**R Lab 6 Exercices**

1. Calculate the square root of 2345, and perform a log2 transformation on the result using built in function.
2. Write an ifelse function to determine whether numbers in a given list are positive or negative.
3. The numbers below are the first ten days of rainfall amounts in 1996. Read them in to a vector using the c() function 0.1, 0.6, 33.8, 1.9, 9.6, 4.3, 33.7, 0.3, 0.0, 0.1

3.1 What was the mean rainfall, how about the standard deviation? Hint use built in functions

3.2 Calculate the cumulative rainfall (’running total’) over these ten days. Confirm that the last value of the vector that this produces is equal to the total sum of the rainfall.

3.3 Which day saw the highest rainfall? Hint which.max()

1. What are atomic and recursive objects in R ?
2. The weights of five people before and after a diet programme are given in the table.

| Before | After |
| --- | --- |
| 78 | 67 |
| 72 | 65 |
| 78 | 79 |
| 79 | 70 |
| 105 | 103 |

Read the `before' and `after' values into two different vectors called before and after. Use R to evaluate the amount of weight lost for each participant. What is the average amount of weight lost?

1. Why do you need to install R Packages and how do you install a package from CRAN directly.
2. Read an input from the user and find out whether it is a leap year .
3. Find out the factorial of a given number without inbuilt functions.
4. Print the first n natural numbers using recursive programing.
5. Find out the number of odd and even numbers in a given list.
6. Write a program to find out whether a given number is a prime number or not
7. Read a number and display its multiplication table.
8. Write an R program to determine whether a number is Armstrong or not.

1634 is a four digit number, we can find out the sum of fourth power of each of its digits. Now, this sum turns out to be 1634. Hence, **1634 is an Armstrong number**.

371 is an Armstrong number since 3\*\*3 + 7\*\*3 + 1\*\*3 = 371.

1. What are the categories of inbuilt functions in R. Brief about a few of them under each category.