NOTE : DO NOT USE BIG INTEGER LIBRARIES (WHICH ARE AVAILABLE IN JAVA / PYTHON).

string

asked **Oct 3, 2015** by **Swanky**

flag **Answer** comment

3 Answers

+5 votes

It would be easier if we reversed the number for multiplication to calculate the reverse of the answer and then reverse it back to get the actual answer. It is mostly simulation of the multiplication process where we take one number digit by digit and keep multiplying the digit with the other number and maintaining the sum in another array.

```
#include<bits/stdc++.h>
using namespace std;

string solve(string num1, string num2) {

            int n1 = num1.size();
            int n2 = num2.size();
            if (n1 == 0 || n2 == 0)     return "0";

            // will keep the result number in vector in reverse order
            vector<int> result(n1 + n2, 0);

            int i_n1 = 0; // index by num1
            int i_n2 = 0; // index by num2

            // go from right to left by num1
            for (int i = n1 - 1; i >= 0; i--){
                int carrier = 0;
                int n1 = num1[i] - '0';
                i_n2 = 0;

                // go from right to left by num2
                for (int j = n2 - 1; j >= 0; j--){
                    int n2 = num2[j] - '0';

                    int sum = n1 * n2 + result[i_n1 + i_n2] + carrier;
                    carrier = sum / 10;
                    result[i_n1 + i_n2] = sum % 10;

                    i_n2++;
                }

                // store carrier in next cell
                if (carrier > 0)
                    result[i_n1 + i_n2] += carrier;

                i_n1++;
            }

            // ignore '0's from the right
            int i = result.size() - 1;
            while (i>=0 && result[i] == 0) i--;

            // if all were '0's - means either both or one of num1 or num2 were '0'
            if(i == -1) return "0";

            // generate the result string
            string s = "";
            while (i >= 0) s += std::to_string(result[i--]);

            return s;
}

int main() {

    string a, b;
```