**Summary of Calculator code**

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Duration of development : 6 hours.

Functions not covered :

1. Handling of input with invalid format.
2. Handling of first character of input is negative number.

List of functions and descriptions.

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| 1 | private void btnCalculate\_Click(object sender, EventArgs e) | 1. When user clicks on “Calculate” button, it will direct to function of calculation. |
| 2 | public double CalculateString(string num) | Parameter: String num from textbox input.  Output: double result; result of calculation   1. Split input number from spaces and pass to other functions based on conditions. 2. Check condition the string number array if there is bracket or not. |
| 3 | public string[] BracketCalculation(string[] num) | Parameter: string array of input number without spaces.  Output: string array of number after do calculation number in bracket.   1. Find the index of open and close bracket in string array then store them into variables. 2. Start the first calculation by getting the list of numbers inside pair-bracket “()”.  * Pair the most right of open bracket with the most left of close bracket. * After get the list number, eg ; “1+2”, do the calculation. Then, put the result of calculation to the index of open bracket that we used. Remove number from index after open bracket until index of close bracket. * Repeat step above until there is no bracket left.  1. Do calculation of the last string number array. |
| 4 | public string[] DoCalculation(string[] num) | Parameter: string array of input number without spaces.  Output: string array of number after do calculation.   1. First check if the string number array has “\*” or “/” operator, if has, check which operator is in front of the string number array. Then, do calculation with return of new string number of array (it has number of calculation result. 2. Then, check which operator is in front (“+” and “-” operator). If step(1) has return string number array, then use the array. Then, do calculation with return of new string number of array (it has number of calculation result. |

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| 5 | public String[] MultiplyCalculation(String[] numbers) | Parameter: string array of input number without spaces.  Output: string array of number after do multiply calculation   1. Find the number of before and after index of “\*” operator, then put the numbers into operation like “2\*3”. 2. Place the result number to the string number array and remove the other numbers except the result number. 3. Return the updated string number array. (which is only has one number(the result)) |
| 6 | public String[] DivideCalculation(String[] numbers) | Parameter: string array of input number without spaces.  Output: string array of number after do divide calculation   1. Find the number of before and after index of “/” operator, then put the numbers into operation like “2/3”. 2. Place the result number to the string number array and remove the other numbers except the result number. 3. Return the updated string number array. (which is only has one number(the result)) |
| 7 | public String[] PlusCalculation(String[] numbers) | Parameter: string array of input number without spaces.  Output: string array of number after do add calculation   1. Find the number of before and after index of “+” operator, then put the numbers into operation like “2+3”. 2. Place the result number to the string number array and remove the other numbers except the result number. 3. Return the updated string number array. (which is only has one number(the result)) |
| 8 | public String[] MinusCalculation(String[] numbers) | Parameter: string array of input number without spaces.  Output: string array of number after do subtract calculation   1. Find the number of before and after index of “-” operator, then put the numbers into operation like “2-3”. 2. Place the result number to the string number array and remove the other numbers except the result number. 3. Return the updated string number array. (which is only has one number(the result)) |