Use case Number: 4

Use case Name: Compute Formula

Actors: System responsible for formula computation.

Preconditions:

- In point 4 of Edit Cell use case, the system user enters a Formula content.
- Point 5 of the Edit Cell use case is executed to start the Compute Formula use case.

Postconditions:

- The calculated value of the formula is displayed in the selected cell in point 2 of the Edit Cell use case.

Main Success Scenario (Basic Flow):

1. System tokenizes the formula.
2. System analyses the tokens.
3. System verifies absence of circular dependencies.
4. System constructs the postfix expression using the Shunting-Yard algorithm.
5. System activates Evaluate Postfix Expression use case using the postfix stack evaluator.

Extensions (Alternative Flows):

1a. System fails to tokenize the formula.
1. System terminates use case with a tokenizing error.
2. System reports the error through console.

2a. The token sequence violates the syntactic rules of standard arithmetic expressions, preventing postfix expression creation.
1. System ends use case with a syntax error.
2. System reports the error through console.

3a. System finds circular dependencies.
1. System ends use case with a circular dependencies error.
2. System reports the error through console.

5a. The Evaluate Postfix Expression use case concludes with an evaluation issue.
1. System ends use case with an evaluation error.
2. System reports the error through console.