MathOperationResolver Class:

User's Input

Method Call

Returned Result

Input

Input operation

Solve method
Only public method and entry of class that will validate input first using ValidateInputOperation method and if it's a valid operation it will pass it to OperationResolver method otherwise throws an ecepition

Input operation has peranthesis ?

CalculateOperation method
Wich decides how to solve operation inside input

Input is simple without peranthesis

DeletePeranthesis method
Will pick the most inner operation in peranthesis and replace it with answer of that operation and returns a simplified operation

Simplified operation (most inner)

Extracted most inner operation in peranthesis

OperationResolver method
It accepts a simple operation containing main operators and extracts digits and operators the calls CalculateOperationResult method and returns the operation's answer

Send's the array of digits and the array of operators to calculate the final result of operation

Most inner operation's result

Input operation and considered operators

Input operation and considered operators

ExtractOperators method
Accepts an operation and extract's the considered operators, finally returns extracted operators as an array

Extracted operators from input as an array

ExtractDigits method
Splits using considered operators and loops through result if it's a digit adds it to final result and if it's a operation calls OperationResolver method to solve the operation and adds the answer to final result

Extracted digits from input as an array

While spliting input to find digits if it finds an operation with a higher precedence it will call the OperationResolver method recursivly and adds the result to list of extracted digits

SimpleOperationResolver method
Accepts 2 value as input and a operator, then it will calculate result using a switch case on operator and returns the final result

Simple operation than contains one operator and two value (operator must be one of the main 4, otherwise it will throw an error)

CalculateOperationResult method
Will accept array of digits and array of operators, then it will loop through operators and call SimpleOperationResolver to do the math for each operation, finally it returns the final result (length of operators array should always be one less than length of digits, otherwise will throw exception)

Result of the simple operation