**First Sprint - Review**

**Story Points Planned:** 47

**Story Points Completed**: 62

**Current Project Velocity:** 62

User stories scelte per questo Sprint:

* Insert Complex Number
* Add two numbers
* Visualize the last 12 elements of the stack

User stories completate alla fine di questo Sprint:

* Insert Complex Number
* Add two numbers
* Subtract two numbers
* Multiply two numbers
* Divide two numbers
* Visualize the last 12 elements of the stack

**Issues discovered during the implementation**

**Technical problems:**

* The standard NumberFormat for the ComplexFormat class from apache used european puntuaction (e.g. the decimal delimiter was a comma “,” instead of a dot “.”) and this made our tests fail. We found a way to change the NumberFormat and solved the issue
* When using the parse method in the ComplexFormat class from apache, in order to extract the Complex instance from the String inserted by the user, we noticed that it didn’t consider some particular cases, such as the absence of the coefficient of the imaginary part of the number. In order to solve this problem we used regex patterns to validate the inserted string and modify it if necessary, before passing it on to the controller.

**Technical Debts:**

* After our first implementation of operations methods in the ProgrammableCalculatorController class, we noticed that there were noticeable repetitions in the respective codes. We treated this issue as a technical debt, and we reserved a time slot at the end of the Sprint to do a refactoring of these particular lines of code to improve the design.

**Bugs:**

* When we insert a complex number with two imaginary parts (e.g. 5i+4i) the program inserts the complex number consisting of 0 as real part and the first number as imaginary part (e.g. 0+5i) instead of giving an input format error message. This bug hasn’t been solved yet and we will dedicate a time block in the next spring for bug fixing.