

# UC006 Methods

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<b>Use case Number</b>	UC006
<b>Use case Name</b>	Evaluate Postfix
<b>Goal in context</b>	-
<b>Actors and their interest</b>	<ul style="list-style-type: none"><li>• System</li></ul>
<b>Preconditions</b>	<ul style="list-style-type: none"><li>• The system has converted the list of tokens to components of formula.</li></ul>
<b>Postconditions</b>	-
<b>Basic Flow</b>	<ol style="list-style-type: none"><li>1. The system initializes the stack.</li><li>2. The system pushes to the stack operands until find an operator.</li><li>3. The system pops it to the top two numbers, using the first as the right operand and the second as the left.</li><li>4. The system applies the operator to these operands.</li><li>5. The system pushes back the result onto the stack.</li><li>6. The system verifies that the list of FormulaContent objects is fully iterated.</li><li>7. The system recovers the value from the stack.</li></ol>
<b>Extension</b>	<p>2.a The system processes an operand:</p> <ol style="list-style-type: none"><li>1. The system push its value into the stack.</li><li>2. Jumps directly to 6.</li></ol> <p>2.b The system detects an empty cell:</p> <ol style="list-style-type: none"><li>1. The system considers this cell as a 0.</li></ol> <p>4.a The system finds that the divisor is a 0.</p> <ol style="list-style-type: none"><li>1. If it is file, displays an error message in the display of the file.</li><li>2. If it is a cell, displays an error message.</li></ol> <p>6.a The system detects that there is more FormulaContent objects inside the list.</p> <ol style="list-style-type: none"><li>1. Continue the evaluation. Go to step 2.</li></ol> <p>7.a The system detects that the stack has more than one number.</p> <ol style="list-style-type: none"><li>1. Throws an exception saying that postfix generator isn't well implemented.</li></ol>
<b>Special Requirements</b>	All the data requirements shall be developed

<b>Step in the Use Case</b>	1
<b>Name of the method</b>	PostfixEvaluator, unique constructor of the class.
<b>Initial list of arguments</b>	This method does not take any argument.
<b>Returned Value</b>	This method does not return any value.
<b>Exceptions</b>	This method does not have any exception.
<b>Description</b>	Initialize the class PostfixEvaluator and its stack.
<b>Assigned to class</b>	PostfixEvaluator: because it corresponds to the SRP of PostfixEvaluator, evaluate the different Formula content objects with the Visit methods. Expert GRASP pattern. Pure Fabrication GRASP pattern.

<b>Step in the Use Case</b>	2
<b>Name of the method</b>	visitOperandNumber, visitCell, visitFunction or visitOperator
<b>Initial list of arguments</b>	OperandNumber, Cell, Function or Operator has been visited
<b>Returned Value</b>	This method does not return any value.
<b>Exceptions</b>	This method does not have any exception.
<b>Description</b>	Push into the stack the value of either a OperandNumber, a Cell or a Function.
<b>Assigned to class</b>	PostfixEvaluator: because it corresponds to the SRP of PostfixEvaluator, evaluate the different Formula content objects. Expert GRASP pattern. Pure Fabrication GRASP pattern.

<b>Step in the Use Case</b>	3, 4, 5
<b>Name of the method</b>	visitOperator
<b>Initial list of arguments</b>	Operator Operator that has been has been visited
<b>Returned Value</b>	This method does not return any value.
<b>Exceptions</b>	4.a ZeroDivisonException: thrown when try to divide by 0.
<b>Description</b>	Pops the top two numbers from the stack, using the first as the right operand and the second as the left operand.
<b>Assigned to class</b>	PostfixEvaluator: because it corresponds to the SRP of PostfixEvaluator, evaluate the different Formula content objects. Expert GRASP pattern. Pure Fabrication GRASP pattern.

<b>Step in the Use Case</b>	6
<b>Name of the method</b>	evaluatePostfix, done by a for each statement easily
<b>Initial list of arguments</b>	Formula
<b>Returned Value</b>	This method returns a Number.
<b>Exceptions</b>	ZeroDivisionException: Thrown if the stack detects a zero division. BadPostfixerImplementationException: Thrown if the Postfixer is not working.

<b>Description</b>	Verifies that there is no more objects to iterate inside the list.
<b>Assigned to class</b>	FormulaCalculator: because it corresponds to the SRP of FormulaCalculator, evaluate Formula objects. Expert GRASP pattern. Pure Fabrication GRASP pattern.

<b>Step in the Use Case</b>	7
<b>Name of the method</b>	returnValue
<b>Initial list of arguments</b>	Formula
<b>Returned Value</b>	This method returns a Number.
<b>Exceptions</b>	7.a BadPostfixerImplementation: thrown when there is more than one value at the stack, meaning that something is not well implemented in the postfixer.
<b>Description</b>	Extract the last numerical value of the stack.
<b>Assigned to class</b>	PostfixEvaluator: because it corresponds to the SRP of PostfixEvaluator, get the final result of a Formula. Expert GRASP pattern. Pure Fabrication GRASP pattern.