GRUPPO 02- PRODUCT BACKLOG

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| ID | PRIORITY | DESCRIPTION | ACCEPTANCE CRITERIA | SP |
| 1 | MUST HAVE | As a calculator user,  I want to insert a complex number in Cartesian notation  So that I can memorize it. | After entering a number, I need to be able to view it as the last element of the stack. | 8 |
| 2 | MUST HAVE | As a calculator user,  I want to see at least the last 12 elements inserted in the stack  So that I don’t need to remember them. | After entering at least 12 numbers, I need to be able to view always at least the last 12 elements of the stack. | 3 |
| 3 | MUST HAVE | As a calculator user,  I want to have a text area  So that I can input numbers and operations. | After typing a number or an operation, I need to be able to see it in the text area. | 5 |
| 4 | MUST HAVE | As a calculator user, I want to do the sum operation between the last two inserted numbers, So that I can have the sum of two complex numbers. | After typing the operator “+”, I want to see the operation’s result as the last element of the stack. | 5 |
| 5 | MUST HAVE | As a calculator user,  I want to do a subtraction operation between the second last number and the last number  So that I can have the difference of two complex numbers. | After typing the operator “-”, I want to see the operation's  result as the last element of the stack. | 5 |
| 6 | MUST HAVE | As a calculator user,  I want to do a multiplication  operation  between the last two inserted numbers  So that I can have the product of two complex numbers. | After typing the operator “\*”, I want to see the  operation's result as the last element of the stack. | 5 |
| 7 | MUST HAVE | As a calculator user,  I want to do a division operation  between the last two inserted numbers  So that I can have the quotient of two complex numbers. | After typing the operator “/”, I want to see the  operation's result as the last element of the stack. | 5 |
| 8 | MUST HAVE | As a calculator user,  I want to do a square root extraction operation between the last two inserted numbers  So that I can have the difference the two complex numbers. | After typing the operator “sqrt”, I want to see the result as the top element of the stack. | 5 |
| 9 | MUST HAVE | As a calculator user,  I want to do an inversion of the sign of the last element inserted So that I can have the last number with the inverted sign. | After typing the operator “+-”, I want to see the previous top element of the stack replaced with its opposite. | 5 |
| 10 | SHOULD HAVE | As a calculator user,  I want to remove all the elements, So that I can delete all the elements inserted previously. | After typing the operator “clear”, I want all the elements in the stack to be eliminated. | 3 |
| 11 | SHOULD HAVE | As a calculator user,  I want to remove the last inserted element,  So that I can delete an element I inserted by mistake. | After typing the operator “drop”, I want the top element in the stack to disappear. | 3 |
| 12 | SHOULD HAVE | As a calculator user,  I want to duplicate the last inserted element So that I can have it twice. | After typing the operator “dup”, I want to see the last element inserted also as the second top element in the stack. | 3 |
| 13 | SHOULD HAVE | As a calculator user,  I want to swap the last two elements  So that I can have the exchange of the last two elements. | After typing the operator “swap”, I want to see the top two elements exchange in the stack. | 3 |
| 14 | SHOULD HAVE | As a calculator user,  I want to duplicate the second last element  So that I can have it on top. | After typing the operator “over”, I want to see the previous second last element inserted also as top element in the stack. | 3 |
| 15 | SHOULD HAVE | As a calculator user,  I want 26 variables named from “a” to “z”  So that I can save inside of them any number. | In the graphics visualization I want to see these variables and its content. |  |
| 16 | SHOULD HAVE | As a calculator user,  I want to store the last inserted value into a variable  So that I can memorize it. | After typing the operator “>”, followed by a variable name, the variable will get the value of the top element of the stack. | 5 |
| 17 | SHOULD HAVE | As a calculator user,  I want to push the value of a variable onto the stack,  So that I can use it. | After typing the operator “<”, followed by a variable name, the variable’s value will be pushed onto the stack. | 5 |
| 18 | SHOULD HAVE | As a calculator user,  I want to sum a variable with the last element inserted  So that I can have the result in the variable. | After typing the operator “+x”, I will see the result in x of the sum between the top element of the stack and the previous variable stored in x. | 5 |
| 19 | SHOULD HAVE | As a calculator user,  I want to subtract the variable’s value with the last element inserted  So that I can have the result in the variable. | After typing the operator “-”, followed by a variable name, I will see the result in x of the difference between the previous variable’s value and the top element of the stack. | 5 |
| 20 | SHOULD HAVE | As a calculator user,  I want to define new specific operations  So that I can program my calculator. | The user can define a new operation by specifying a name and a sequence of operations (including the push of numbers). When the user-defined operation is invoked, all the operations in the sequence are executed in order. | 21 |
| 21 | SHOULD HAVE | As a calculator user,  I want to save my functions in a file So that I can reuse it. | The user can save to a file the existing user-defined operations. | 8 |
| 22 | SHOULD HAVE | As a calculator user,  I want to modify my functions  So that I can update a specific function. | The user can modify the definition of a user-defined operation. | 8 |
| 23 | SHOULD HAVE | As a calculator user,  I want to define my functions inserting others user defined functions  So that I can reuse them properly. | The definition of a user-defined operation may contain other user-defined operations.  If some operations are not defined, it will return an error. | 5 |
| 24 | SHOULD HAVE | As a calculator user,  I want to delete my functions  So that I can remove useless operation. | The user can delete a user-defined operation. | 13 |
| 25 | SHOULD  HAVE | As a calculator user,  I want to reload an existing file with operations  So that I can reuse them. | The user can reload user-defined operations from a file, even in a different usage session. | 8 |
| 26 | COULD HAVE | As a calculator user,  I want to be able to save a copy of all the 26 variables  So that I can temporarily modify them. | After typing the operator “save”, the current variable state will be saved into a variable stack. | 8 |
| 27 | COULD HAVE | As a calculator user,  I want to be able to save multiple sets of variables  So that I can temporarily modify a variable. | After typing the operator “save” multiple times, multiple sets of variables will be saved. | 8 |
| 28 | COULD HAVE | As a calculator user,  I want to restore the variable state I saved previously  So that I can have the previous state of the variables. | After typing the operator “restore”, the last saved state will be restored into the variables. | 8 |
| 29  (epic) | COULD HAVE | The calculator includes the following operations, taking complex numbers as operands (from the stack) and producing (possibly) complex results (pushed onto the stack): "mod" (modulus/magnitude); "arg" (argument/phase); "pow" (power); "exp" (exponential); "log" (natural logarithm); "sin" (sine); "cos" (cosine); "tan" (tangent); "asin" (arc sine); "acos" (arc cosine); "atan" (arc tangent). | After typing each operator, the user will see the correct version of the stack. |  |