Summary of CalculateTextEquation Solutions

Start Time: 1st Feb 2023, 10.40pm

End Time: 1st Feb 2023, 2.30pm

Duration: 3 hours 50 mins

The Idea of the solution is solve the first priority equation first and simplified it into a new equation text. First is to solve all equation in bracket first, then use CalculationHelper.FindFirstPriorityOperator method to find next equations. Each equation must only contain 2 number at one time and priority as below:

1. Solve all equation in bracket (Method: CalculateBracketEquationAndBuildNewString)
2. Solve all multiply and division equation, from left to right (Method: CalculateEquationAndBuildNewString)
3. Solve all plus and minus equation, from left to right (Method: CalculateEquationAndBuildNewString)

For instance, equation given is “10 - ( 2 + 3 \* ( 7 - 5 ) )

According to the priority rule above, the evolutions of the equation are as below:

1. 10 - ( 2 + 3 \* 2 )
2. 10 - ( 2 + 6 )
3. 10 - 8
4. 2

In Addition, the solution also able to identify a valid equation from given text, using FindFirstPriorityOperator method and able to combine 2 operator into one. For instance: given equation “-1 + (-3)”.

The solution will only remove bracket for (-3) and combine +- to -. The evolutions of the equation are as below:

1. -1 + -3
2. -1 – 3
3. -4

To verify the functions created, lists of test cases are created together with their respective answer to verify whether the calculated answer is matched to the expected answer.