

# Heroku-Spark: Calculator using LinkedList

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## 2 1 Introduction

3 A brief explanation will be made in which the how of  
4 the use Spark and Herouku to build a Webapp which  
5 read one real numbers and obtain the results of this set  
6 of numbers( more specifically the mean and standard  
7 deviation).

## 8 2 Metodology

9 Mainly to make the likedList a support class was re-  
10 quired which helps to facilitate the iteration of the list.  
11 This support class is the LinkedElement, as such the  
12 class allows a real number to be linked to another or  
13 to a null element, and this last characteristic is what  
14 tells me who is the first or last value of the list itself at  
15 the time to iterate with it, because once all the elements  
16 are reviewed, the null element becomes an identifier of  
17 the end of an iteration.

18 The linkedList has by itself the identification of its  
19 head and its tail, which can be useful if it is necessary  
20 to use some other calculation or operation, it also gives  
21 a certain degree of modification, especially to the most  
22 recently added data, in sumary the implement of the  
23 linkedList could be use like any API collection (just with  
24 real numbers for now).

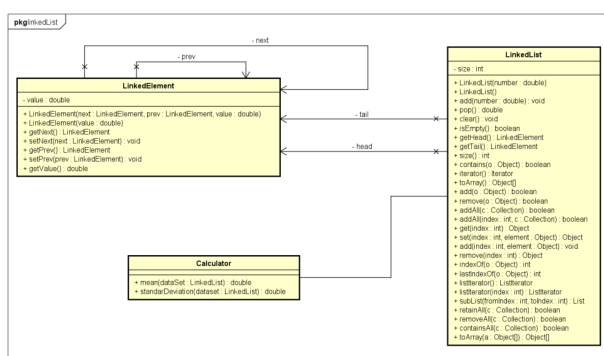


Figure 1: Class model

25 Spark is used to generate endpoints which will be  
26 used by the frontend application js, so this framework,  
27 despite being not very robust, can allow a developer  
28 simple communication between front and back. This  
29 communication works using ajax requests from the ap-  
30 pClient.js file for the possible requests declared in the  
31 SparkWeb class.

32 Regarding the statistical calculation, it is enough to  
33 go through the set of data and use them depending on  
their respective equations:

$$x_{avg} = \frac{\sum_{i=1}^n x_i}{n}$$

Figure 2: Mean operation

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - x_{avg})^2}{n-1}}$$

Figure 3: Standard Deviation operation

## 35 3 Conclusion

36 Spark, despite being a fairly basic framework, offers  
37 enough to work in web development since the com-  
38 munication between front and back is incredibly useful  
39 regardless of the complexity of the app's functionali-  
40 ties, but since it does not fully know the functions that  
41 Spark offers I don't think it could be used in large-scale  
42 projects.

## 43 4 References

44 Daniel Benavides. 2021. Clase de laboratorio. [27 Jan-  
45 uary 2021].

46 Spark Web for java.

47 <http://sparkjava.com/>