Lab2

SAF

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Part I: Introduction to modeling using basic R syntax

.Congratulations, you have puppy fever! As someone who is inflicted with puppy fever, you would like to buy as many puppies as you perceivable can. To help you determine if you can afford all of the puppies you want or to determine how many puppies you can afford, you opt to use R to help you. In this exercise, please print the contents of each variable after you declare it.

Integer: *puppies* variable holds the number of puppies you'd like to have.

```
## I'd like to buy 2 puppies.
```

Numeric: *puppy_price* variable holds the price of a single puppy.

```
## The price of each puppy is $ 500 .
```

Integer: *max_puppies* variable holds Qty of puppies you can afford for $1,000.

```
## I can afford 2 puppies.
```

Numeric: *total_cost* variable holds the total price of all puppies.

```
## It's $ 1000 for all the puppies i want.
```

Logical-Bool *too_expensive* Variables return TRUE if the cost is greater than $1,000.

```
## Is the cost of the puppies I want greater than $1000? FALSE
```

Part II: Manipulating variables and learning how to use new functions

You work as a data analyst for a new company and are asked to create id tags for everyone at work. Your goal is to make it informative as well as personal to help facilitate collaboration in the work place.To do this, you first want to gather information about each employee.

2a.Character *my_name* This assigns your name to the variable. Assign *my_name* to a variable in (4) different ways.

```
## 1. Using print() function:
```

```
## [1] "Sal Figueroa"
```

```
## 2. Using message() function:
```

```
## Sal Figueroa
```

```
## 3. Using cat() function:
```

```
## Sal Figueroa
```

```
## 4. Using paste() function:
```

```
## [1] "Sal Figueroa"
```

2b.Character *favorite_day* holds your favorite day of the week.

```
## My favorite day is Thursday
```

2c.Integer *my_height* Assigns your height in whole inche values.

```
## My height is 71 inche/s
```

2d.Characters *favorite_quote* Holds your favorite quote.

```
## My favorite qoute is about
##     water, Whiskey is for drinking; water is for fighting over. It has 52 characters.
```

2e.Type of Data Objects Verify the data types of *my_name*, *my_height*, *favorite_day*, and *favorite_quote*

```
## my_name variable type is a character
```

```
##
## favorite_day variable type is a character
```

```
##
## my_height variable type is an integer
```

```
##
## favorite_qoute variable type is a character
```

2f.Coerce these variables to a *numeric* and describe what happens.

```
## The height variable doesn't generate an error message. The remaining variables
##         display an (NA) and --Warning: NAs introduced by coercion
```

```
## Warning in cat(" my_name as a numeric:", as.numeric(my_name), "\n"): NAs
## introduced by coercion
```

```
##  my_name as a numeric: NA
```

```
## Warning in cat(" favorite_day as numeric:", as.numeric(favorite_day), "\n"):
## NAs introduced by coercion
```

```
##  favorite_day as numeric: NA
```

```
## my_height as numeric: 71
```

```
## Warning in cat(" favorite_qoute as numeric:", as.numeric(favorite_quote)): NAs
## introduced by coercion
```

```
##  favorite_qoute as numeric: NA
```

2g.Create of Vector named "id" that contains *my_name, my_height, favorite_day,* and *favorite_quote.*

```
## id vector:  Sal Figueroa 71 Thursday Whiskey is for drinking; water is for fighting over.
```

2h.Class of Vector What class is "id"? Did the classes change for the variables themselves?

```
##
##  The vector id is a type of: character
```

```
##
##  Below are the data types for each variable. Verfiy if variables weren't altered
```

```
##
##  my_name type: character
```

```
##
##  favorite_day type: character
```

```
##
##  my_height type: integer
##
##  favorite_qoute type: character
```

2i.Employee's Information Your employer wants you to be able to print each employee's id while displaying each variable of information line by line. As a beginner with R, however, you are unfamiliar with how to do this so your employer gives you a hint to use the functions cat and paste.

```
## cat function(id):
## Sal Figueroa, 71, Thursday, Whiskey is for drinking; water is for fighting over.
##
##
##  paste function(id):
## [1] "Sal Figueroa"
## [2] "71"
## [3] "Thursday"
## [4] "Whiskey is for drinking; water is for fighting over."
##
##  f(g(x))-Using paste function:
## Sal Figueroa, 71, Thursday, Whiskey is for drinking; water is for fighting over.,
##
##  g(f(x))-Using cat function:
## Sal Figueroa 71 Thursday Whiskey is for drinking; water is for fighting over.
## character(0)
```

Try using cat and paste with id as a function argument. How do the results differ? *The cat() function prints out the vector in a row with (,) including for separation. While the paste function() places each vector variable in a separate row with a [i] bracket numbering each line*

What happens when we use cat and paste at the same time–(i.e. f(g(x)))? *Using cat(paste(id)) configuration it produces a similar output as cat(id). The sep=", " doesn't seem to function properly, note the last coma position*

What happens if we change the order we use them–(i.e. g(f(x)))? *Rearranging the functions we get the same out put with a character(0) error at the end. The sep=", " spacing modifier doesn't seem function either.*

2j.Difference between cat and paste How would you determine the difference between cat and paste using R documentation (from within RStudio)? *This could be accomplished by adding a (?) to the function to bring up the R documentation for each function example: ?paste*

What is a great internet resource to use as discussed in the book? RStudipo *https://forum.posit.co/ https://www.rdocumentation.org/*

What do sep and collapse arguments for paste do? *They control the spacing between each string fragment (word). Where collapse removes all spaces and the Sep command allows the user to dictate the char that will be used to speratarte the string sements.*

If we wanted to append each character variable in our vector id with a new line (i.e. \n) would we use sep or collapse? To add a new line (\n) to each character variable in a vector, you would first add the new line character to each element using paste() and then collapse them into a single string *Appending each character var in the vector with a new line would be best using the collapse argument within the paste() function.*

2k. cat and paste Display the contents of the id function using a combination of cat and paste with the appropriate arguments for paste.

```
## 1. Sal Figueroa
## 2. 71
## 3. Thursday
## 4. Whiskey is for drinking; water is for fighting over.
```

Part III: Accessing data in GitHub and mastering order of operations

Please calculate a (using min), b (using max), and c (using mean) from data. Pay careful attention to follow order of operations (PEMDAS)

```
## [1] "The min value is: 35"
```

```
## [1] "The max value is: 373"
```

```
## [1] "The mean value is: 121.818339100346"
```

```
## [1] "The X+ root is: -0.337264035203218"
```

```
## [1] "The X- root is: -10.3198788219396"
```