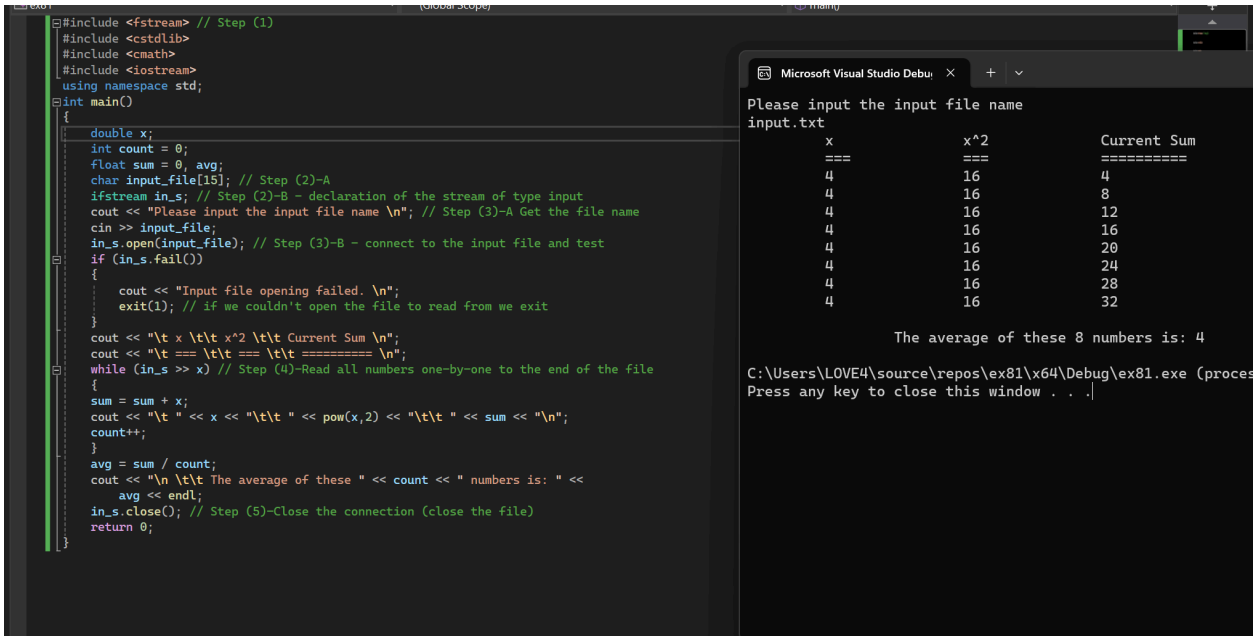
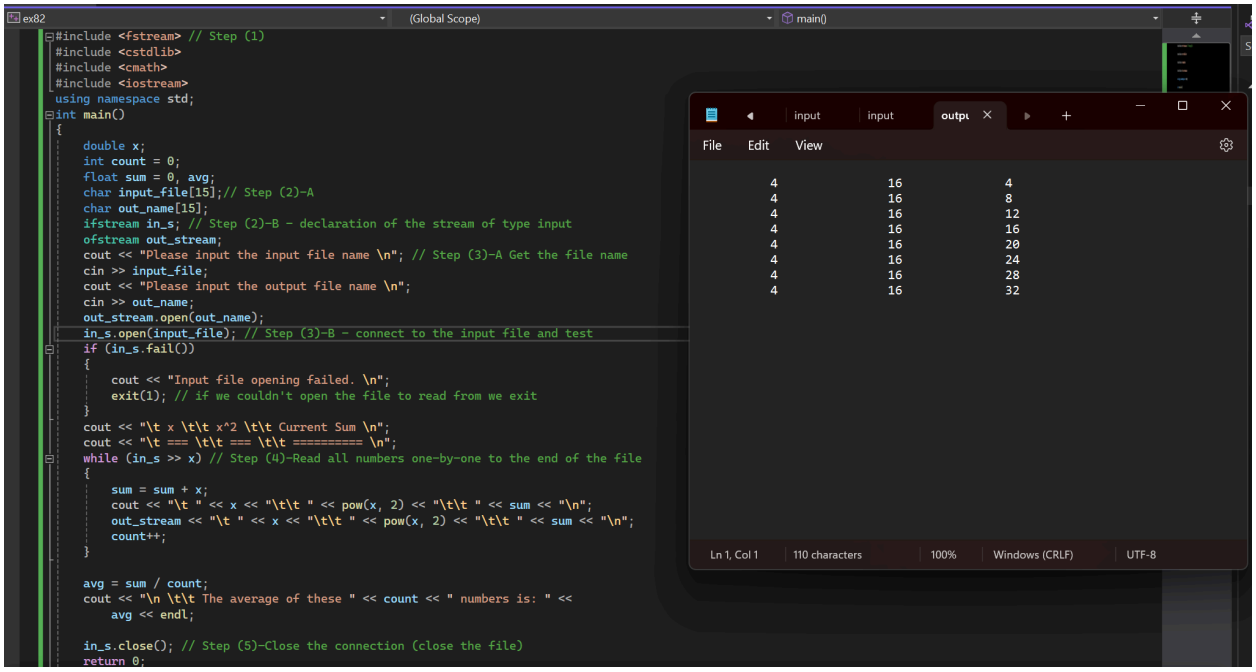


```
#include <fstream> // Step (1)
#include <cstdlib>
#include <cmath>
#include <iostream>
using namespace std;
int main()
{
    double x;
    int count = 0;
    float sum = 0, avg;
    char input_file[15]; // Step (2)-A
    ifstream in_s; // Step (2)-B - declaration of the stream of type input
    cout << "Please input the input file name \n"; // Step (3)-A Get the file name
    cin >> input_file;
    in_s.open(input_file); // Step (3)-B - connect to the input file and test
    if (in_s.fail())
    {
        cout << "Input file opening failed. \n";
        exit(1); // if we couldn't open the file to read from we exit
    }
    cout << "\t x \t\t x^2 \t\t Current Sum \n";
    cout << "\t === \t\t === \t\t ========== \n";
    while (in_s >> x) // Step (4)-Read all numbers one-by-one to the end of the file
    {
    sum = sum + x;
    cout << "\t " << x << "\t\t " << pow(x,2) << "\t\t " << sum << "\n";
    count++;
    }
    avg = sum / count;
    cout << "\n \t\t The average of these " << count << " numbers is: " <<
        avg << endl;
    in_s.close(); // Step (5)-Close the connection (close the file)
    return 0;
}
```

```
Microsoft Visual Studio Debu
Please input the input file name
input.txt
        x               x^2             Current Sum
        ===             ===             ==========
        4               16              4
        4               16              8
        4               16              12
        4               16              16
        4               16              20
        4               16              24
        4               16              28
        4               16              32

                The average of these 8 numbers is: 4

C:\Users\LOVE4\source\repos\ex81\x64\Debug\ex81.exe (proces
Press any key to close this window . . .
```

Example 8.1

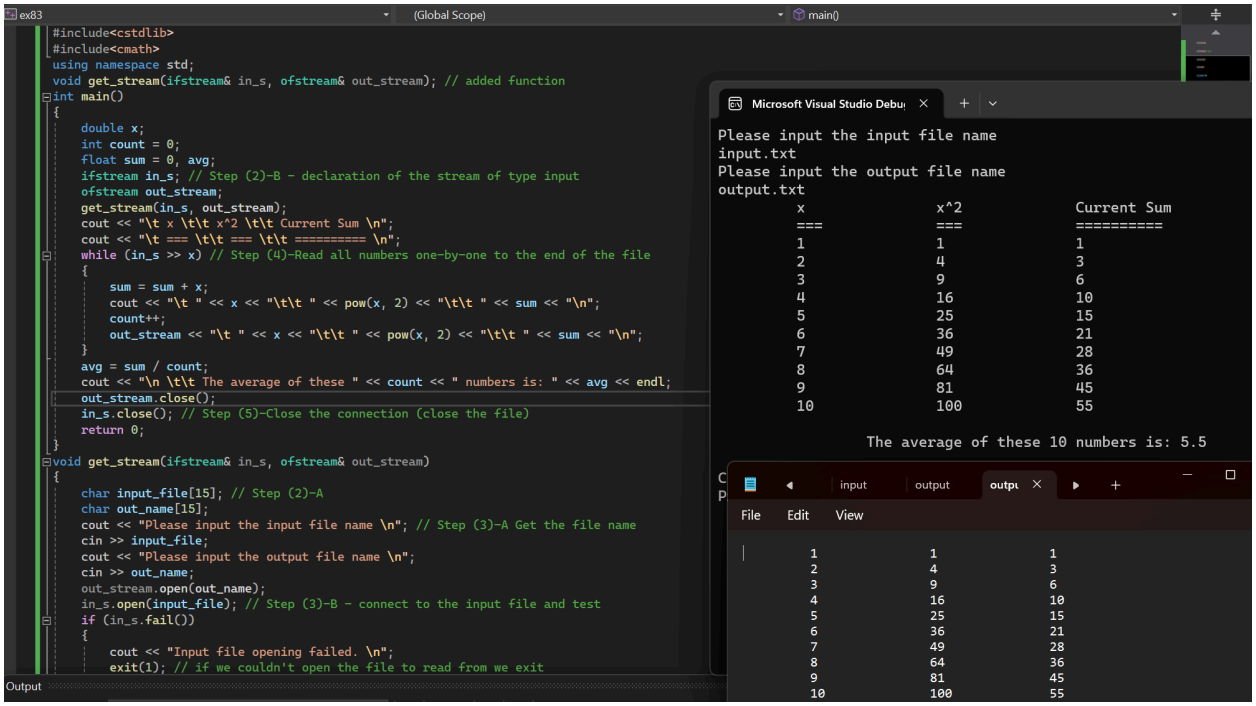


```
#include <fstream> // Step (1)
#include <cstdlib>
#include <cmath>
#include <iostream>
using namespace std;
int main()
{
    double x;
    int count = 0;
    float sum = 0, avg;
    char input_file[15];// Step (2)-A
    char out_name[15];
    ifstream in_s; // Step (2)-B - declaration of the stream of type input
    ofstream out_stream;
    cout << "Please input the input file name \n"; // Step (3)-A Get the file name
    cin >> input_file;
    cout << "Please input the output file name \n";
    cin >> out_name;
    out_stream.open(out_name);
    in_s.open(input_file); // Step (3)-B - connect to the input file and test
    if (in_s.fail())
    {
        cout << "Input file opening failed. \n";
        exit(1); // if we couldn't open the file to read from we exit
    }
    cout << "\t x \t\t x^2 \t\t Current Sum \n";
    cout << "\t === \t\t === \t\t ========== \n";
    while (in_s >> x) // Step (4)-Read all numbers one-by-one to the end of the file
    {
        sum = sum + x;
        cout << "\t " << x << "\t\t " << pow(x, 2) << "\t\t " << sum << "\n";
        out_stream << "\t " << x << "\t\t " << pow(x, 2) << "\t\t " << sum << "\n";
        count++;
    }

    avg = sum / count;
    cout << "\n \t\t The average of these " << count << " numbers is: " <<
        avg << endl;

    in_s.close(); // Step (5)-Close the connection (close the file)
    return 0;
```

```
input   input   outpu
File    Edit    View
        4       16      4
        4       16      8
        4       16      12
        4       16      16
        4       16      20
        4       16      24
        4       16      28
        4       16      32

Ln 1, Col 1   110 characters   100%   Windows (CRLF)   UTF-8
```

Example 8.2

Example 8.3


ex83
(Global Scope)
main()
#include<cstdlib>
#include<cmath>
using namespace std;
void get_stream(ifstream& in_s, ofstream& out_stream); // added function
int main()
{
double x;
int count = 0;
float sum = 0, avg;
ifstream in_s; // Step (2)-B - declaration of the stream of type input
ofstream out_stream;
get_stream(in_s, out_stream);
cout << "\t x \t\t x^2 \t\t Current Sum \n";
cout << "\t === \t\t === \t\t ========== \n";
while (in_s >> x) // Step (4)-Read all numbers one-by-one to the end of the file
{
sum = sum + x;
cout << "\t " << x << "\t\t " << pow(x, 2) << "\t\t " << sum << "\n";
count++;
out_stream << "\t " << x << "\t\t " << pow(x, 2) << "\t\t " << sum << "\n";
}
avg = sum / count;
cout << "\n \t\t The average of these " << count << " numbers is: " << avg << endl;
out_stream.close();
in_s.close(); // Step (5)-Close the connection (close the file)
return 0;
}
void get_stream(ifstream& in_s, ofstream& out_stream)
{
char input_file[15]; // Step (2)-A
char out_name[15];
cout << "Please input the input file name \n"; // Step (3)-A Get the file name
cin >> input_file;
cout << "Please input the output file name \n";
cin >> out_name;
out_stream.open(out_name);
in_s.open(input_file); // Step (3)-B - connect to the input file and test
if (in_s.fail())
{
cout << "Input file opening failed. \n";
exit(1); // if we couldn't open the file to read from we exit
Output
Microsoft Visual Studio Debu
Please input the input file name
input.txt
Please input the output file name
output.txt
x x^2 Current Sum
=== === ==========
1 1 1
2 4 3
3 9 6
4 16 10
5 25 15
6 36 21
7 49 28
8 64 36
9 81 45
10 100 55
The average of these 10 numbers is: 5.5
input
output
outpu
File Edit View
1 1 1
2 4 3
3 9 6
4 16 10
5 25 15
6 36 21
7 49 28
8 64 36
9 81 45
10 100 55