

# Mathml – an XML driven calculator

## Description

A windows console application that reads an xml file and performs mathematical calculations for the users.

## Use case

1. The user double clicks Mathml.exe
2. A console window appears
3. Displays calculations to user
4. Closes when the user presses ENTER

## Example XML

```
<Operations>
  <Add>
    <Description>Joe;SUM;TURN10</Description>
    <Value1>40</Value1>
    <Value2>2</Value2>
  </Add>
  <Multiply>
    <Description>Sam;MULTIPLY;TURN10</Description>
    <Value1>2</Value1>
    <Value2>3</Value2>
  </Multiply>
</Operations>
```

## Example output

“Username – OperationName – Value1 <OperationOperator> Value2”

Joe – SUM – 40 + 2 = 42

Sam – MULTIPLY – 3 \* 2 = 6

## Valid Operation types

- Add
  - Adds two numbers

- **OperationOperator:** '+'
- Subtract
  - Subtracts Value2 from Value1
  - **OperationOperator:** '-'
- Multiply
  - Multiplies two numbers
  - **OperationOperator:** '\*'
- Divide
  - Divides two numbers
  - **OperationOperator:** '/'

## XML “schema”

Each node under the Operations node is a single Operation.

An Operation contains the following attributes:

- Description
  - Semi-Colon delimited string containing the following values
    - 0 – Username
    - 1 – OperationName
    - 2 – Miscellaneous info
- **Value1**
  - The first value for the operation
- **Value2**
  - The second value for the operation

## Implementation requirements

- Your implementation should be robust enough to handle new types of operations in the future – for example the ‘Power’ operation could raise Value1 to the Value2’t power.
- Your implementation should allow for the data to be input in a different format in the future – for example math.json instead of math.xml

## Summary

Write a windows console application that

1. Deserializes the provided xml file ‘math.xml’
2. Parses each operation and performs it
3. Outputs a message describing the operation to the user

Please provide any appropriate unit tests as well