LAB REPORT 3
ISC 4244C
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A written summary of the lab

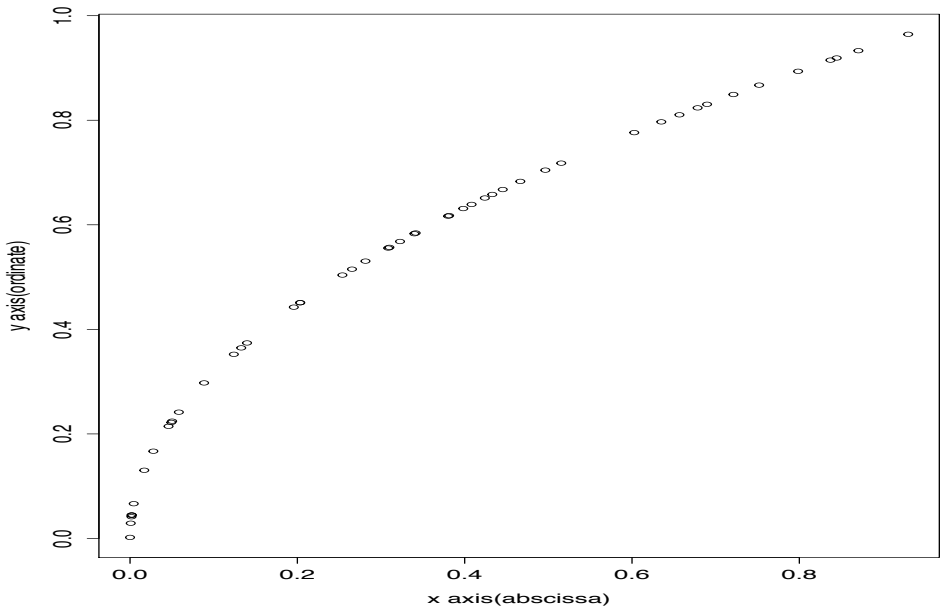
General- In this assignment we are to familiarize ourselves with the creation of functions in R. We are to create two scripts, one containing all of our functions called functions.r and another that calls those functions called execute.r through the use of the source function.

Task 1- during this task we are required to create a function that sums up all the squares of a vector and returns its sum back to the user. The function itself will take in one input from the user and square every element in the vector and then use the sum function to sum up all the squared elements to provide a single output that is the solution to the problem.in order to achieve this I simply put the vector set to the 2^{nd} power and used the sum function as I previously stated to sum up the vector.

Task 2- This tasks will do the exact same as the previous task (task 1) but instead of squaring the vectors it will be cubing the elements within the vector rather than squaring them.

Task 3- In this task we are asked to use the plot command with two arguments to draw a scatter plot of the y axis against the x axis. What is being plotted is the output of a function that creates a vector of random numbers size “n” and then a second vector of the same size but squared instead. The only input into this function is the “n” size of the vector, so the user will be able to define how large this vector is. The

result of this plotting function is as follows:



The graph depicts that no matter what numbers are generated at random, when against itself squared it will always create a scatter plot with a curve as shown above.

Task 4-. In this task we are to create a function that takes in 3 inputs called x,y,z. these inputs will go into the function and be out put as a vector of either length 20 or length of 7. The reason it is 20 OR 7 rather than both is because the function has the option of being called in different methods such as calling it with an input of 20 random numbers for every input of x, y and z OR it can be called putting in a vector of size 7 of non-random numbers in for each input of x,y,z. These are not the only way this function can be called but it's a good example of how open a function is to many different uses and calls. Within the function the inputs are put through the following equation: (x*y)/ standard deviation of (z).

Task 5- in this task we are to create a function that returns all the even numbers between m and n, assuming that m is always even and n is always odd. N also must always be larger than m. the input of course for this function will be m and n and the output will be a vector that contains only the even numbers between n and m . such as having m= 2 and n= 9, the result should be [2,4,6,8]. In order to make sure the function works I used the seq() function to have m and n be the range and used "2" as the indexing number so only the even numbers will be counted. To prove the results I input m= 126 and n=255 and the output is as follows:

evenodd(126,255)

[1] 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160 162 164 166 168
[23] 170 172 174 176 178 180 182 184 186 188 190 192 194 196 198 200 202 204 206 208 210 212
[45] 214 216 218 220 222 224 226 228 230 232 234 236 238 240 242 244 246 248 250 252 254

Task 6- in this function I am to plot the output of task 5 but the plot is to show the x axis as the index where as the y axis will show the even numbers output from the previous function. I am to then label the following plot using the “main=” argument to provide the plot a title and a name for the x axis and y axis…. Unfortunately I could not get it to plot and acknowledge I will lose some points off my grade for this.. ☹