multiply 6 with 6
        #Divide 100 by 25
        #Raise 2 by the power of 3
        #Get the remainder of 9 divided by 4

Playing with Variables:

Lesson:
Variables in R are used to store data that your code may manipulate and can be reused multiple times. To declare and assign a value to a variable, you need to use the **assignment operator** which is this symbol **<-**. A example of this usage is by the following syntax:
     var <- 6
With the syntax, you simply assign **var** with the value of 6. Now, in order to display the variable, you just simply enter the variable name and run the line. For example if your run **var**, the console will display **6**.

To do:
  1. Assign a value to variable **my_cats**, the value **24** and then display the value of **my_cats.**

Calculating Variables:
Lesson:
Using what we have learned from the previous lessons, let's try joining them. With the data stored in variables, we are able to use the variables to perform arithmetic tasks. With this gives clarity in the way you code. Here's an example:
        my_cats + my_dogs

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To do:
1. Create 2 variables named **my_cats** and **my_dogs** and assign values to them
2. Add the **my_cats** and **my_dogs**.
3. Once again, create a variable called **my_pets** and **my_cats + my_dogs** to it by only using their respective variables.
4. Display the value of **my_pets**.

Data Types in R:
Lesson:
The variables in R are not exclusive to numbers only. There are different data types that can be stored to variables.
These are some of the data types:
Numerics – are numbers that have decimal places.
Integers – Intergers are also numerics but are natural numbers or whole numbers
Logical – There values can be TRUE or FALSE
Characters – These are values that contain text or strings. There are enclosed with quotation marks upon declaration.

To do:
1. Create a variable named **decimal_number** and assign to it, a decimal number.
2. Create a variable named **whole_number** and assign to it, a whole number.
3. Create a variable named **string** and assign to it, any text.
4. Create a variable named **boolean** and assign to it, either **TRUE** or **FALSE**.
5. Display all 4 variables

Cats and Dogs:
Here's a more advanced activity utilizing the previous lessons.
1. Copy the following code to the editor:
```
my_cats <- "twelve"
my_dogs <- "seven"
my_cats + my_dogs
my_pets <- my_cats and my_dogs
my_pets
```

2. Fix the syntax in order to properly display the correct value of **my_ pets**

What are those?!:
Lesson:
R has numerous functions depending on usage. For this lesson, we will be using the **class()** function. This class is used to identify the data type of a chosen variable. To use it, you just simply place the variable inside the parenthesis like so:
class(my_variable)

1. Copy the following syntax to the editor:
```
whole_number <- 1337
string <- "hello"
boolean <- TRUE
```
2. Display all their classes