Test Report: Project Title

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1 Revision History

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

2 Symbols, Abbreviations and Acronyms

symbol	description
T	Test

[symbols, abbreviations or acronyms – you can reference the SRS tables if needed —SS]

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This document introduces the result of the Unit VnV procedure.

3 Functional Requirements Evaluation

All the functional requirements have been met, except for the division function.

4 Nonfunctional Requirements Evaluation

All the requirements have been met.

4.1 Usability

During implementation, we find out that several functions' names are too long to use. For the sake of compatibility, we will introduce shorter function names in parallel. These functions with shorter names are essentially wrappers to the original ones, and the structures of these functions are too simple, so we do not test them.

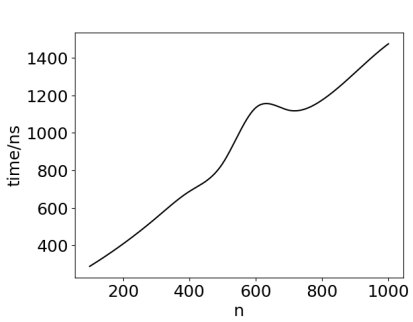
We show a list of old function names versus new function names.

Old Function Name	New Function Name
`Addition`	`Add`
`Subtraction`	`Sub`
`Multiplication`	`Mul`
`Division`	`Div`
`Amplitude`	`Amp`
`ToleratedEquality`	`TolEq`

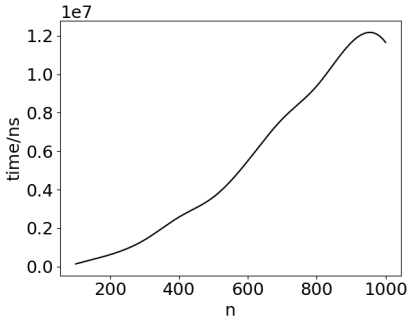
4.2 Performance

We have done performance tests on three functions, `Amplitude`, `Multiplication`, and `TransformTo`. Each of these tests represents tests on functions with one kind of speed rule. The tests on other functions will be done in the future.

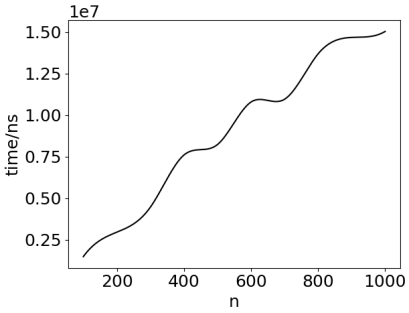
We give the plots for these functions. The extrapolation will be done in the future, since these plots are already convincing.



(a) Function `Amplitude`



(b) Function `Multiplication`



(c) Function `TransformTo`

5 Unit Testing

The Unit Testing has been done with Catch2 in accordance with Unit VnV. All tests except these for function `Division` succeeds. We will fix this function in the future.

6 Changes Due to Testing

Most changes are grammar related. We list those changes that are not trivial.

1.
   - Function: `CFSData::setn`
   - Problem: Old data still exists after resizing the sequences.
   - Solution: `std::fill(A.begin(), A.end(), 0)`, `std::fill(B.begin(), B.end(), 0)`

2.
   - Function: `Addition` and `Subtraction`

- Problem: Last element not computed.
- Solution: `for(size_t i = 0; i<n; ++i)<` → `<=`

3.
- Function: `Multiplication`
- Problem: Computation part wrong, unable to debug.
- Solution: Computation part changed from the mathematical expression in SRS to a more basic function. Easy to implement now.

7 Automated Testing

Test can now be done via the `r` script file.

8 Code Coverage Metrics

The following lines of code are reported by `gcov` as being not covered.

1. All the exception-throwing lines in `CFSData.hpp`
2. All the `return false;` in `CFSMatch.hpp`. This is strange, since there are test cases that requires the function to return `false`, and these test cases are success.

These codes are examined manually by us to be right, and we will produces test cases for these un-covered codes in the future.

References