Lab#06
Object oriented programming.
22/11/2022

Practice Task

```
#include <iostream>
#include <string>
using namespace std;

int main()
{
    string s1("happy");
    string s2(" birthday");
    string s3;

    // test overloaded equality and relational operators
    cout << "s1 is \"" << s1 << "\"; s2 is \"" << s2
        << "\"; s3 is \"" << s3 << '\"'
        << "\n\nThe results of comparing s2 and s1:"
        << "\ns2 == s1 yields " << (s2 == s1 ? "true" : "false")
        << "\ns2 != s1 yields " << (s2 != s1 ? "true" : "false")
        << "\ns2 >  s1 yields " << (s2 > s1 ? "true" : "false")
        << "\ns2 <  s1 yields " << (s2 < s1 ? "true" : "false")
        << "\ns2 >= s1 yields " << (s2 >= s1 ? "true" : "false")
        << "\ns2 <= s1 yields " << (s2 <= s1 ? "true" : "false");

    // test string member function empty
    cout << "\n\nTesting s3.empty():" << endl;

    if (s3.empty())
    {
        cout << "s3 is empty; assigning s1 to s3;" << endl;
        s3 = s1; // assign s1 to s3
        cout << "s3 is \"" << s3 << "\"";
    } // end if

    // test overloaded string concatenation operator
    cout << "\n\ns1 += s2 yields s1 = ";
    s1 += s2; // test overloaded concatenation
    cout << s1;

    // test overloaded string concatenation operator with a char *
string
    cout << "\n\ns1 += \" to you\" yields" << endl;
    s1 += " to you";
    cout << "s1 = " << s1 << "\n\n";

    // test string member function substr
    cout << "The substring of s1 starting at location 0 for\n"
        << "14 characters, s1.substr(0, 14), is:\n"
        << s1.substr(0, 14) << "\n\n";

    // test substr "to-end-of-string" option
```

```
    cout << "The substring of s1 starting at\n"
        << "location 15, s1.substr(15), is:\n"
        << s1.substr(15) << endl;

    // test copy constructor
    string s4(s1);
    cout << "\ns4 = " << s4 << "\n\n";

    // test overloaded assignment (=) operator with self-assignment
    cout << "assigning s4 to s4" << endl;
    s4 = s4;
    cout << "s4 = " << s4 << endl;

    // test using overloaded subscript operator to create lvalue
    s1[0] = 'H';
    s1[6] = 'B';
    cout << "\ns1 after s1[0] = 'H' and s1[6] = 'B' is: "
        << s1 << "\n\n";

    // test subscript out of range with string member function "at"
    //try
    //{
       //cout << "Attempt to assign 'd' to s1.at( 30 ) yields:" <<
endl;
      // s1.at( 30 ) = 'd'; // ERROR: subscript out of range
    //} // end try
    //catch ( out_of_range &ex )
    //{
      // cout << "An exception occurred: " << ex.what() << endl;
    //} // end catch
} // end main
//
**************************************************************************
*****/
```

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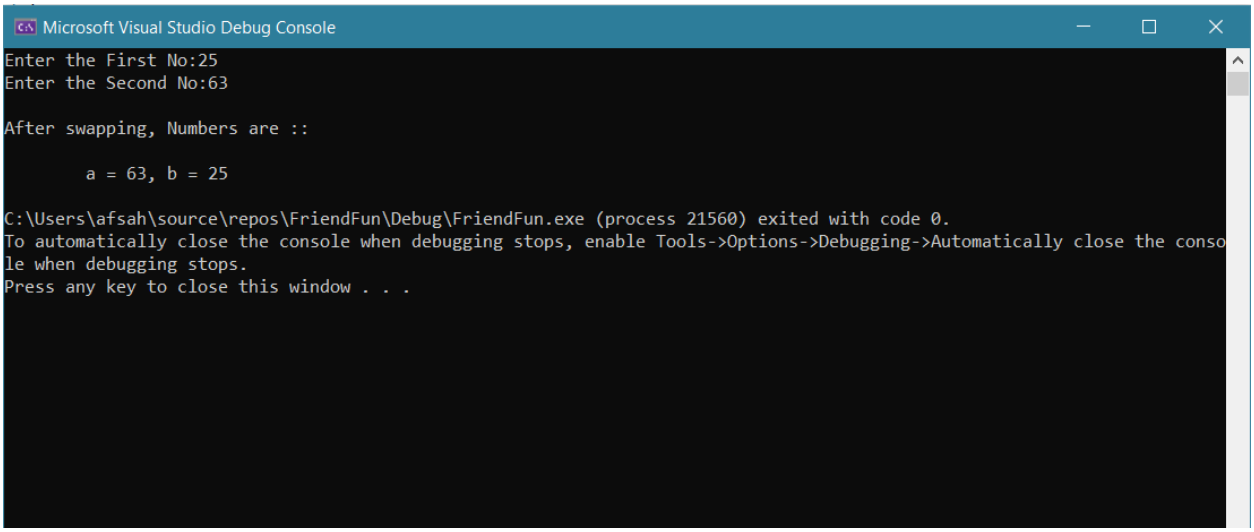
Task#01

Write a C++ class that has 2 private variables that are used to store inputs from the user. Define a function outside of class that accesses these 2 private variables and swap them without using a third variable.



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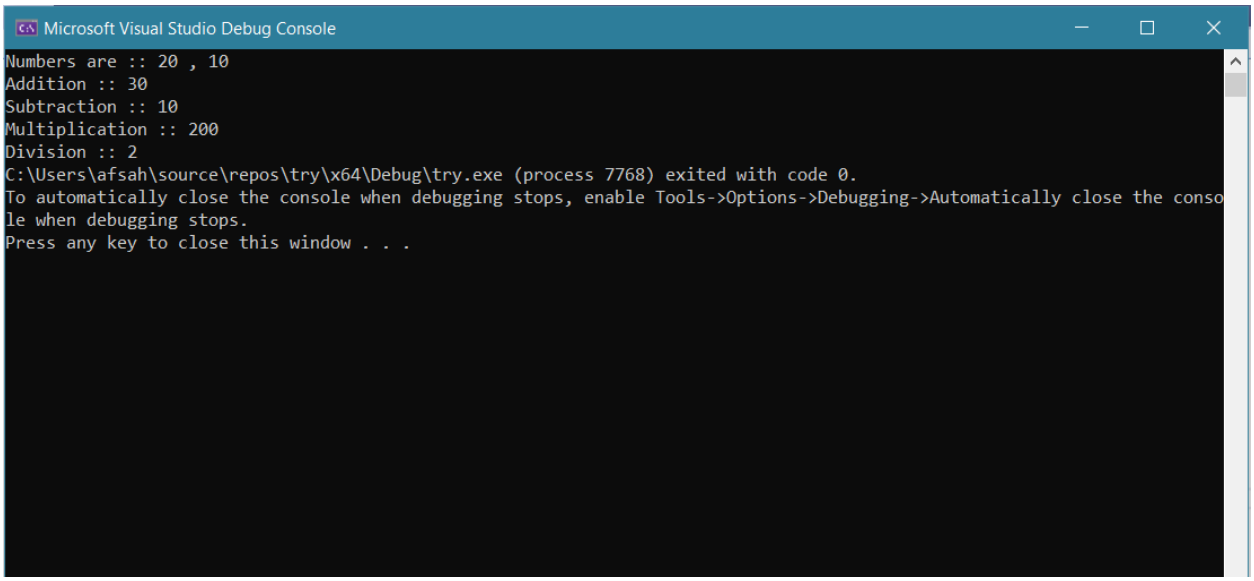
Task#02

Write a C++ program that performs addition, subtraction, multiplication and division on two objects using operator overloading.

a. Perform calculations on 2 different object inputs.
b. Define constructors for variable initializations.
c. Return object to overloaded functions.



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Task#03

Write a C++ program that takes size in feet and inches. Perform decrement of 1 in inputs and display result. Do it using unary operator overloading.