

CT5102: Programing for Data Analytics

Assignment 2: Functions and Lists

Maximum Marks (10)

Write a function *process.vectors* that:

- Accepts a variable number of vectors
- For each vector, calculates the minimum, maximum, mean and standard deviation
- Returns the information in a list, so that the input data and output results are contained in successive list elements.

All operations should be vectorized, and no loops are permitted. In order to process the vectors and generate a list, R's **lapply** function should be used (lapply returns a list). The general form of the **lapply(x,f,fargs)** function is as follows:

- **x** is the target vector or list
- **f** is the function to be called
- **fargs** are the optional set of arguments that can be applied to the function **f**.

Sample output from the function is shown:

```
> ans<-process.vectors(c(1,2,3),34:78,c(8,9,10))
> str(ans)
List of 3
 $ :List of 5
  ..$ data: num [1:3] 1 2 3
  ..$ min : num 1
  ..$ max : num 3
  ..$ mean: num 2
  ..$ sd  : num 1
 $ :List of 5
  ..$ data: int [1:45] 34 35 36 37 38 39 40 41 42 43 ...
  ..$ min : int 34
  ..$ max : int 78
  ..$ mean: num 56
  ..$ sd  : num 13.1
 $ :List of 5
  ..$ data: num [1:3] 8 9 10
  ..$ min : num 8
  ..$ max : num 10
  ..$ mean: num 9
  ..$ sd  : num 1
```