

Java program which implements a "plus" operator for integer numbers in String representation (with no size limitation)

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We have two strings which contain integers (with no size limitation) we need to calculate the summation of this two integers...

First we need to check that the two string contain only numbers or signed numbers we developed a method called **checkInput** this method take the string and loop through it character by character if the character is not number it return Boolean false...

After make sure that the two strings contain only number we developed a method called **plus** to calculate the summation of the two strings at first we remove the signs and assigned it to variables so when we need it we can use those variables then

We have three conditions for the inputs:

First condition is: the two strings integers are both positive so the result is the summation of them, we developed a method called **summation** this method check the length of each String if there is a difference between them we make them equal by adding zeros to the left side, then it loops backward through each string character by character convert character to integer and then add each integer to the other if the summation of those two integers is > 9 it subtract 10 and take a carry equal 1 and sum this carry with the next two integers...

Second condition is: the two strings integers are both negative so the result is the summation of them but with negative sign so we use summation method to calculate the summation and return the result with negative sign...

The third condition is: the two strings integers have different sign one is positive and the other is negative so the result is the difference between them. We can use two's complement to represent the negative number and then take the summation but it's not allowed to use it here; so We developed a method called **subtraction** to calculate the difference between them, this method loops backward through each string character by character convert character to integer and then subtract them if the subtraction of those two integers is negative in other words is < 0 it add 10 and take borrow 1 this borrow will be subtracted from the next two integers... when we use subtraction method we have two conditions:

First: the two string contain the same number but with different sign so the answer is 0.

Second: the two string contain numbers one of them bigger than the other we need to know which string contains the biggest number to return its sign so we have four calculations

First: if first string is the bigger number with negative sign, then subtract the second string from the first one and return the result with negative sign.....

Second: if first string is the smaller number with negative sign, then subtract the first string from the second one and return the result with positive sign.....

Third: if second string is the bigger number with negative sign, then subtract the first string from the second one and return the result with negative sign.....

Forth: if second string is the smaller number with negative sign, then subtract the second string from the first one and return the result with positive sign.....