AREP Lab 2

Orlando Antonio Gelves Kerguelen - orlandoagk

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1 Introduction

This software calculate the Standard Deviation and Mean of a set of numbers, I will made this to the class AREP in Escuela Colombiana de Ingeniería Julio Garavito. This APP is deployed in Heroku you can find the link down.

2 Meanings

- Maven: is a build automation tool used primarily for Java projects.
- Java: Is a programming language that is class-based, object-oriented, and designed to have as few implementation dependencies as possible
- Standard Deviation: Is a measure of the amount of variation or dispersion of a set of values.
- Mean: Is the central value of a discrete set of numbers: specifically, the sum of the values divided by the number of values.
- Heroku: Is a cloud platform as a service (PaaS) supporting several programming languages

[1]

3 Design

Here I present the class model diagram, this is a basic implementation of a Calculator using a LinkedList implemented by my person [See figure 1], this design is taked of the statement of the workshop

If we can see the class Calculator have only static methods this allow to use the class without instantiate it

A LinkedList was used, this is basically a set of nodes which have a value and their next node, in the LinkedList we simply keep which is the node from

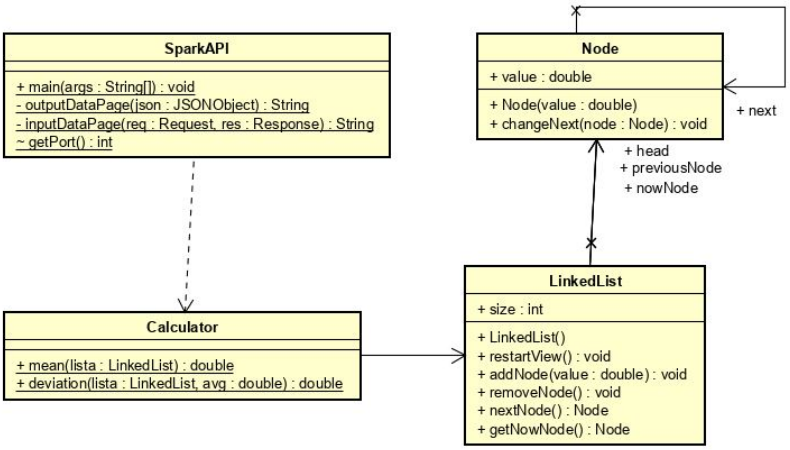

Figure 1: Class Model

which it begins, the current node and the previous node. The node simply has a method to change its next node

This code is deployed in Heroku and because this we can probe it in real time, this is part of the design because the Cloud Platform that we use has limitations, Heroku is free but has a very low resource limit.

We have a clear communication channel that is the Internet that is the form that we share this calculator you only need to use a Web Browser that works like an a interpreter of HTML, CSS and JavaScript that shows the GUI of the software but this is not all in Backend we have Java Machine that is interpreting the Java files to run a web server with Maven, this give a possibility to offer two API's that one is /calculator that return the index page (form to get the values) and the other /results that return the HTML with the result of Deviation Standard and Mean of the set of values

4 Execution

4.1 Code

Para editar los valores puedes editar el archivo ficherodedatos.txt de manera que los números en la misma fila se calcularan en el mismo grupo y para hacer más de un calculo colocalos en diferentes filas

- git clone https://github.com/orlandoagk/areplab2.git
- cd cd areplab2

- mvn package
- java -cp target\areplab2-1.0-SNAPSHOT.jar edu.escuelaing.arep.SparkAPI
- Enter to localhost with the port 4567 (If you dont have environment variable called PORT, if you have it you need to use the PORT that you have there)

4.2 Code (Deployed in Heroku)

- Enter the url thats is the app deployed in Heroku Calculator in Heroku
- Here you need to enter the values in the Numbers box, this need to be floating (or integer) separated by a comma "," and push the Sumbit buttom

4.3 Test

- mvn test

5 Conclusion

We were able to implement a standard and average deviation calculator using a data structure created by me, this system obtains the data to be calculated through a web interface created with Spark, it was possible to create a set of tests to ensure that the functions do what they should really do, we assemble everything on Maven for better Software management and finally we managed to display our Calculator on Heroku

References

[1] *Wikipedia.*