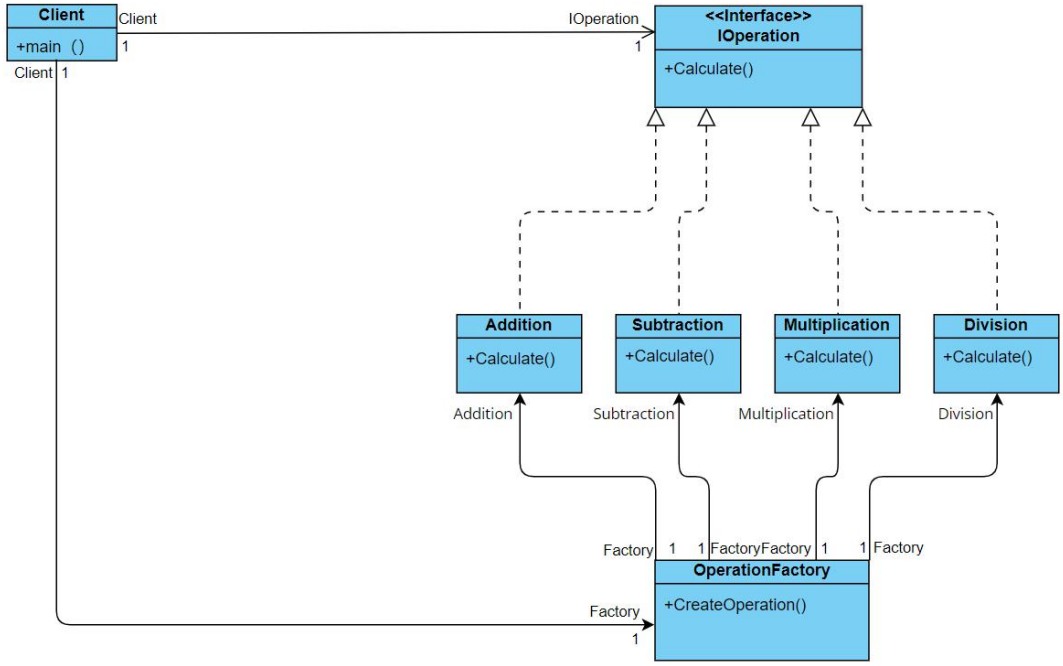
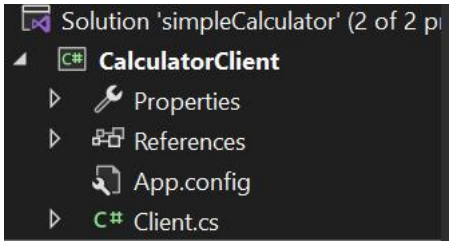
作业 1————计算机

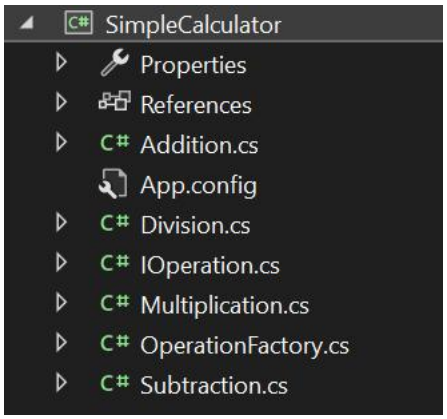
（1）采用静态工程模式设计实现简易计算器，实现加减乘除运算

①类图



②代码结构

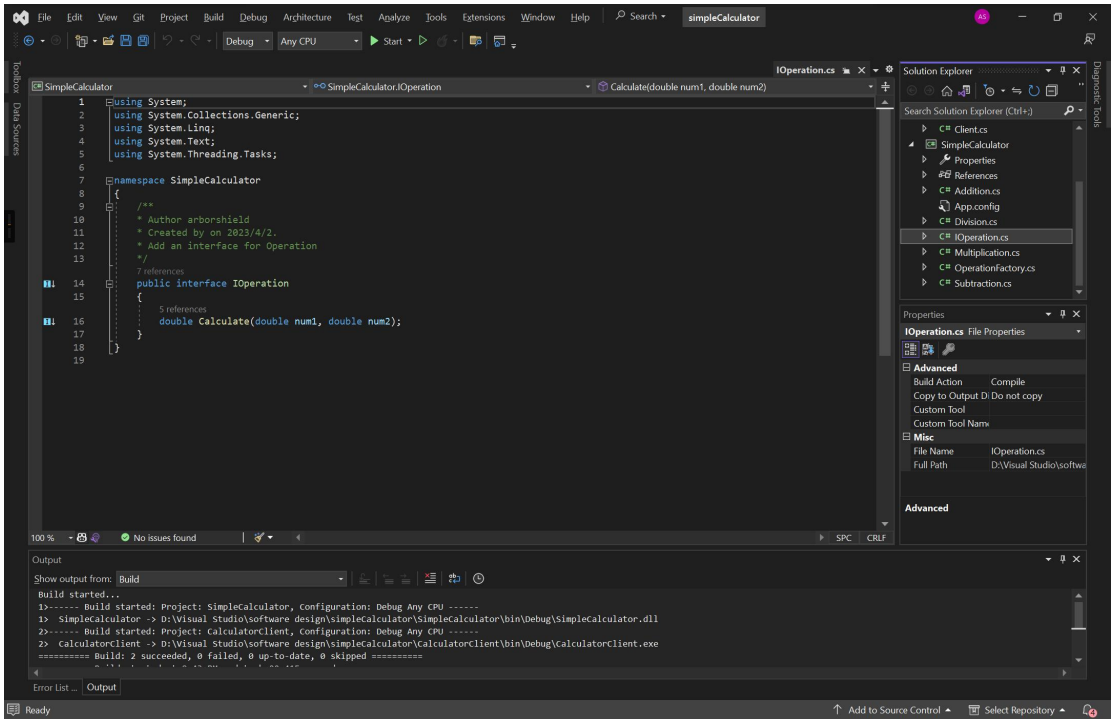




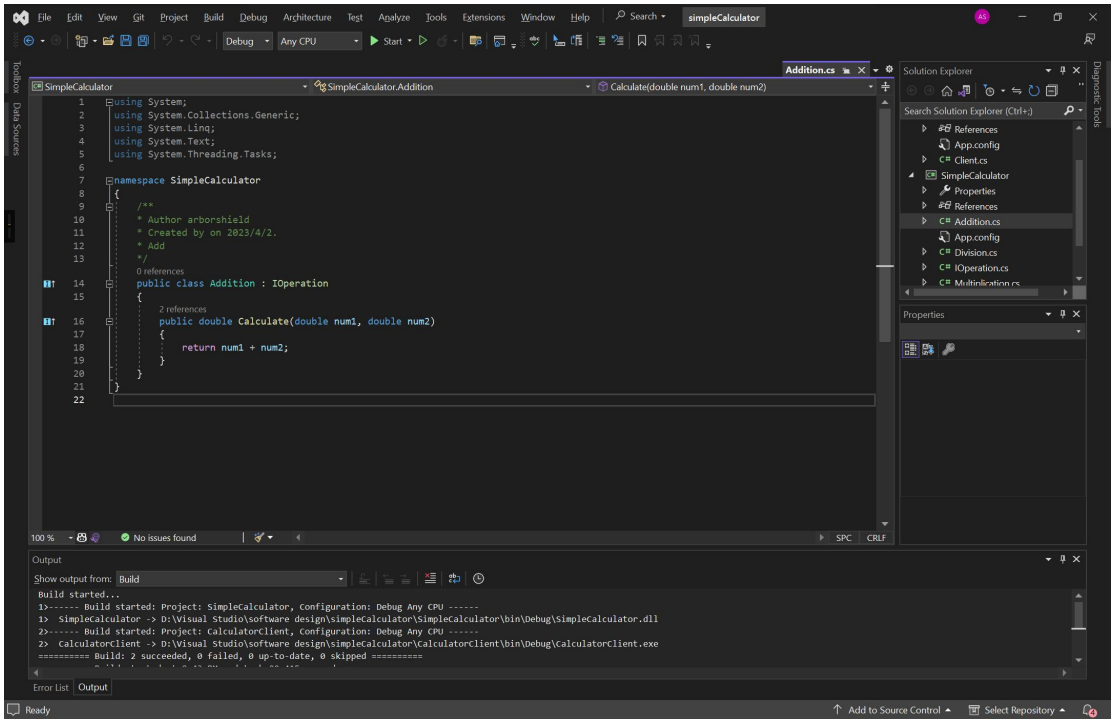
③核心类代码

Project SimpleCalculator

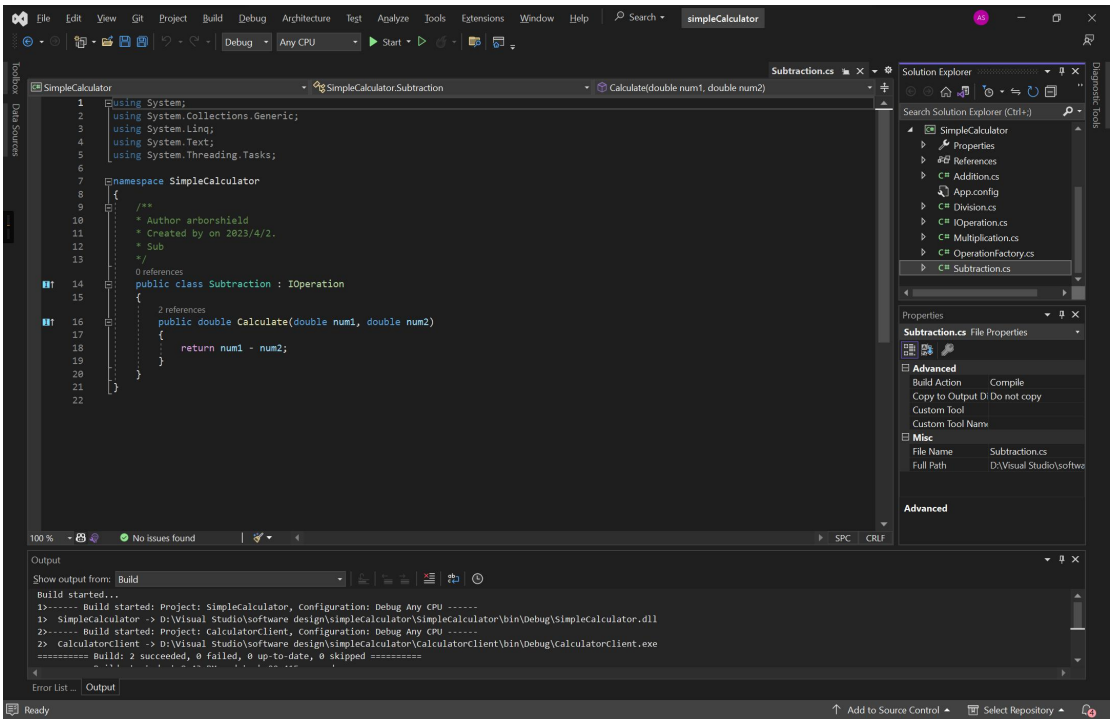
Interface IOperation



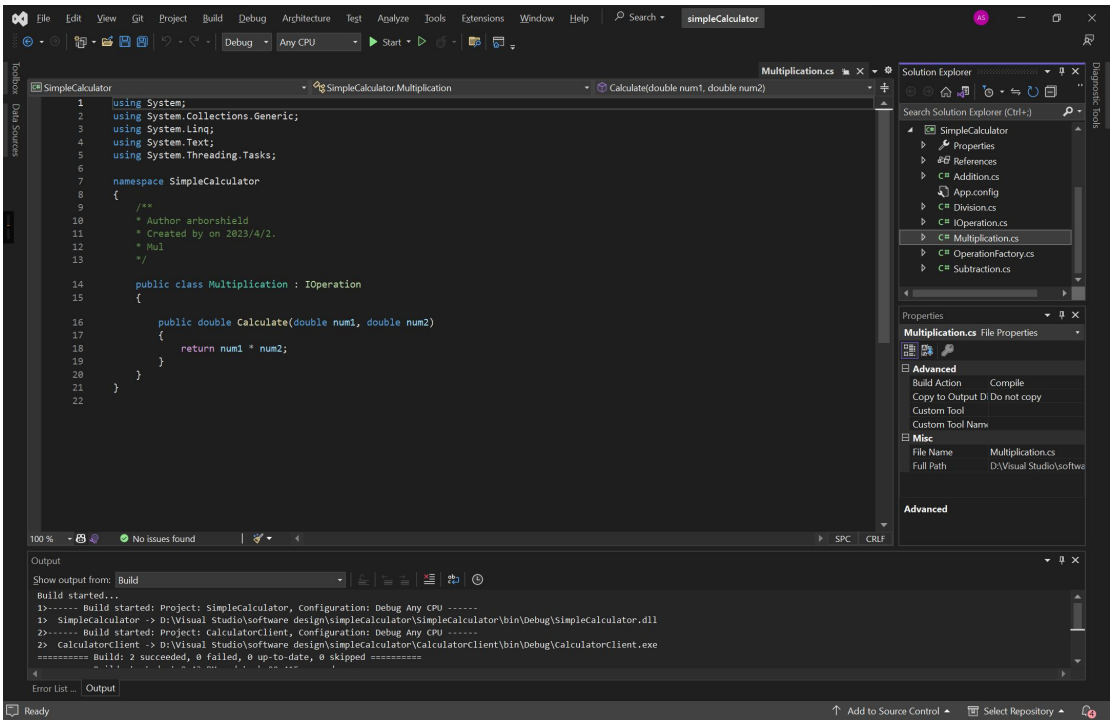
Class Addition



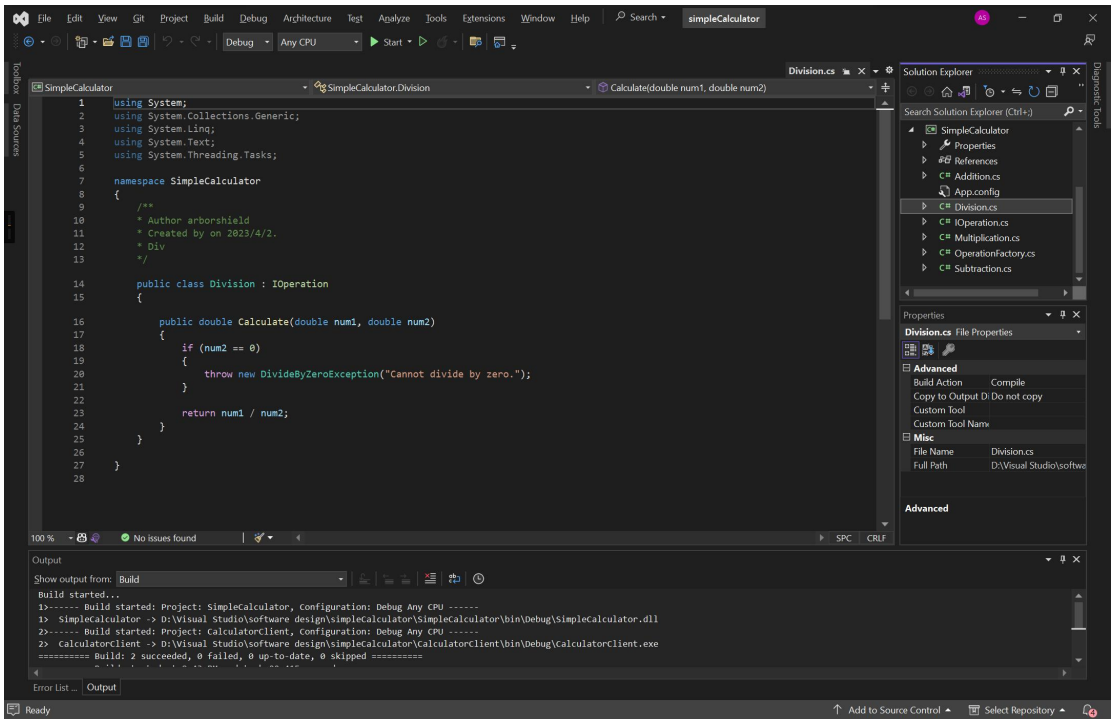
Class Subtraction



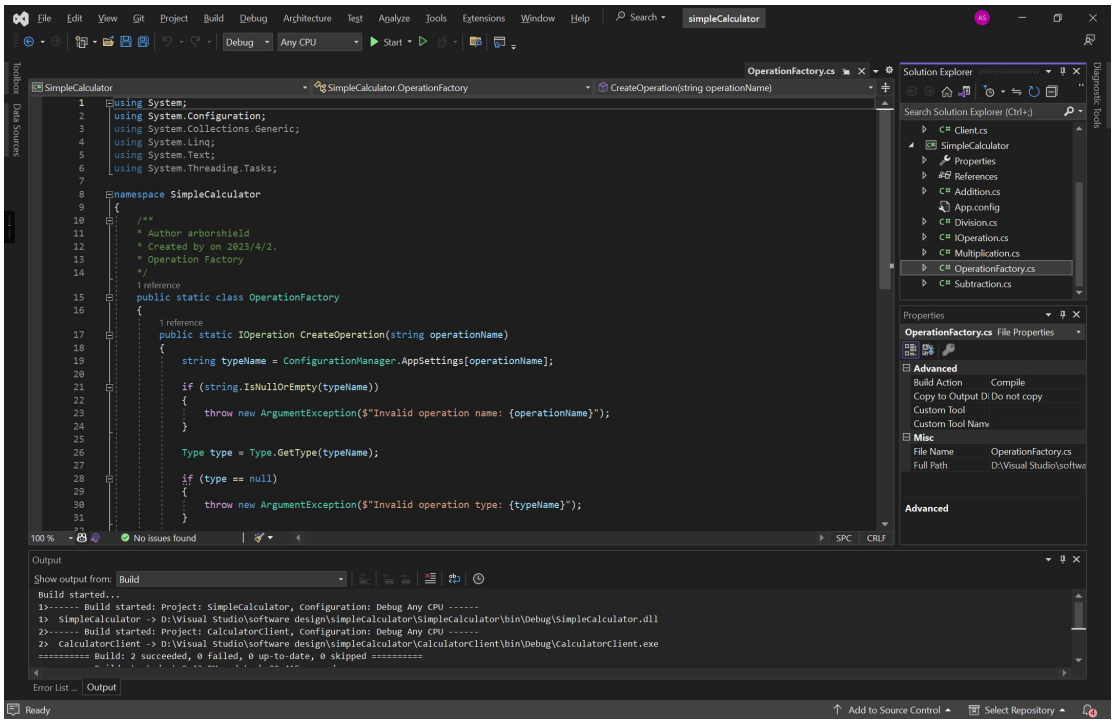
Class Multiplication

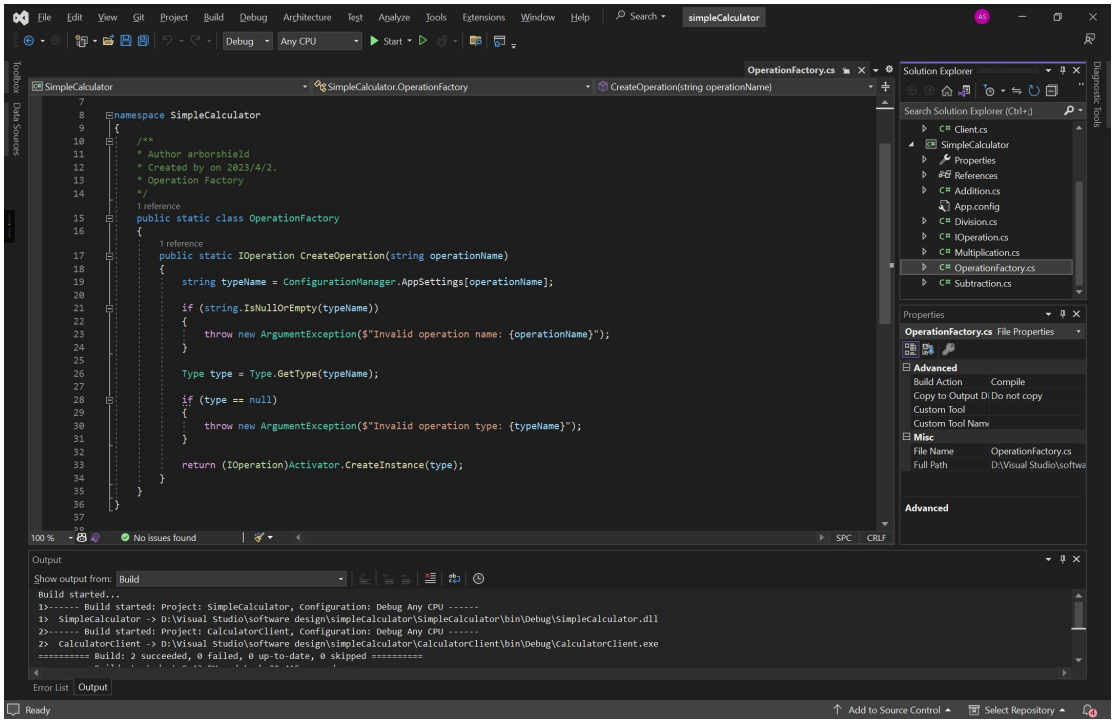


Class Division

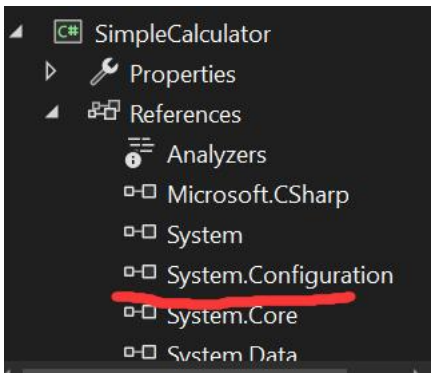


Class OperationFactory


simpleCalculator
OperationFactory.cs
SimpleCalculator
SimpleCalculator.OperationFactory
CreateOperation(string operationName)
Solution Explorer
Client.cs
SimpleCalculator
Properties
References
Addition.cs
App.config
Division.cs
IOperation.cs
Multiplication.cs
OperationFactory.cs
Subtraction.cs
Properties
OperationFactory.cs File Properties
Advanced
Build Action Compile
Copy to Output D Do not copy
Custom Tool
Custom Tool Nam
Misc
File Name OperationFactory.cs
Full Path D:\Visual Studio\softwa
Advanced
No issues found
Output
Show output from: Build
Build started...
1>------ Build started: Project: SimpleCalculator, Configuration: Debug Any CPU ------
1> SimpleCalculator -> D:\Visual Studio\software design\simpleCalculator\SimpleCalculator\bin\Debug\SimpleCalculator.dll
2>------ Build started: Project: CalculatorClient, Configuration: Debug Any CPU ------
2> CalculatorClient -> D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
========== Build: 2 succeeded, 0 failed, 0 up-to-date, 0 skipped ==========
Error List ... Output
Ready
Add to Source Control
Select Repository

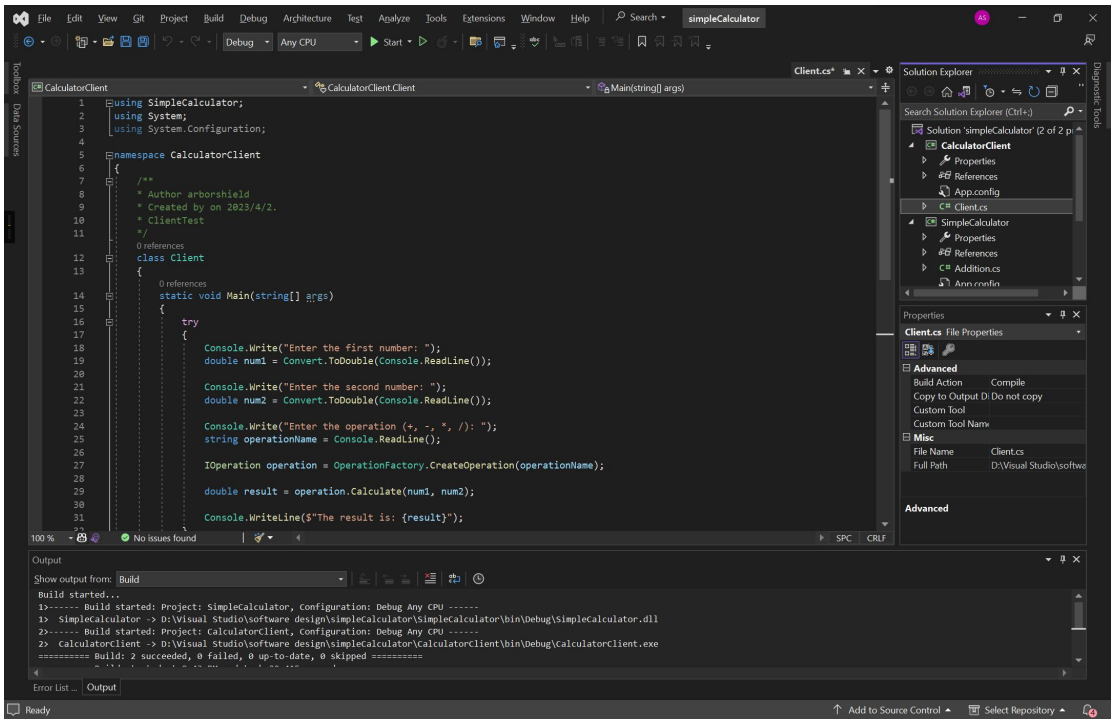

simpleCalculator
OperationFactory.cs
SimpleCalculator
SimpleCalculator.OperationFactory
CreateOperation(string operationName)
Solution Explorer
Client.cs
SimpleCalculator
Properties
References
Addition.cs
App.config
Division.cs
IOperation.cs
Multiplication.cs
OperationFactory.cs
Subtraction.cs
Properties
OperationFactory.cs File Properties
Advanced
Build Action Compile
Copy to Output D Do not copy
Custom Tool
Custom Tool Nam
Misc
File Name OperationFactory.cs
Full Path D:\Visual Studio\softwa
Advanced
No issues found
Output
Show output from: Build
Build started...
1>------ Build started: Project: SimpleCalculator, Configuration: Debug Any CPU ------
1> SimpleCalculator -> D:\Visual Studio\software design\simpleCalculator\SimpleCalculator\bin\Debug\SimpleCalculator.dll
2>------ Build started: Project: CalculatorClient, Configuration: Debug Any CPU ------
2> CalculatorClient -> D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
========== Build: 2 succeeded, 0 failed, 0 up-to-date, 0 skipped ==========
Error List Output
Ready
Add to Source Control
Select Repository

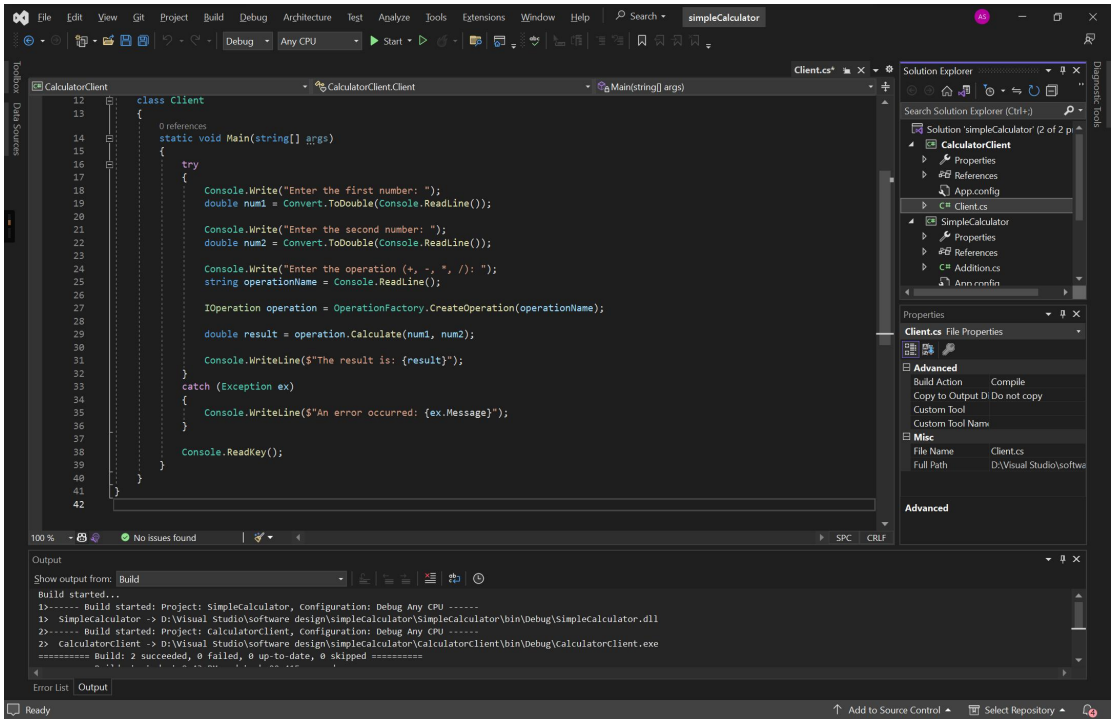
④客户端代码



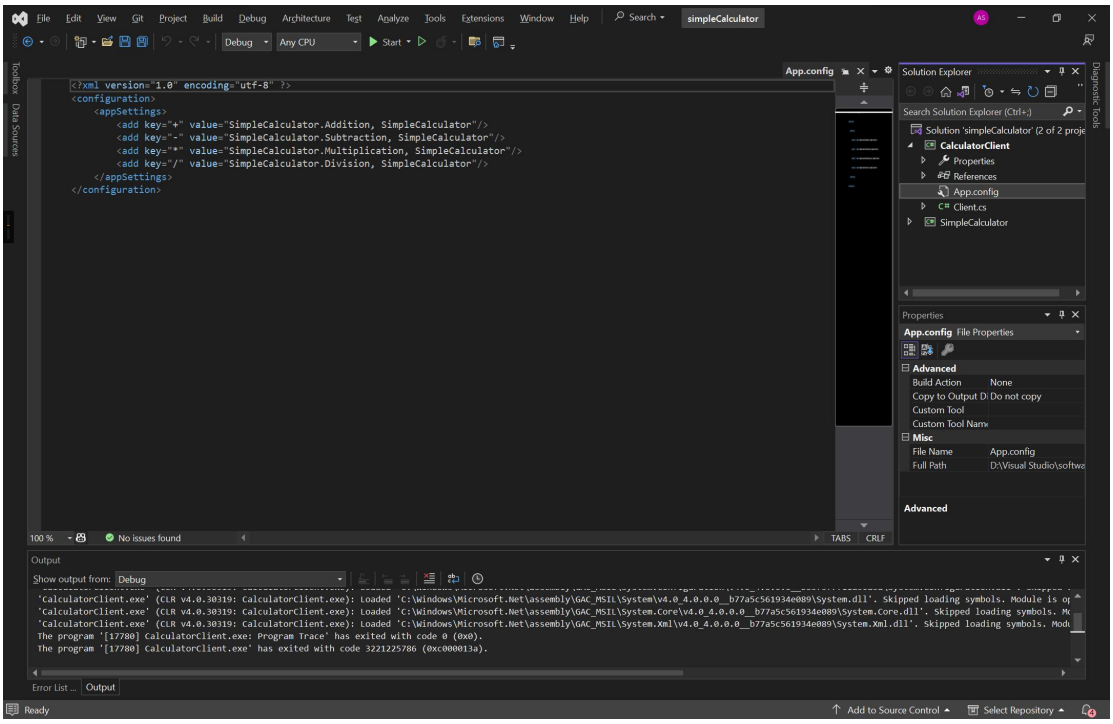
Project CalculatorClient

Class Client


using SimpleCalculator;
using System;
using System.Configuration;
namespace CalculatorClient
{
/**
* Author arborshield
* Created by on 2023/4/2.
* ClientTest
*/
0 references
class Client
{
0 references
static void Main(string[] args)
{
try
{
Console.Write("Enter the first number: ");
double num1 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the second number: ");
double num2 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the operation (+, -, *, /): ");
string operationName = Console.ReadLine();
IOperation operation = OperationFactory.CreateOperation(operationName);
double result = operation.Calculate(num1, num2);
Console.WriteLine($"The result is: {result}");
Build started...
1>------ Build started: Project: SimpleCalculator, Configuration: Debug Any CPU ------
1> SimpleCalculator -> D:\Visual Studio\software design\simpleCalculator\SimpleCalculator\bin\Debug\SimpleCalculator.dll
2>------ Build started: Project: CalculatorClient, Configuration: Debug Any CPU ------
2> CalculatorClient -> D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
========== Build: 2 succeeded, 0 failed, 0 up-to-date, 0 skipped ==========

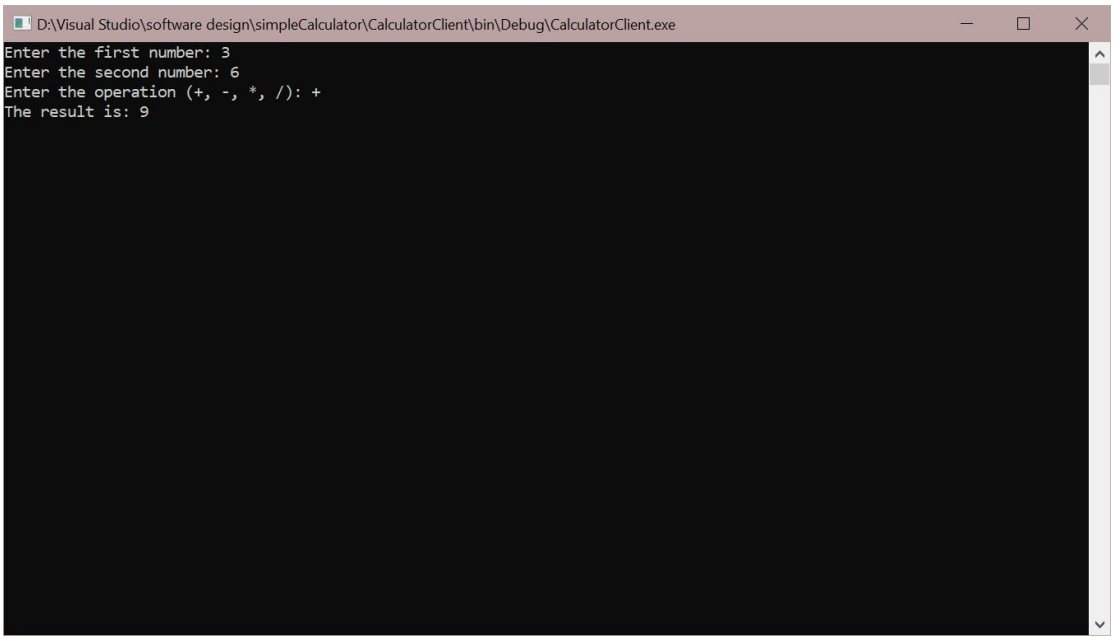

class Client
{
0 references
static void Main(string[] args)
{
try
{
Console.Write("Enter the first number: ");
double num1 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the second number: ");
double num2 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the operation (+, -, *, /): ");
string operationName = Console.ReadLine();
IOperation operation = OperationFactory.CreateOperation(operationName);
double result = operation.Calculate(num1, num2);
Console.WriteLine($"The result is: {result}");
}
catch (Exception ex)
{
Console.WriteLine($"An error occurred: {ex.Message}");
}
Console.ReadKey();
}
}
}
Build started...
1>------ Build started: Project: SimpleCalculator, Configuration: Debug Any CPU ------
1> SimpleCalculator -> D:\Visual Studio\software design\simpleCalculator\SimpleCalculator\bin\Debug\SimpleCalculator.dll
2>------ Build started: Project: CalculatorClient, Configuration: Debug Any CPU ------
2> CalculatorClient -> D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
========== Build: 2 succeeded, 0 failed, 0 up-to-date, 0 skipped ==========

⑤配置文件

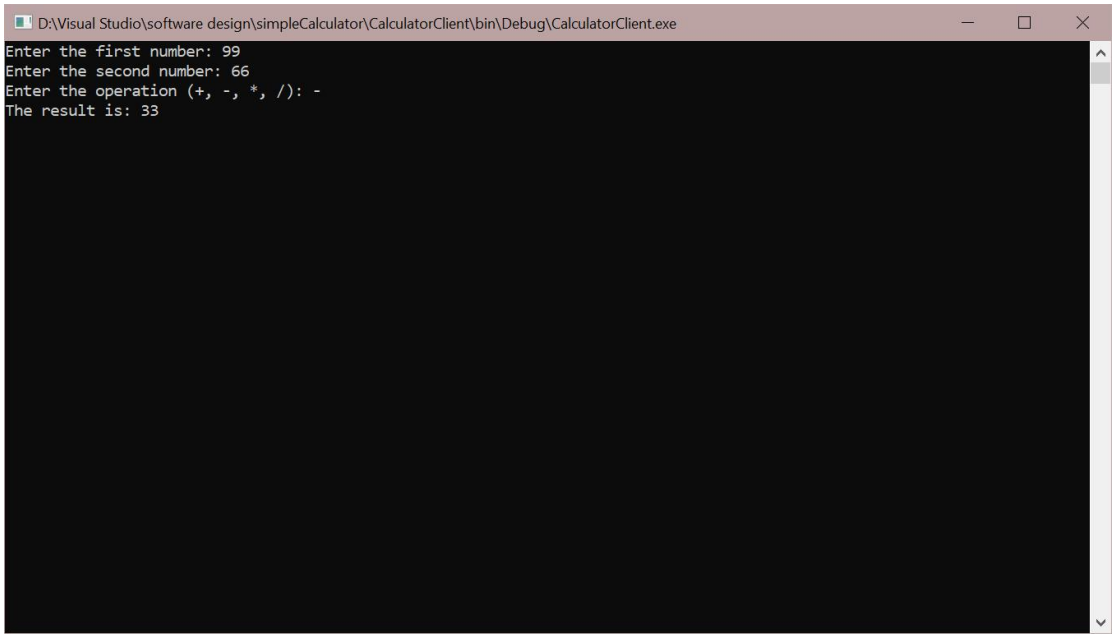


⑥客户端测试

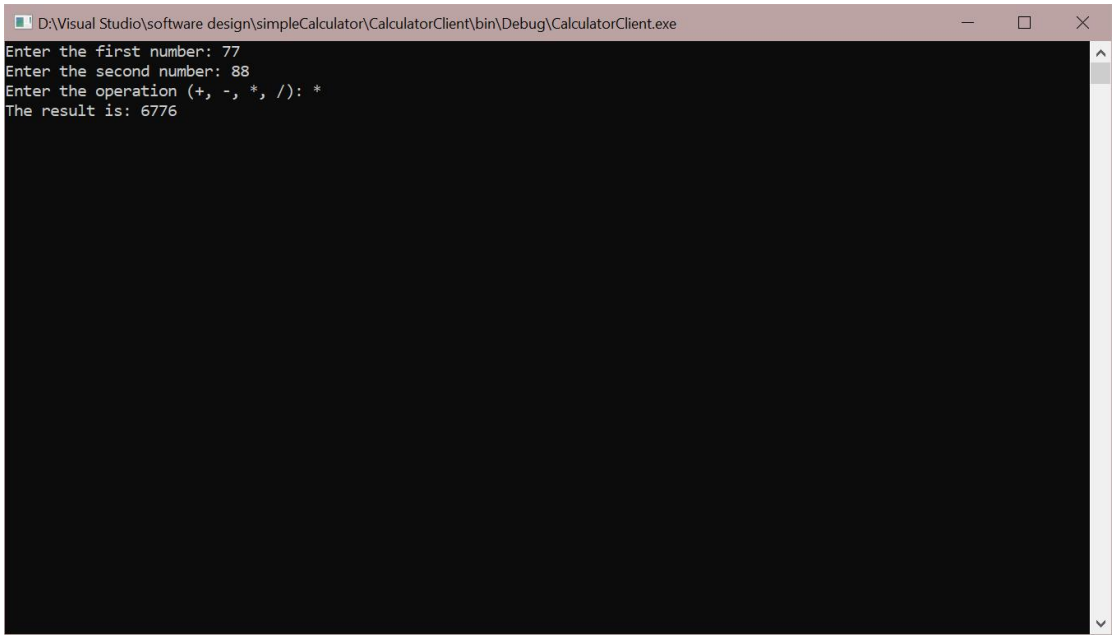
Add



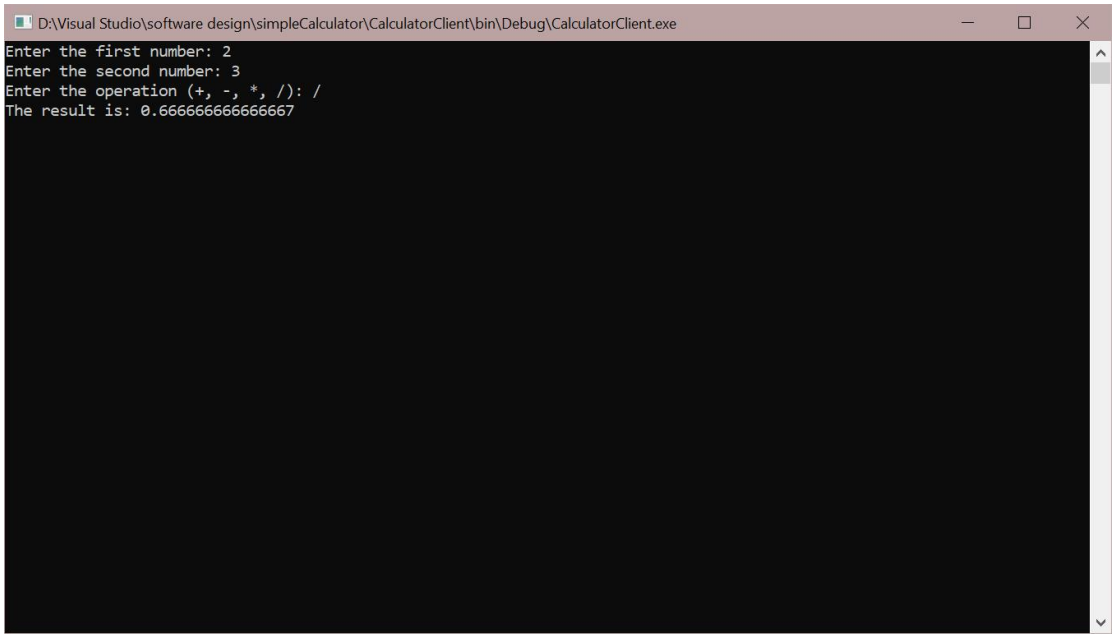
Sub


D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
Enter the first number: 99
Enter the second number: 66
Enter the operation (+, -, *, /): -
The result is: 33

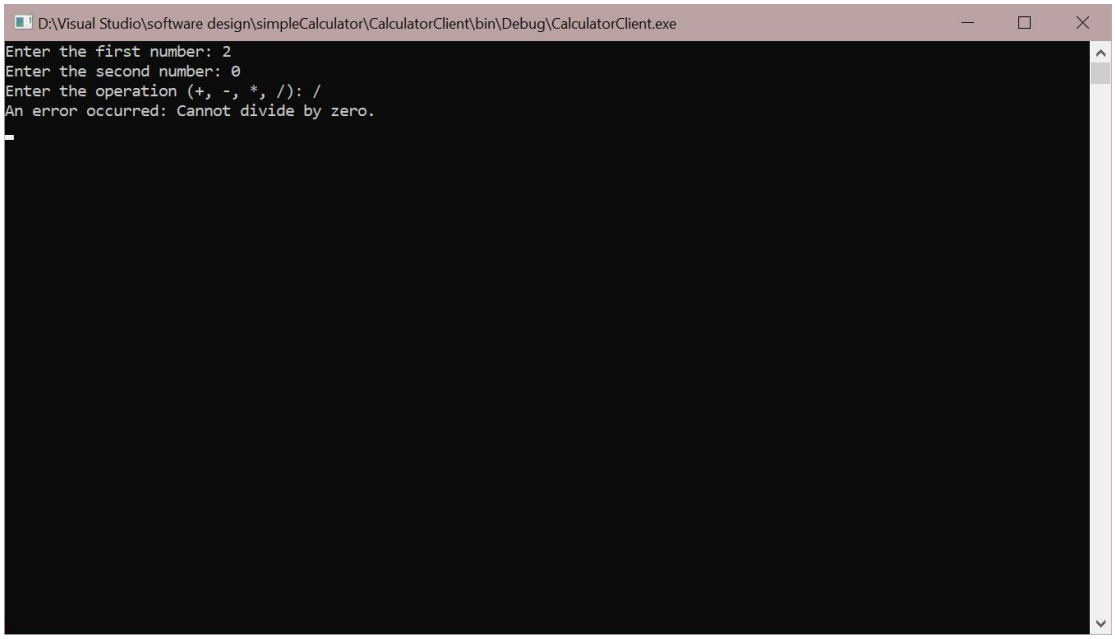
Mul


D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
Enter the first number: 77
Enter the second number: 88
Enter the operation (+, -, *, /): *
The result is: 6776

Div

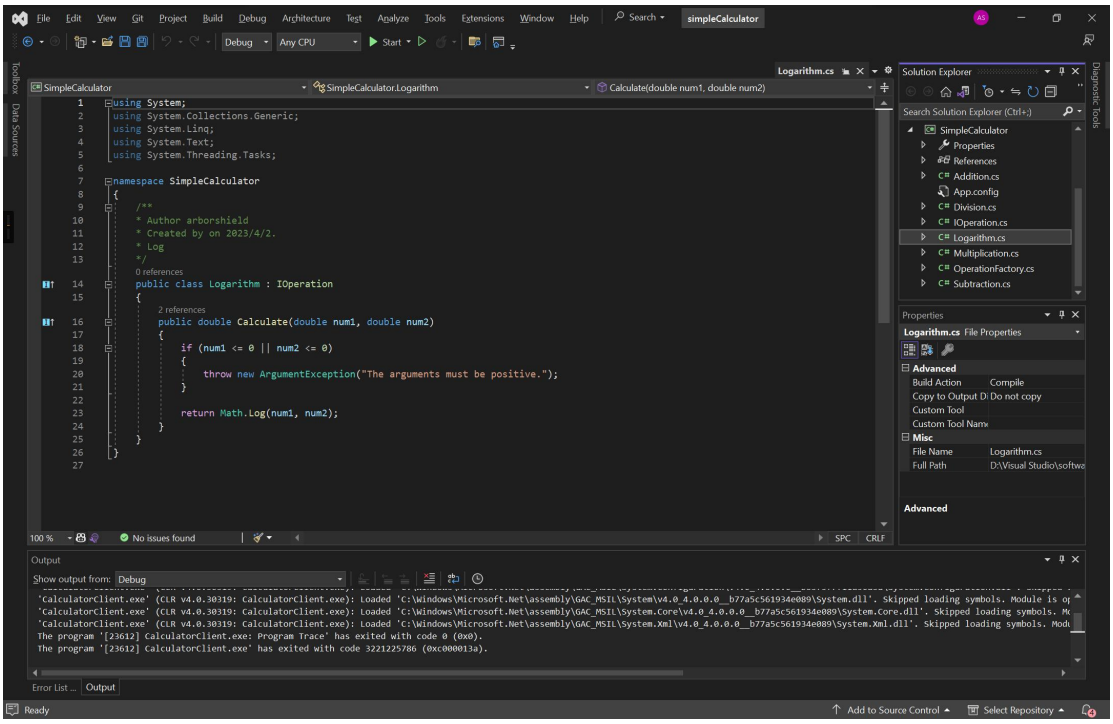


除数为 0

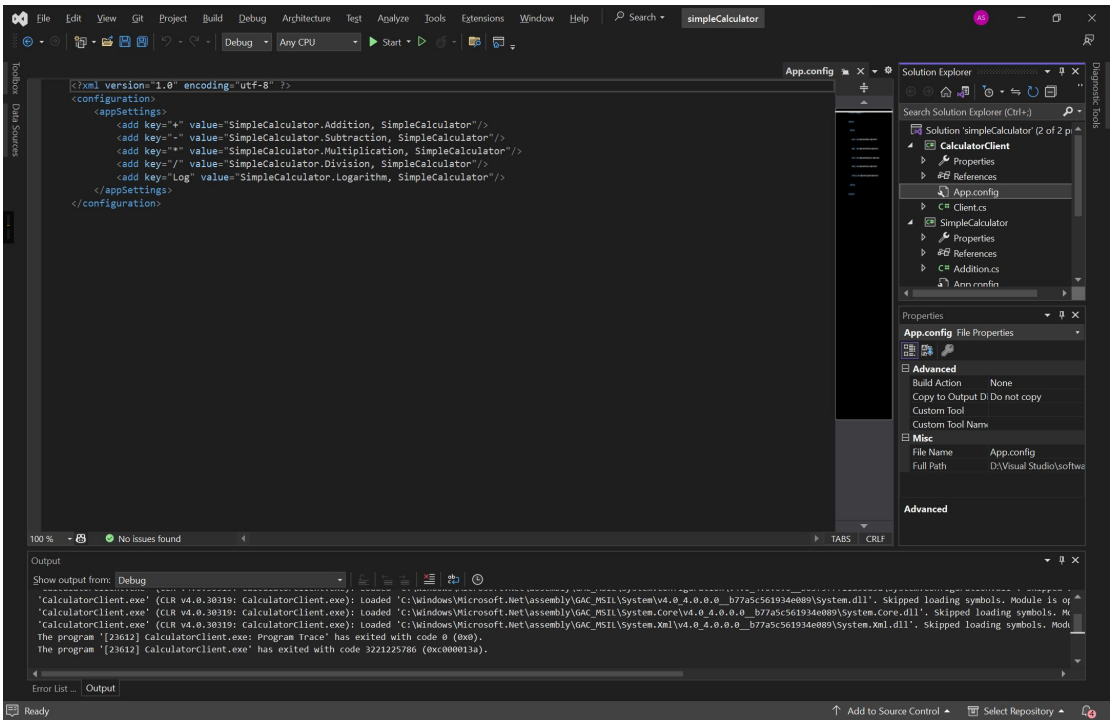


（2）为计算机添加对数运算，代码会发生什么变化？

其一：创建一个新的操作类“Logarithm”，实现 IOperation 接口，并且计算两个数的对数。

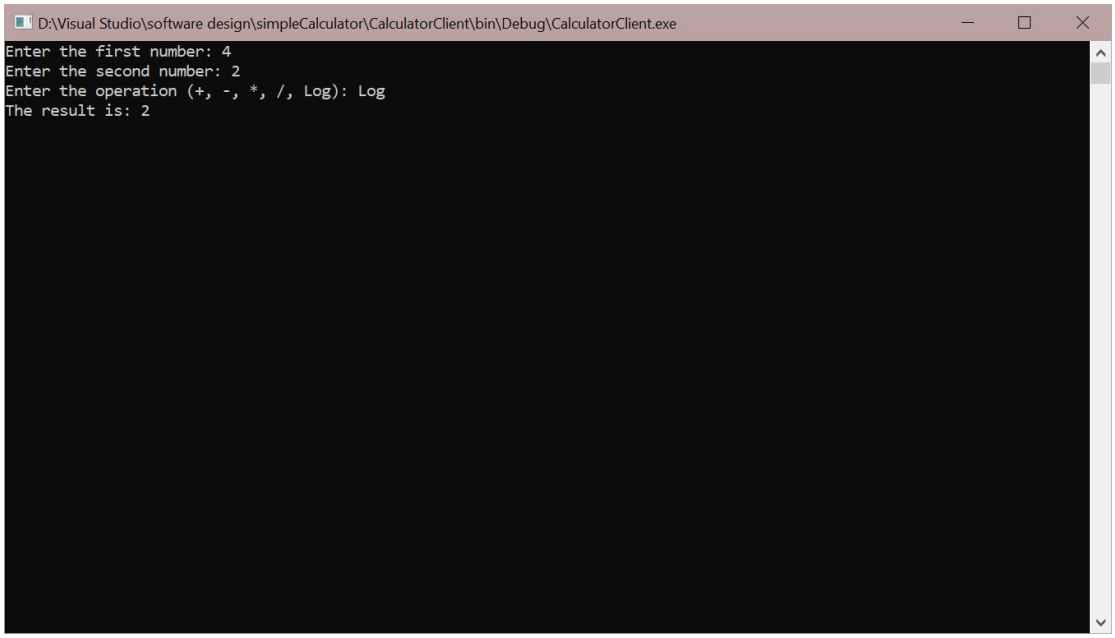


其二：更新 App.config

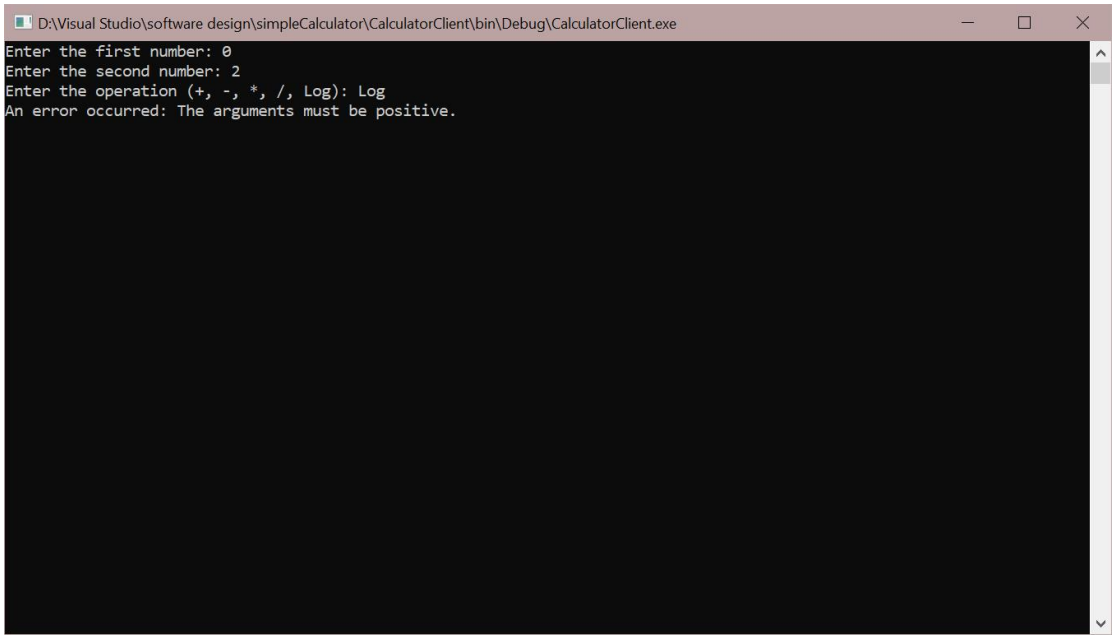


其三：更新客户端代码

客户端测试：

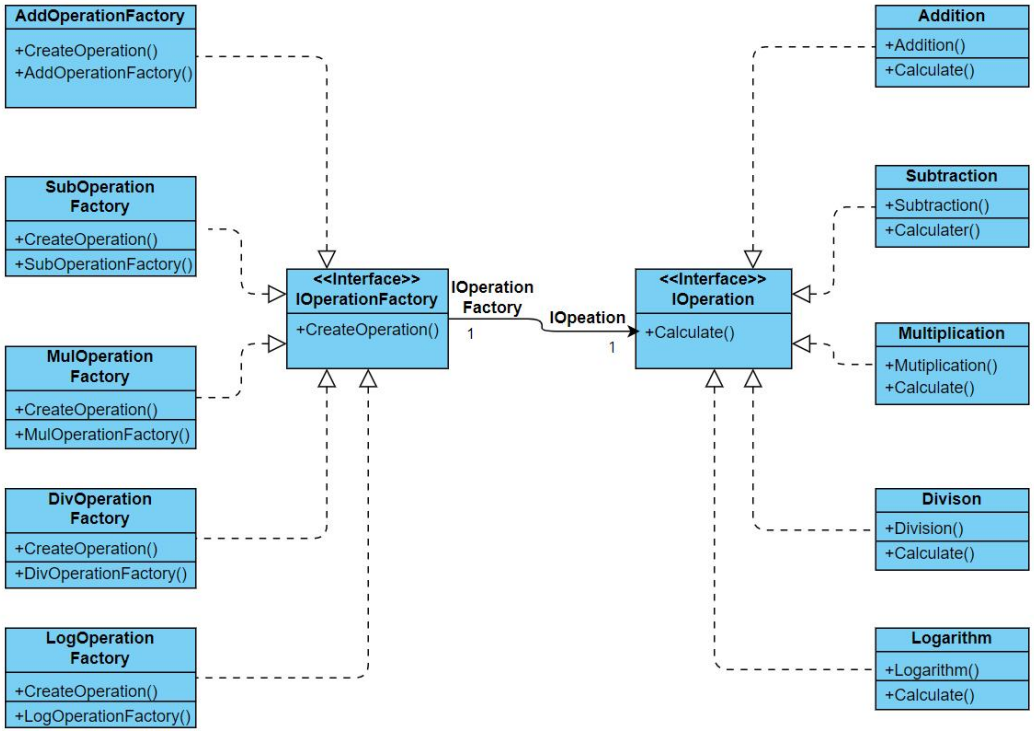


参数非正

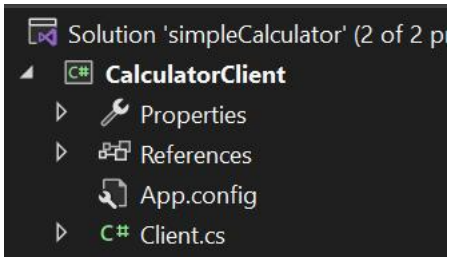


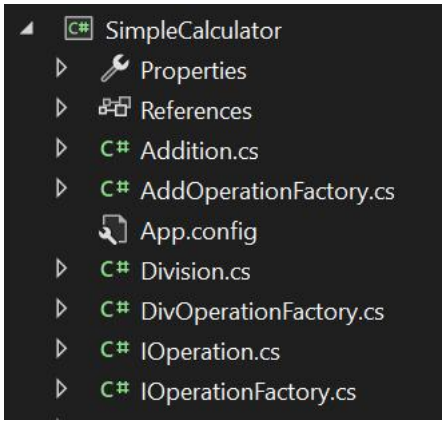
（3）采用工厂方法模式重构计算器的二元计算模块，该计算模块是方便重用扩展的

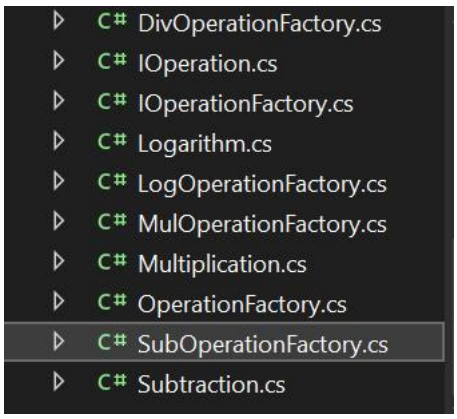
①类图


AddOperationFactory
+CreateOperation()
+AddOperationFactory()
SubOperation Factory
+CreateOperation()
+SubOperationFactory()
MulOperation Factory
+CreateOperation()
+MulOperationFactory()
DivOperation Factory
+CreateOperation()
+DivOperationFactory()
LogOperation Factory
+CreateOperation()
+LogOperationFactory()
<<Interface>> IOperationFactory
+CreateOperation()
IOperation Factory
1
IOpeation
1
<<Interface>> IOperation
+Calculate()
Addition
+Addition()
+Calculate()
Subtraction
+Subtraction()
+Calculater()
Multiplication
+Mutiplication()
+Calculate()
Divison
+Division()
+Calculate()
Logarithm
+Logarithm()
+Calculate()

②代码结构


Solution 'simpleCalculator' (2 of 2 p
CalculatorClient
Properties
References
App.config
Client.cs

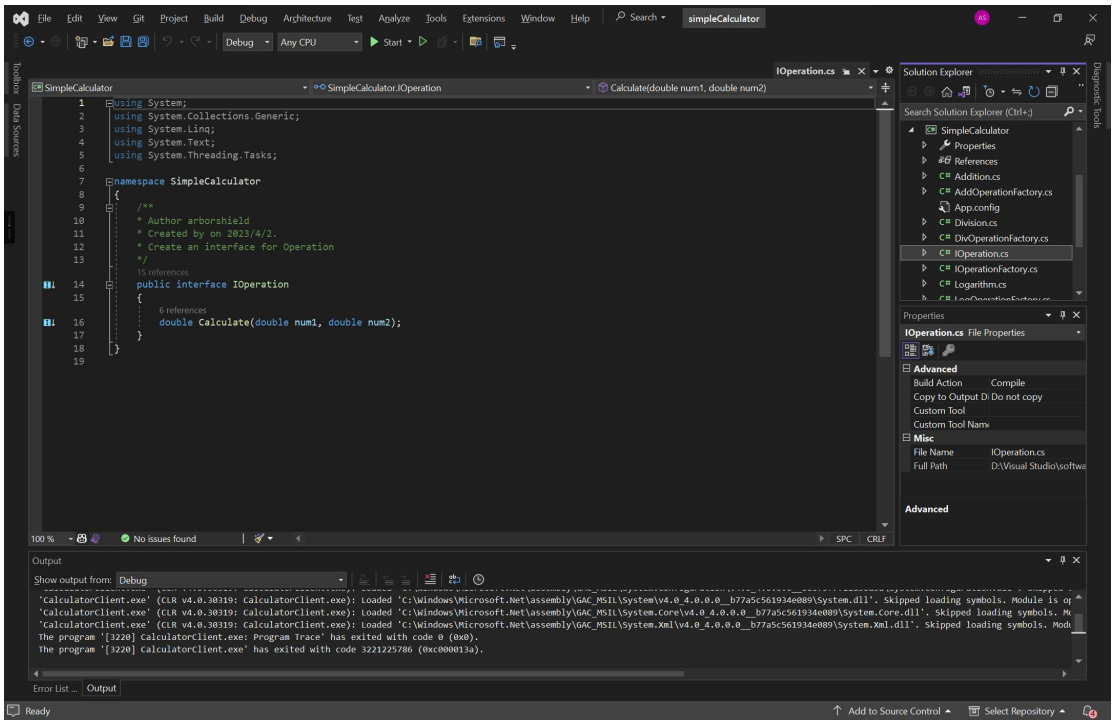

SimpleCalculator
Properties
References
Addition.cs
AddOperationFactory.cs
App.config
Division.cs
DivOperationFactory.cs
IOperation.cs
IOperationFactory.cs



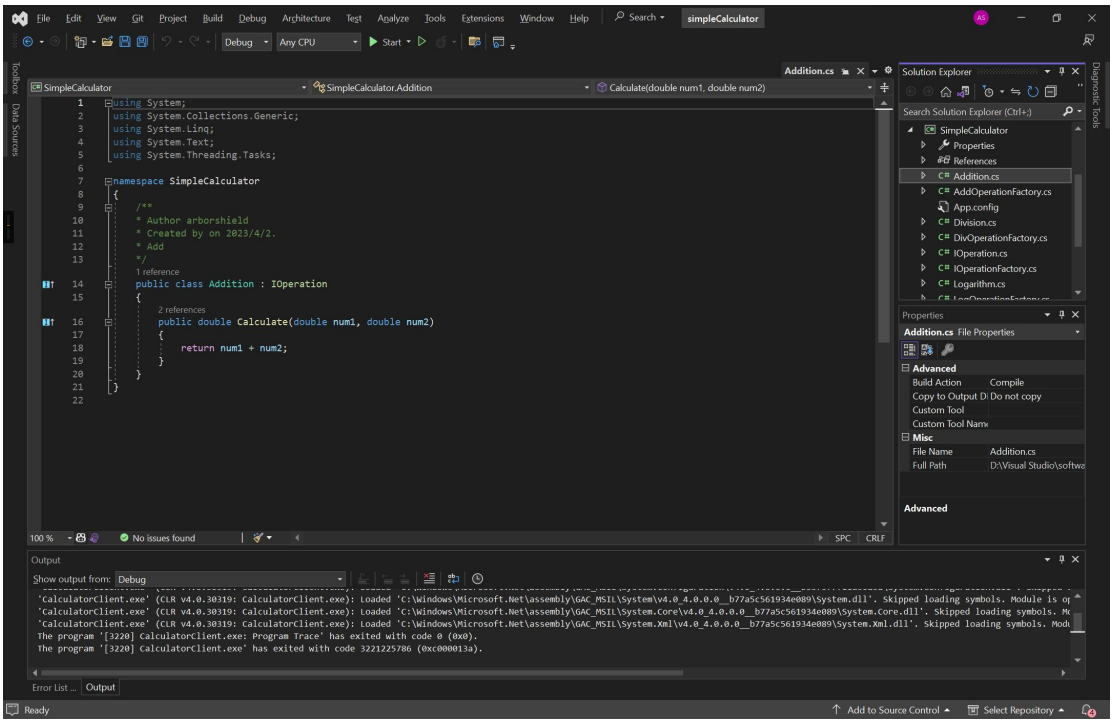
③核心类代码

Project SimpleCalculator

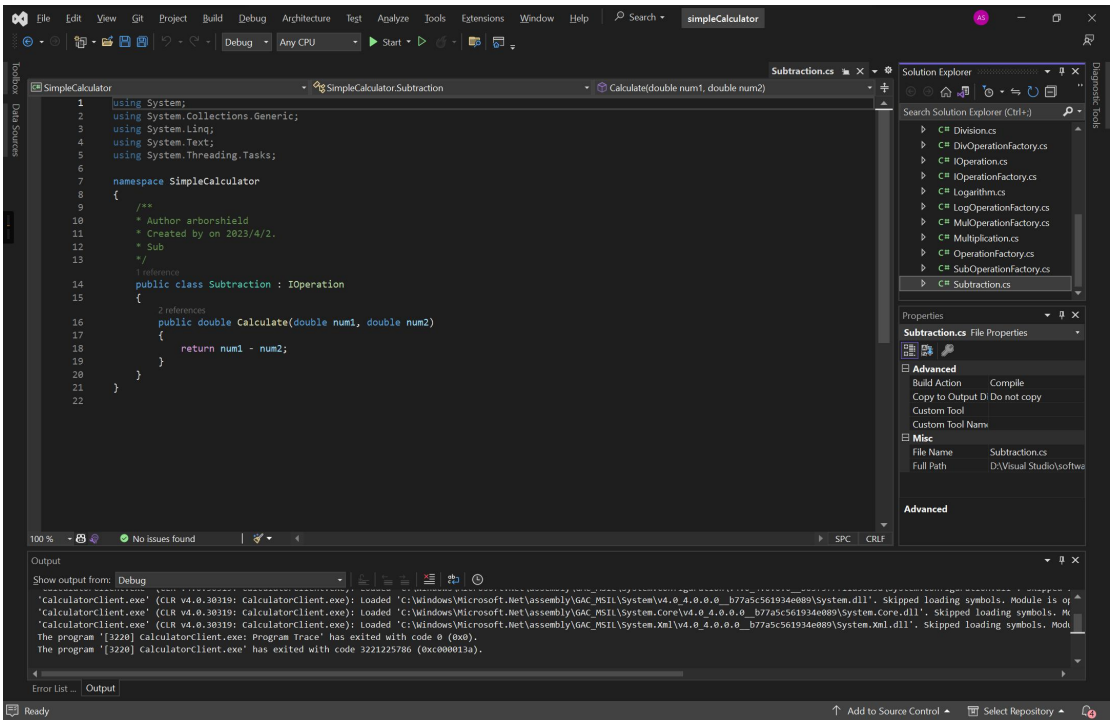
Interface IOperation



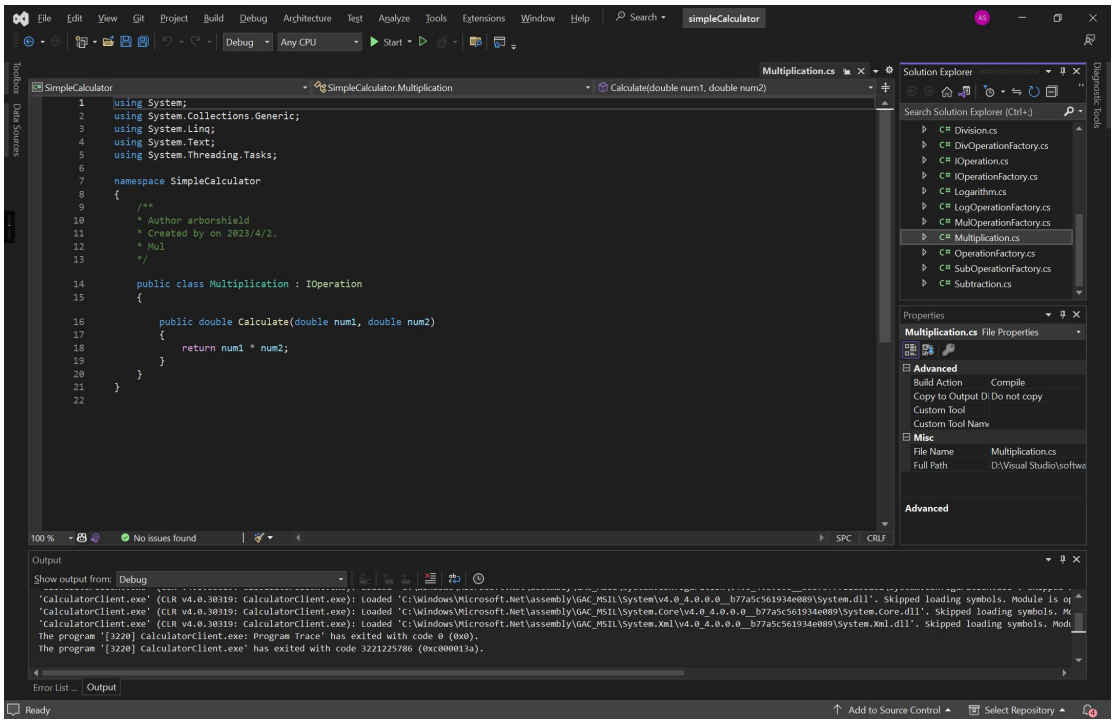
Class Addition



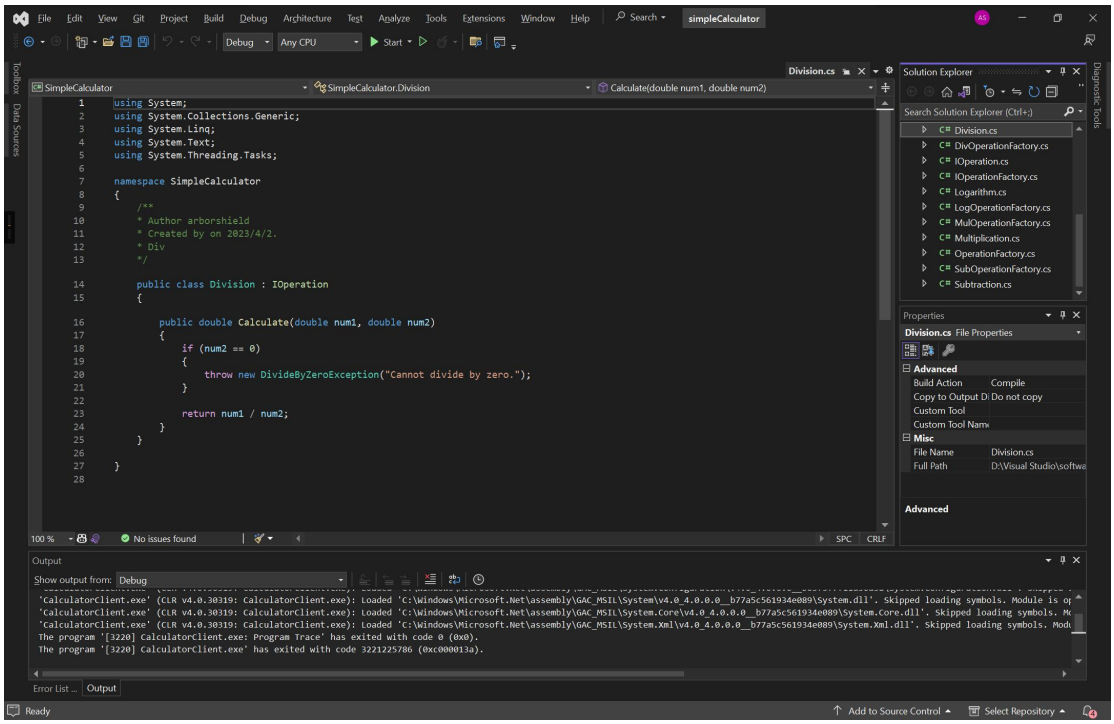
Class Subtraction



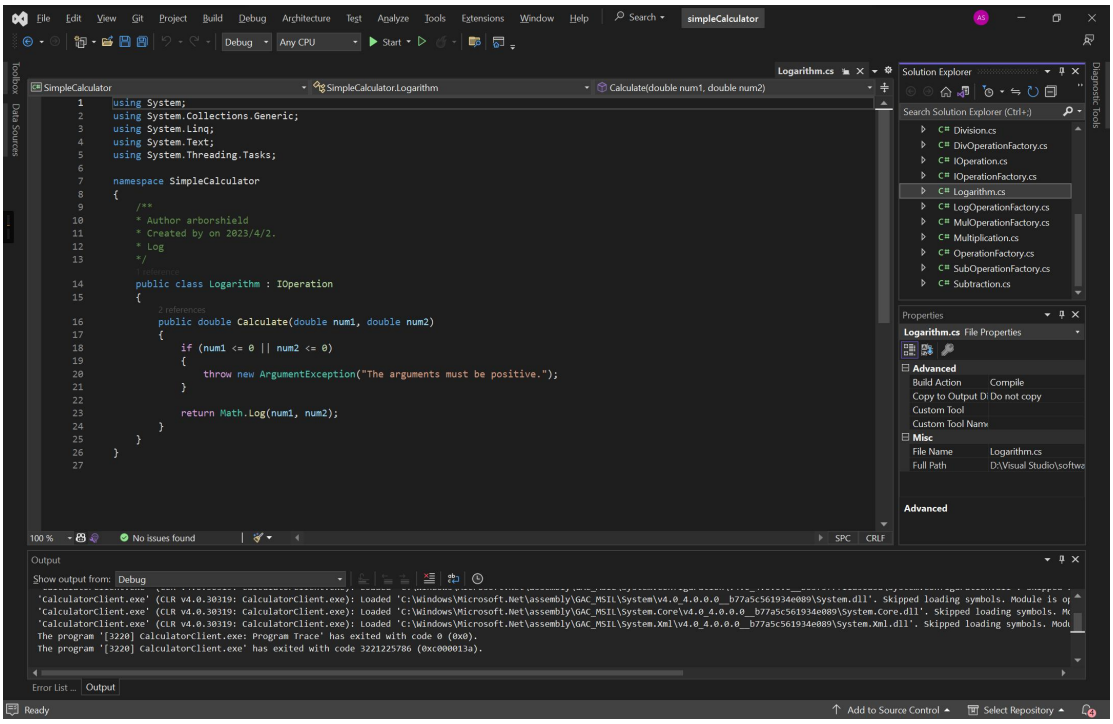
Class Multiplication



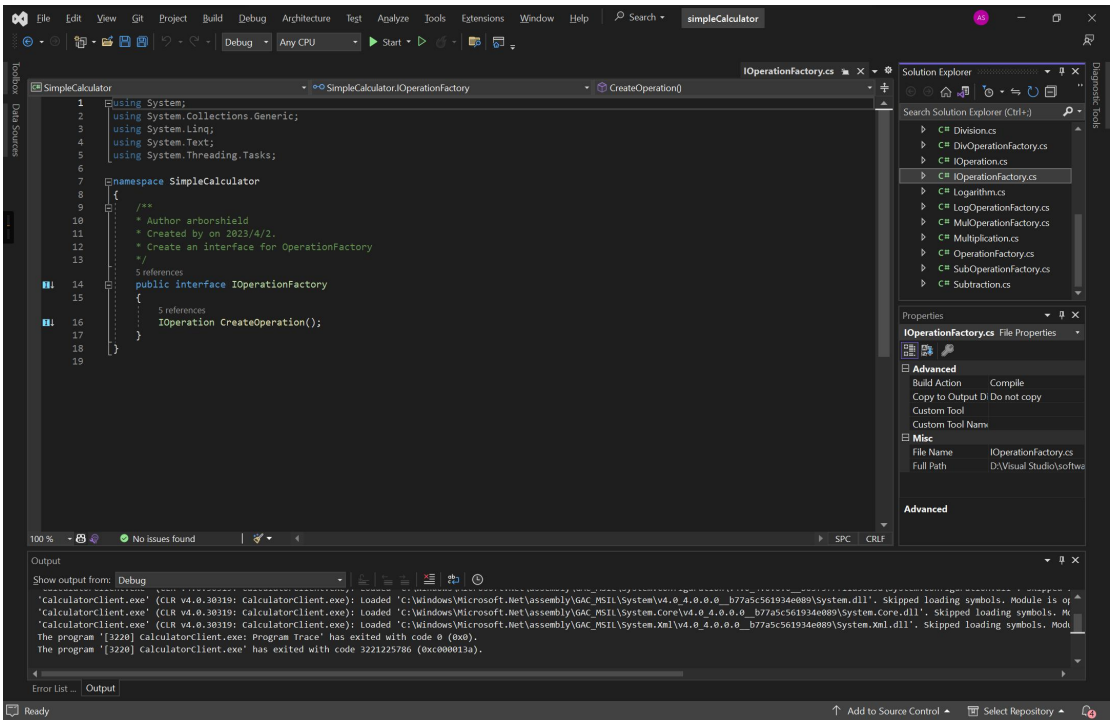
Class Division



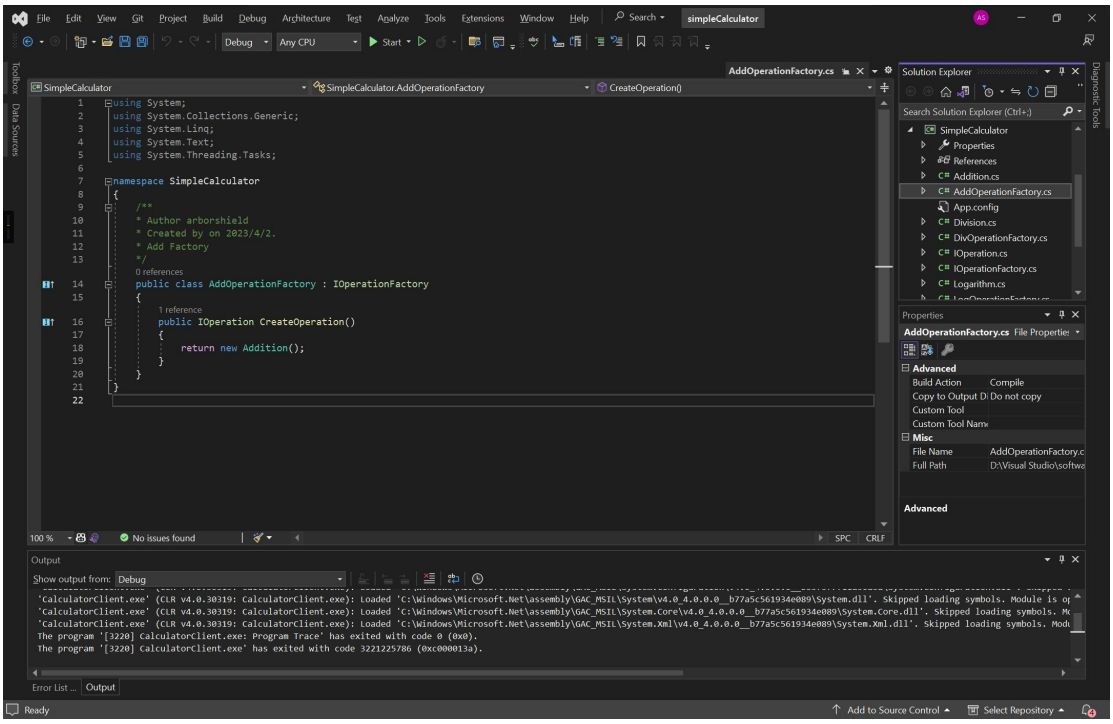
Class Logarithm



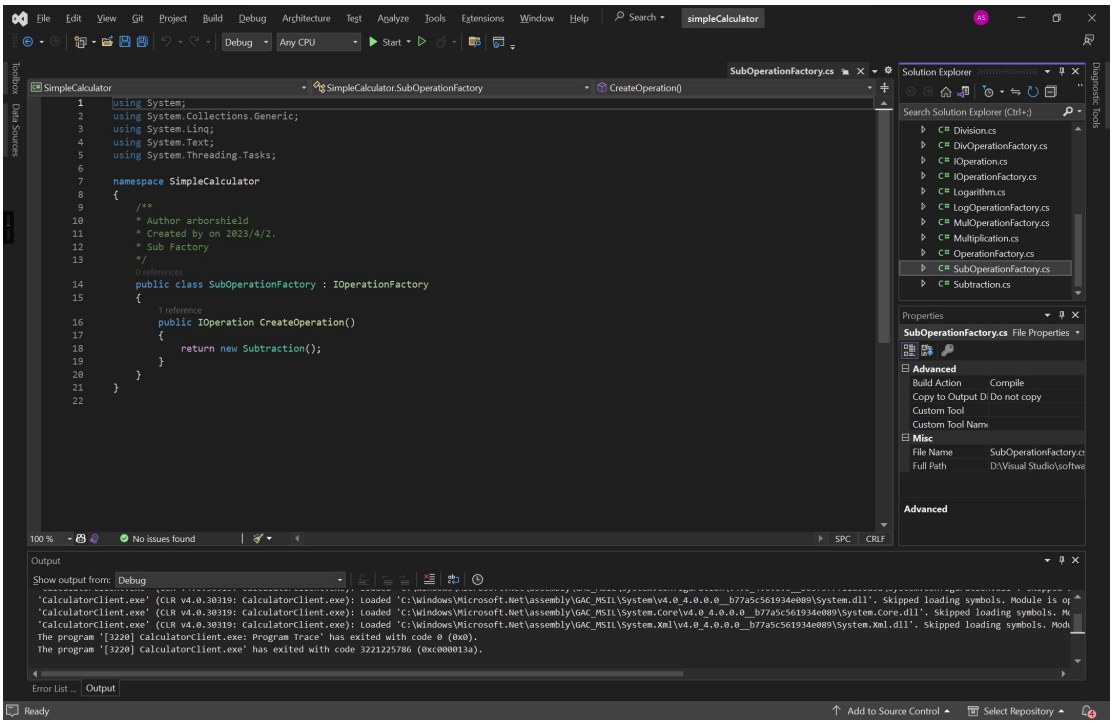
Interface IOperationFactory



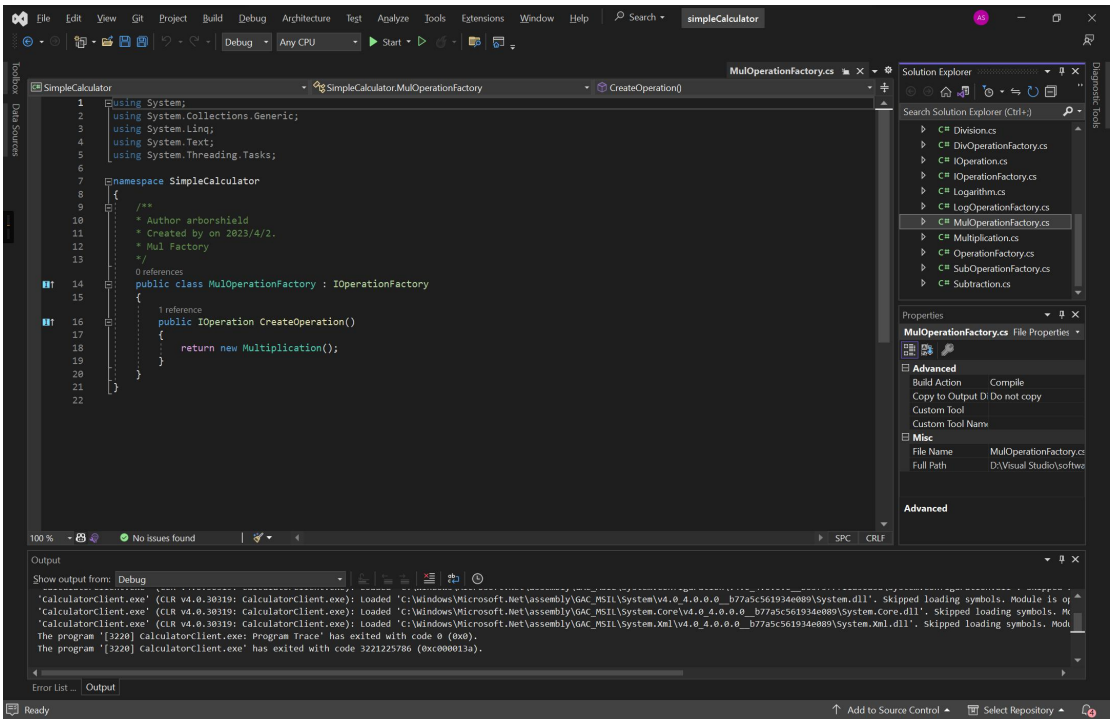
Class AddOperationFactory



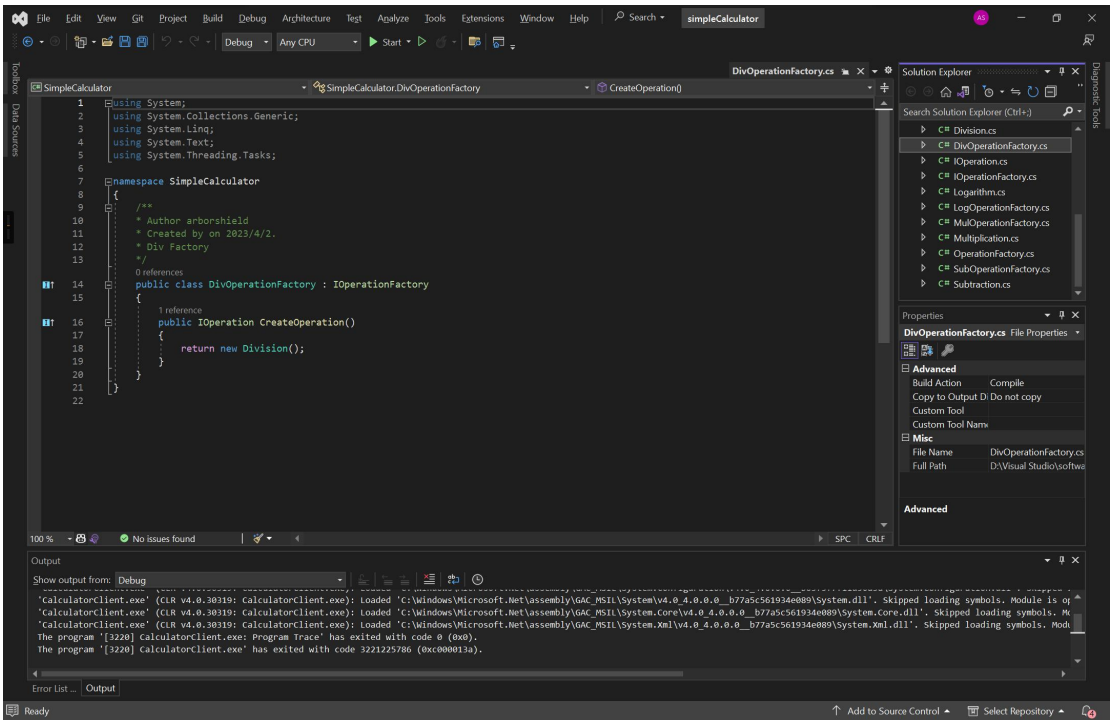
Class SubOperationFactory



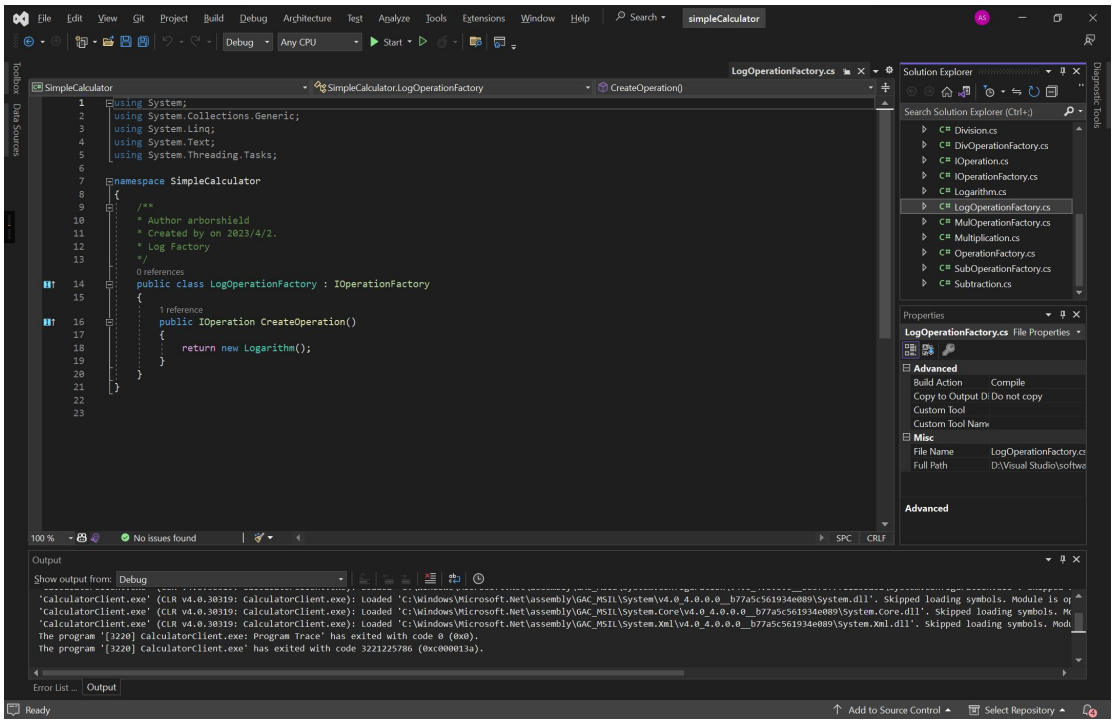
Class MulOperationFactory



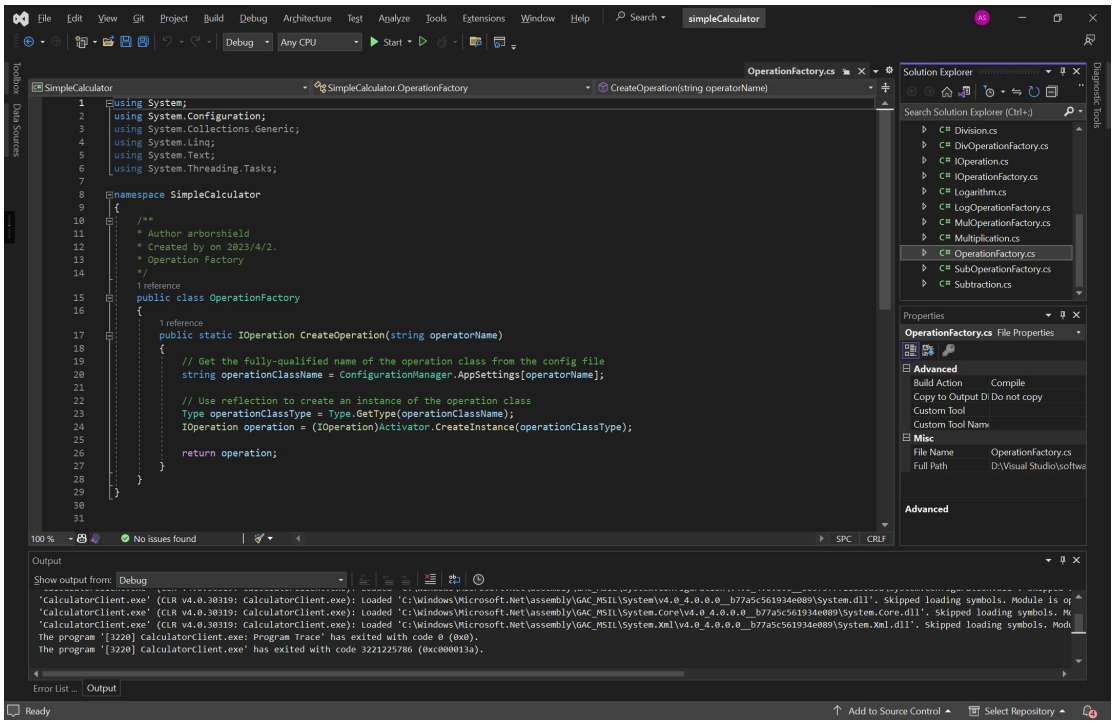
Class DivOperationFactory



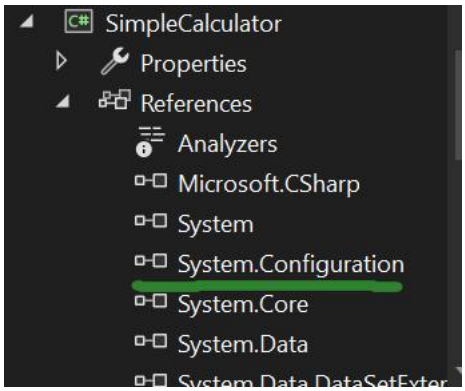
Class LogOperationFactory



Class Operation Factory

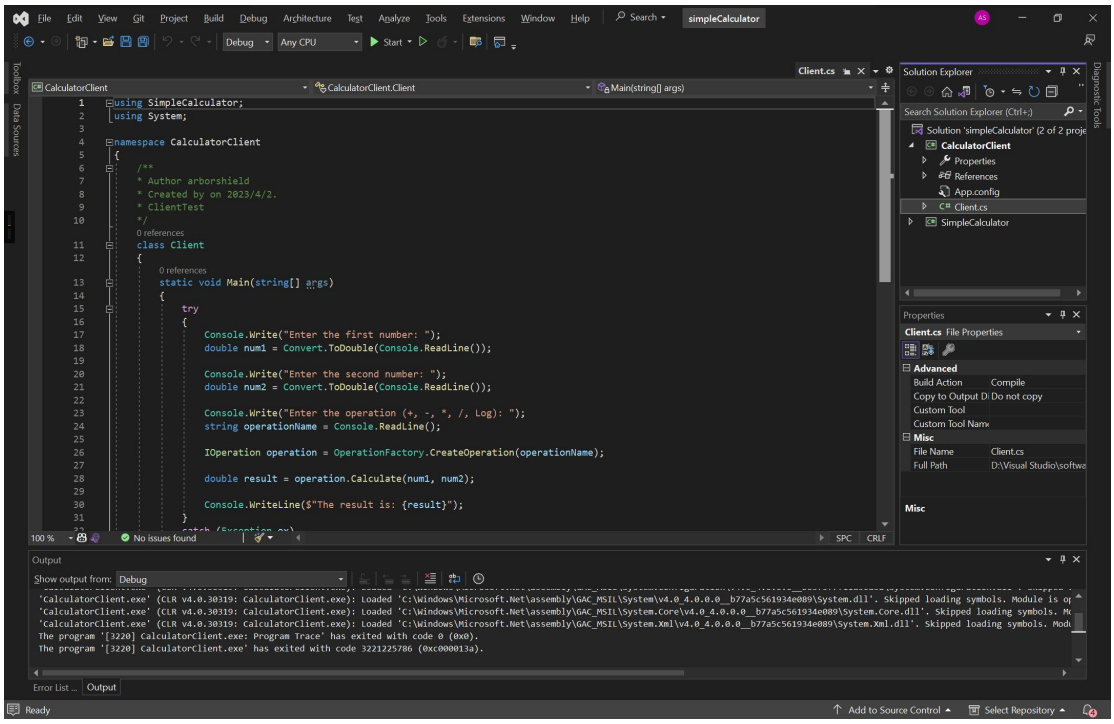


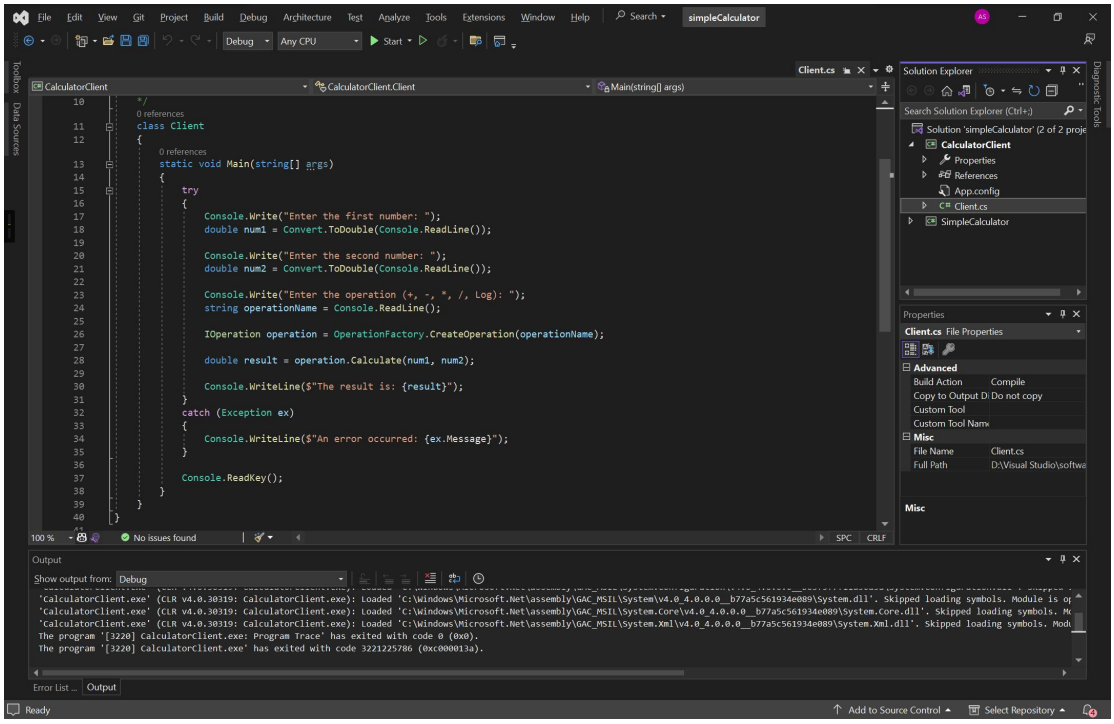
④客户端代码



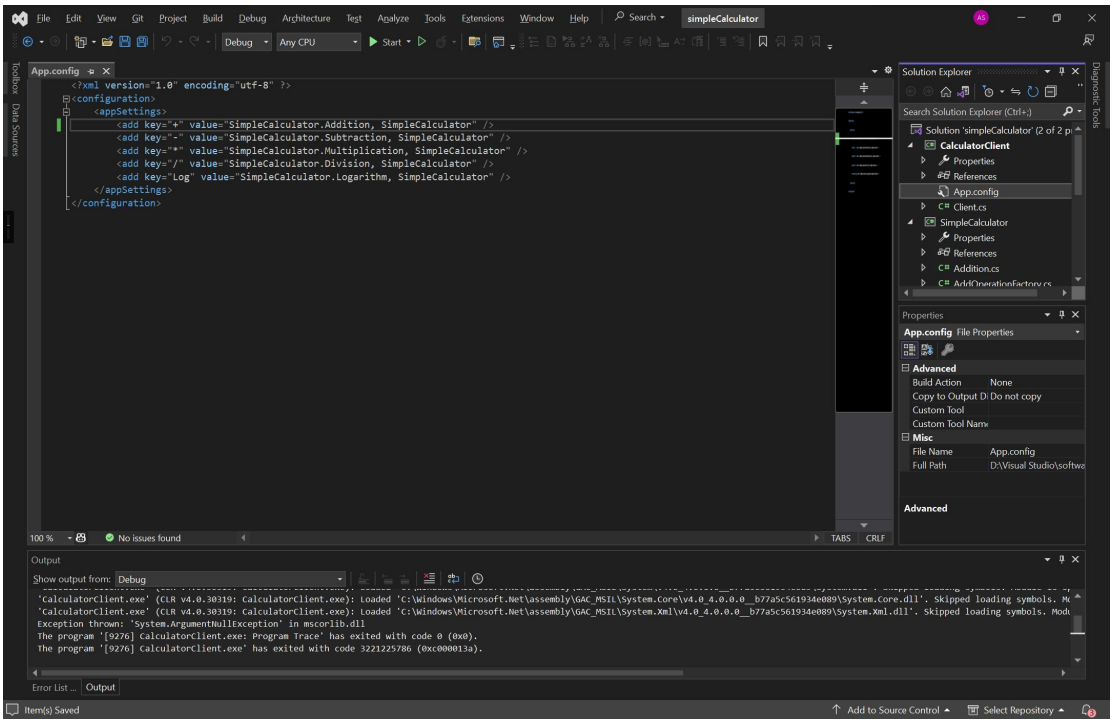
Project CalculatorClient

Class Client


File Edit View Git Project Build Debug Architecture Test Analyze Tools Extensions Window Help
simpleCalculator
Debug
Any CPU
Start
Client.cs
CalculatorClient
CalculatorClient.Client
Main(string[] args)
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'simpleCalculator' (2 of 2 proje
CalculatorClient
Properties
References
App.config
Client.cs
SimpleCalculator
Properties
Client.cs File Properties
Advanced
Build Action Compile
Copy to Output D Do not copy
Custom Tool
Custom Tool Nam
Misc
File Name Client.cs
Full Path D:\Visual Studio\softwa
Misc
using SimpleCalculator;
using System;
namespace CalculatorClient
{
/**
* Author arborshield
* Created by on 2023/4/2.
* ClientTest
*/
0 references
class Client
{
0 references
static void Main(string[] args)
{
try
{
Console.Write("Enter the first number: ");
double num1 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the second number: ");
double num2 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the operation (+, -, *, /, Log): ");
string operationName = Console.ReadLine();
IOperation operation = OperationFactory.CreateOperation(operationName);
double result = operation.Calculate(num1, num2);
Console.WriteLine($"The result is: {result}");
}
100 %
No issues found
SPC
CRLF
Output
Show output from: Debug
'CalculatorClient.exe' (CLR v4.0.30319: CalculatorClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System\v4.0_4.0.0.0__b77a5c561934e089\System.dll'. Skipped loading symbols. Module is op
'CalculatorClient.exe' (CLR v4.0.30319: CalculatorClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Core\v4.0_4.0.0.0__b77a5c561934e089\System.Core.dll'. Skipped loading symbols. Mo
'CalculatorClient.exe' (CLR v4.0.30319: CalculatorClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Xml\v4.0_4.0.0.0__b77a5c561934e089\System.Xml.dll'. Skipped loading symbols. Modu
The program '[3220] CalculatorClient.exe: Program Trace' has exited with code 0 (0x0).
The program '[3220] CalculatorClient.exe' has exited with code 3221225786 (0xc000013a).
Error List ...
Output
Ready
Add to Source Control
Select Repository

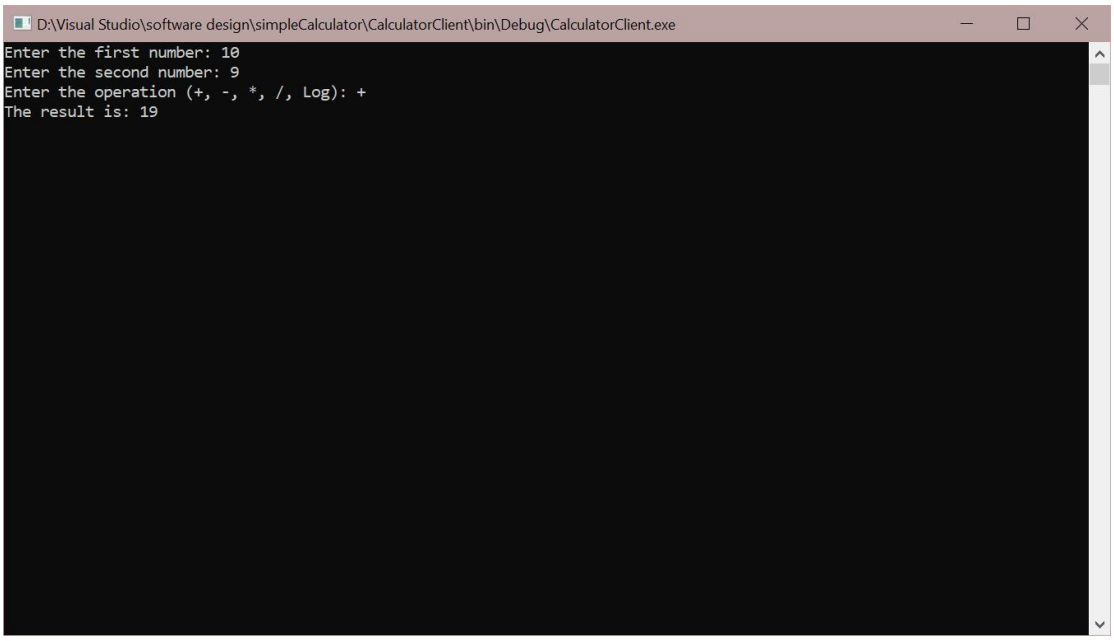

File Edit View Git Project Build Debug Architecture Test Analyze Tools Extensions Window Help
simpleCalculator
Debug
Any CPU
Start
Client.cs
CalculatorClient
CalculatorClient.Client
Main(string[] args)
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'simpleCalculator' (2 of 2 proje
CalculatorClient
Properties
References
App.config
Client.cs
SimpleCalculator
Properties
Client.cs File Properties
Advanced
Build Action Compile
Copy to Output D Do not copy
Custom Tool
Custom Tool Nam
Misc
File Name Client.cs
Full Path D:\Visual Studio\softwa
Misc
*/
0 references
class Client
{
0 references
static void Main(string[] args)
{
try
{
Console.Write("Enter the first number: ");
double num1 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the second number: ");
double num2 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the operation (+, -, *, /, Log): ");
string operationName = Console.ReadLine();
IOperation operation = OperationFactory.CreateOperation(operationName);
double result = operation.Calculate(num1, num2);
Console.WriteLine($"The result is: {result}");
}
catch (Exception ex)
{
Console.WriteLine($"An error occurred: {ex.Message}");
}
Console.ReadKey();
}
}
}
100 %
No issues found
SPC
CRLF
Output
Show output from: Debug
'CalculatorClient.exe' (CLR v4.0.30319: CalculatorClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System\v4.0_4.0.0.0__b77a5c561934e089\System.dll'. Skipped loading symbols. Module is op
'CalculatorClient.exe' (CLR v4.0.30319: CalculatorClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Core\v4.0_4.0.0.0__b77a5c561934e089\System.Core.dll'. Skipped loading symbols. Mo
'CalculatorClient.exe' (CLR v4.0.30319: CalculatorClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Xml\v4.0_4.0.0.0__b77a5c561934e089\System.Xml.dll'. Skipped loading symbols. Modu
The program '[3220] CalculatorClient.exe: Program Trace' has exited with code 0 (0x0).
The program '[3220] CalculatorClient.exe' has exited with code 3221225786 (0xc000013a).
Error List ...
Output
Ready
Add to Source Control
Select Repository

⑤配置文件

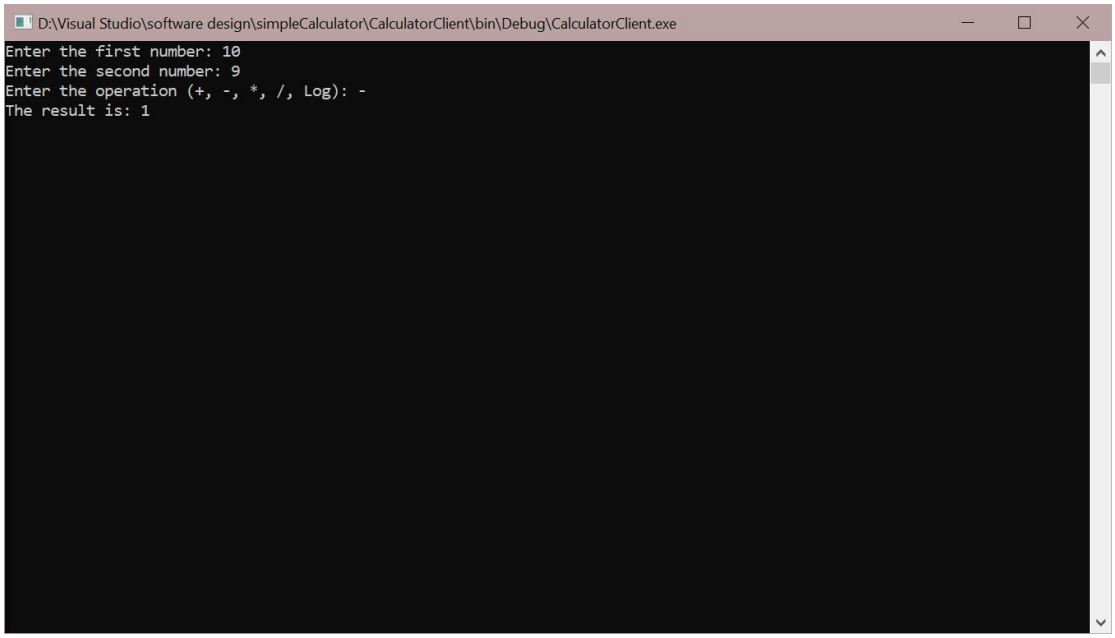


⑥客户端测试

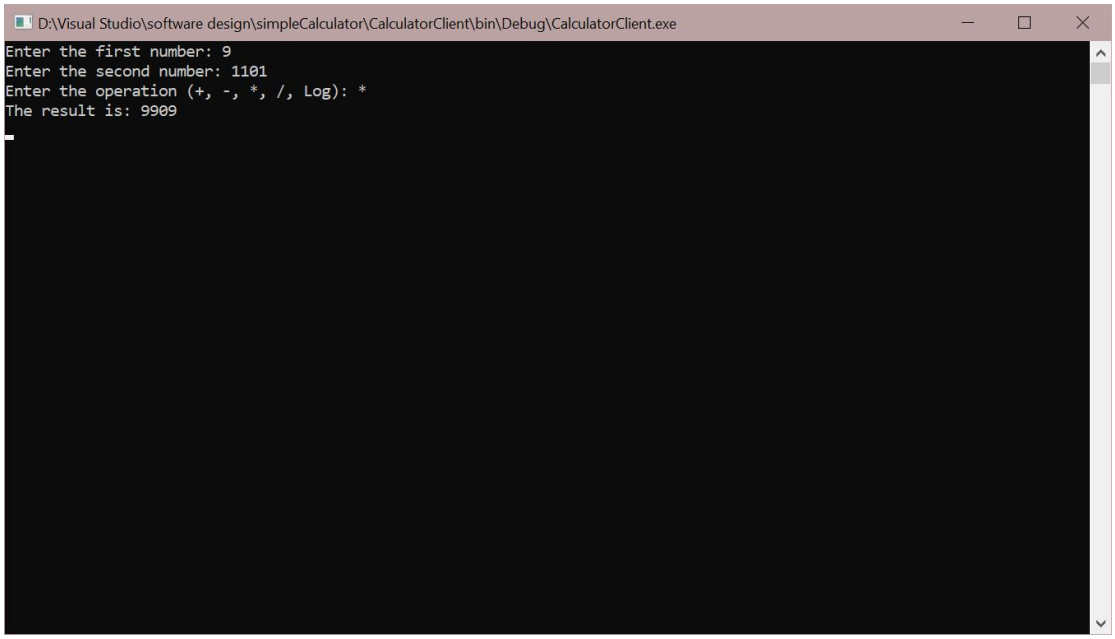
Add



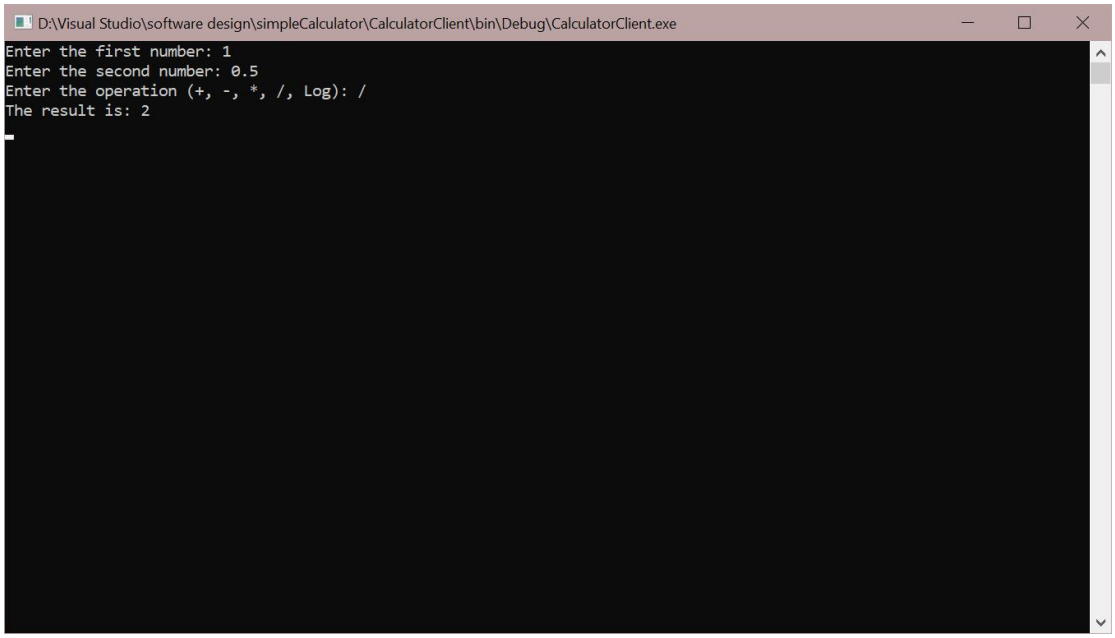
Sub


D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
Enter the first number: 10
Enter the second number: 9
Enter the operation (+, -, *, /, Log): -
The result is: 1

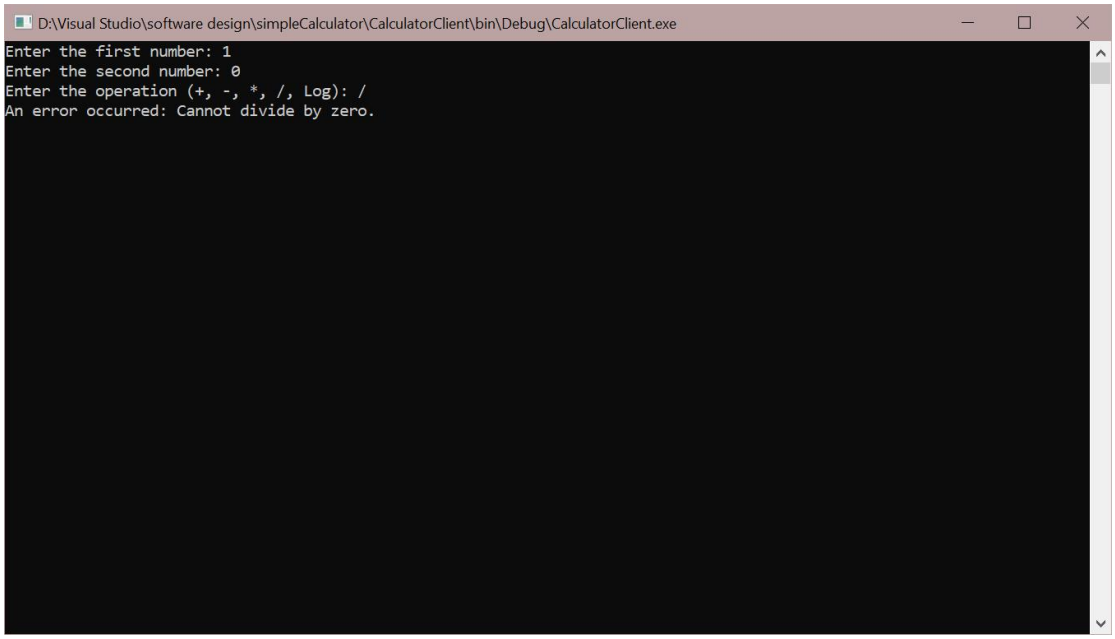
Mul


D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
Enter the first number: 9
Enter the second number: 1101
Enter the operation (+, -, *, /, Log): *
The result is: 9909

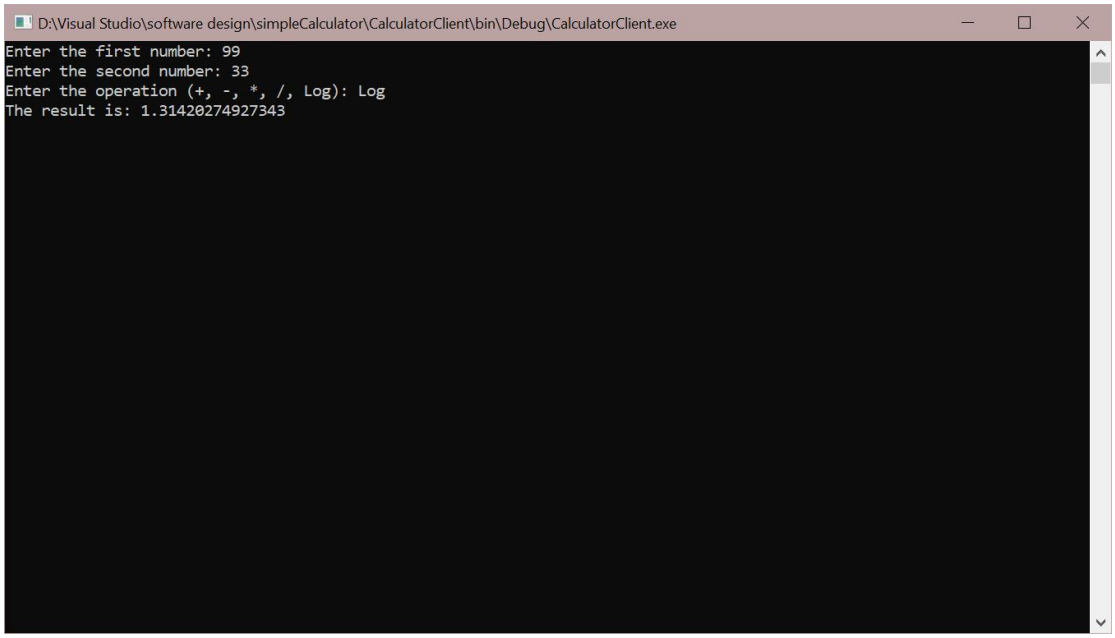
Div


D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
Enter the first number: 1
Enter the second number: 0.5
Enter the operation (+, -, *, /, Log): /
The result is: 2

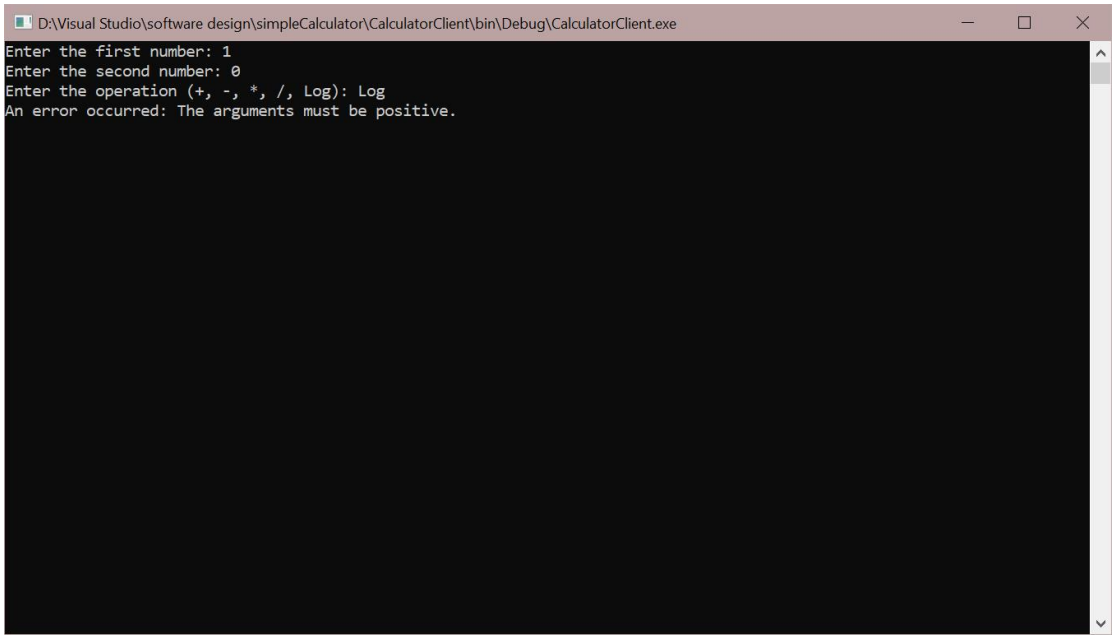
除数为 0


D:\Visual Studio\software design\simpleCalculator\CalculatorClient\bin\Debug\CalculatorClient.exe
Enter the first number: 1
Enter the second number: 0
Enter the operation (+, -, *, /, Log): /
An error occurred: Cannot divide by zero.

Log

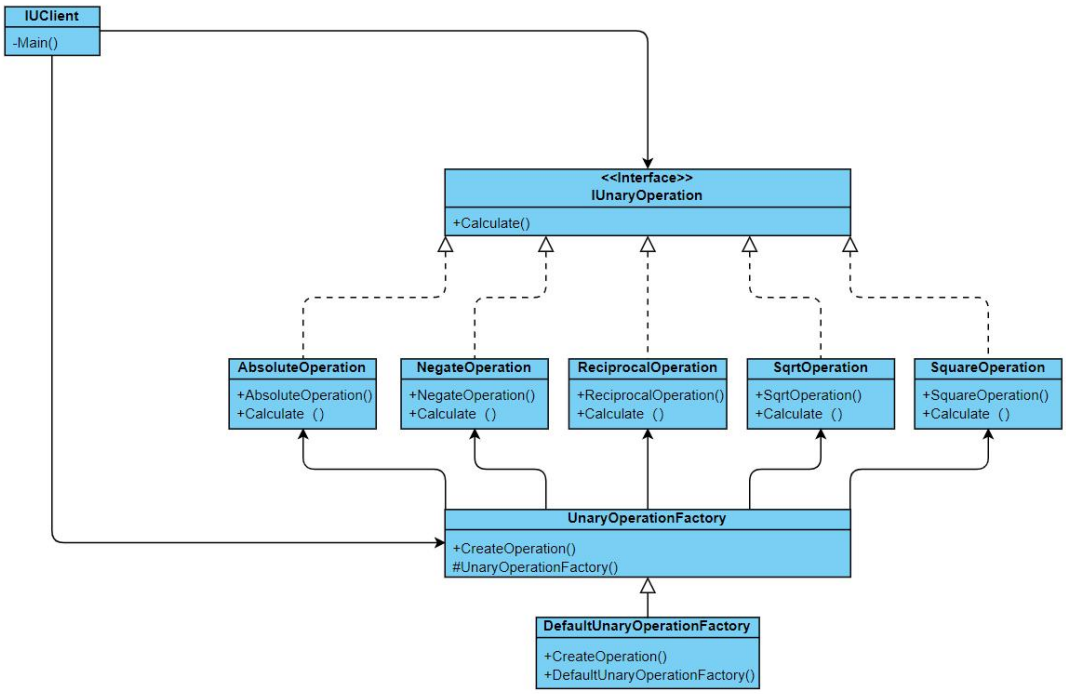


参数非正

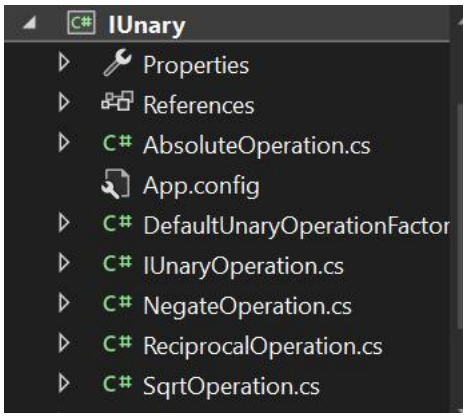


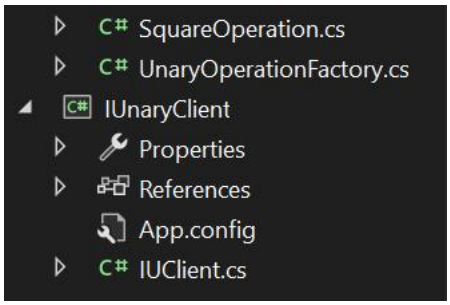
（4）采用工厂方法模式设计实现计算器的一元计算模块，实现求绝对值、相反数、倒数、平方根、平方等操作、该模块是方便重用扩展的

①类图



②代码结构

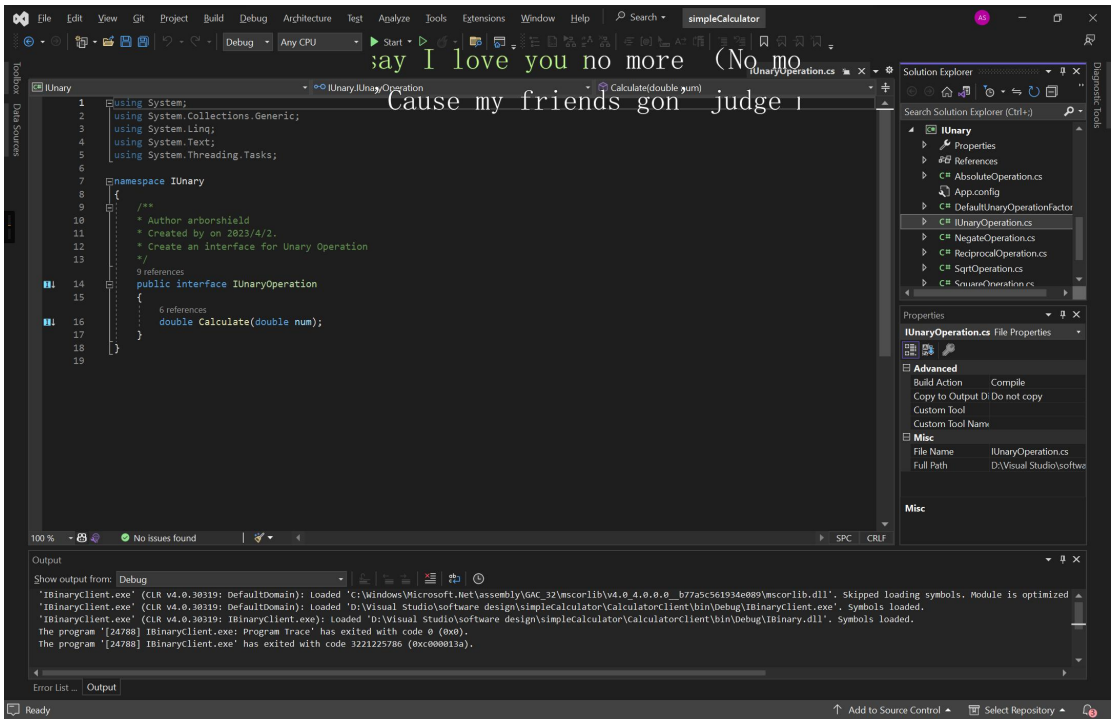




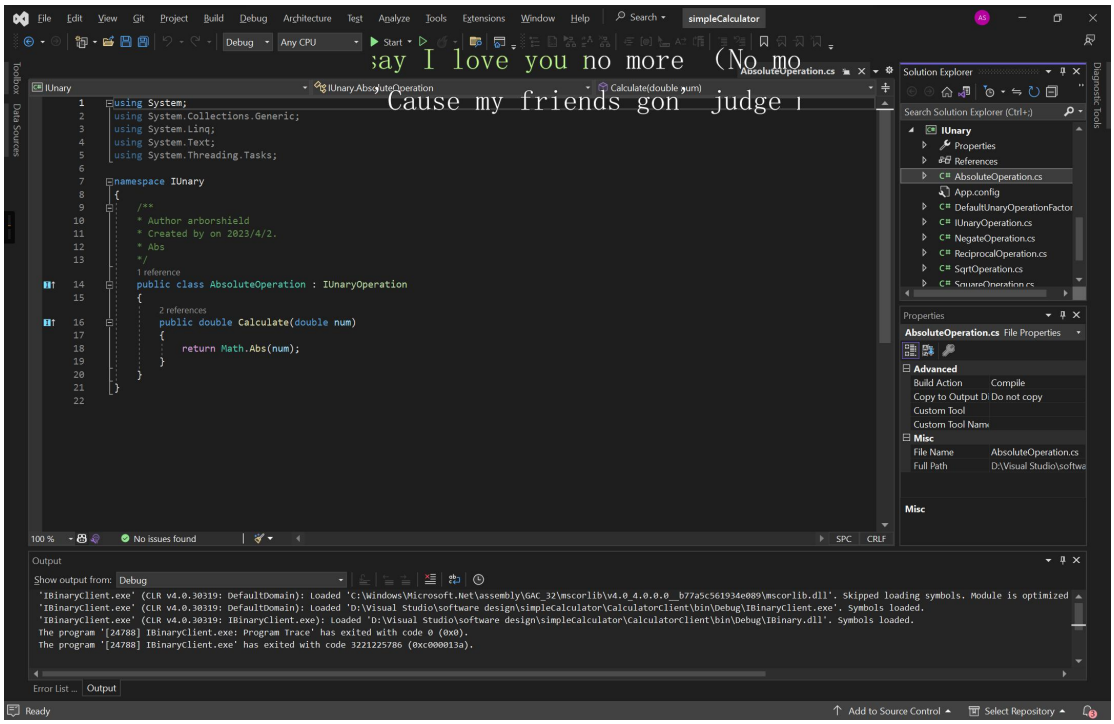
③核心类代码

Project IUnary

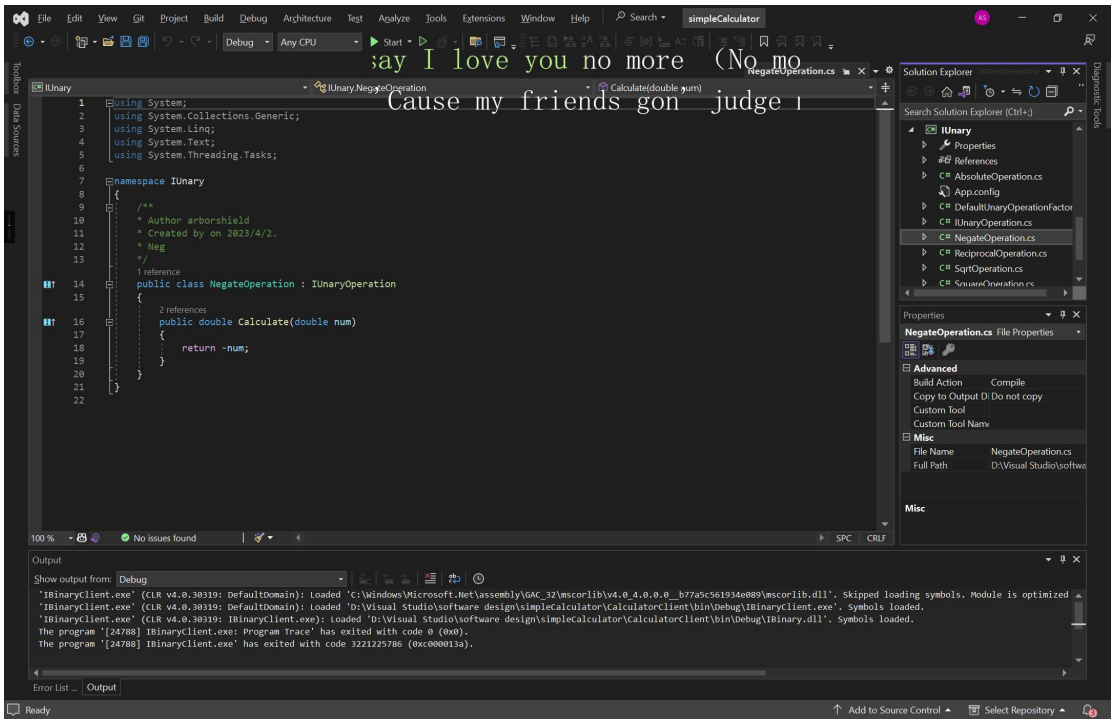
Interface IUnaryOperation



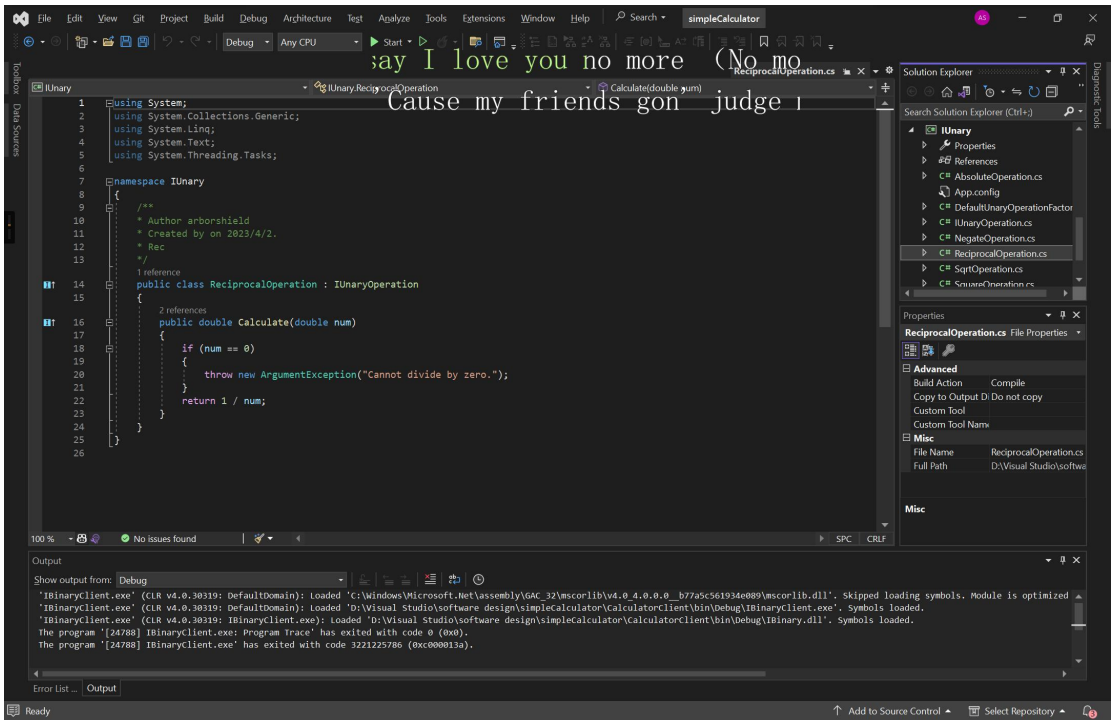
Class Abs



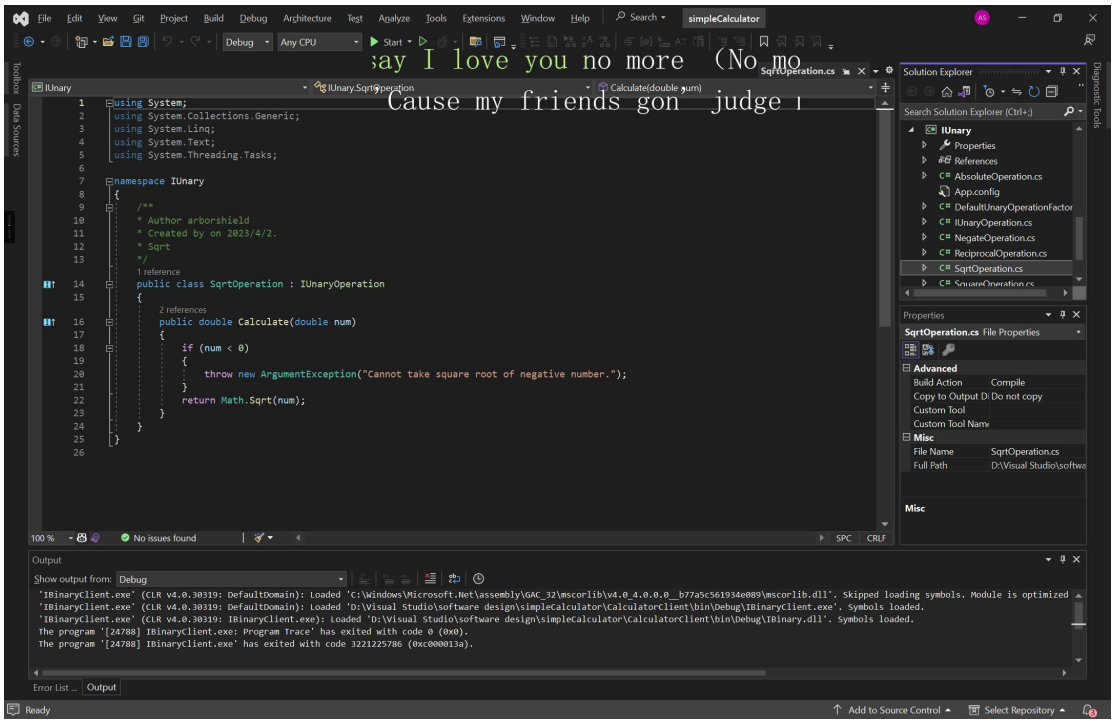
Class Neg



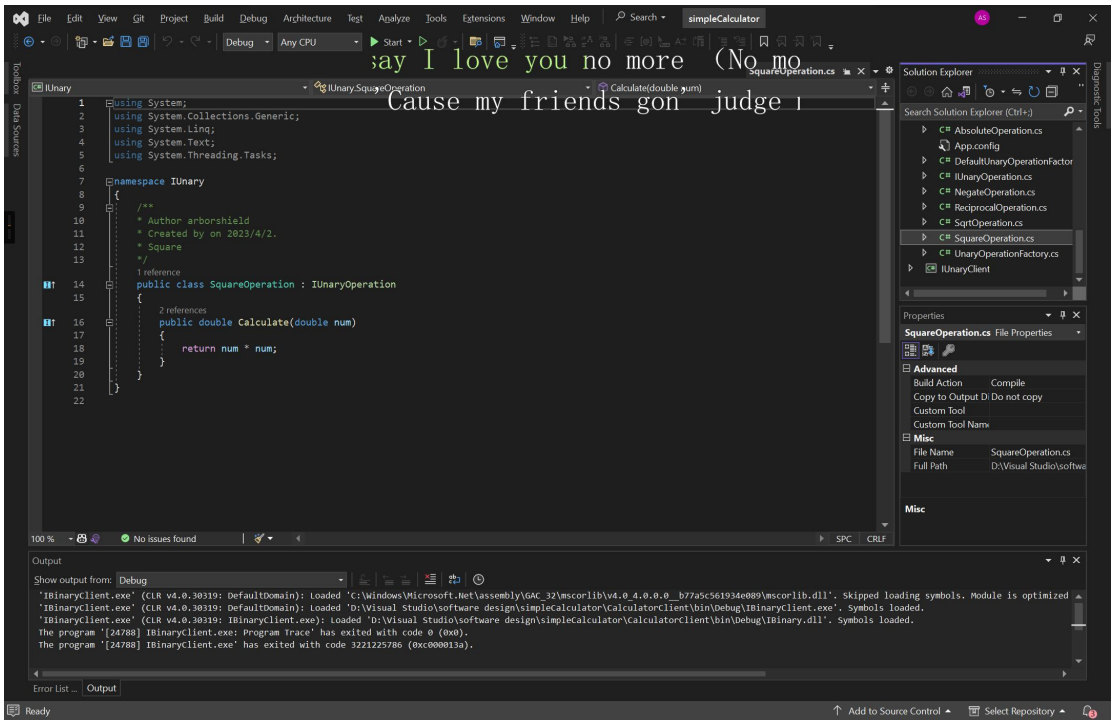
Class Rec



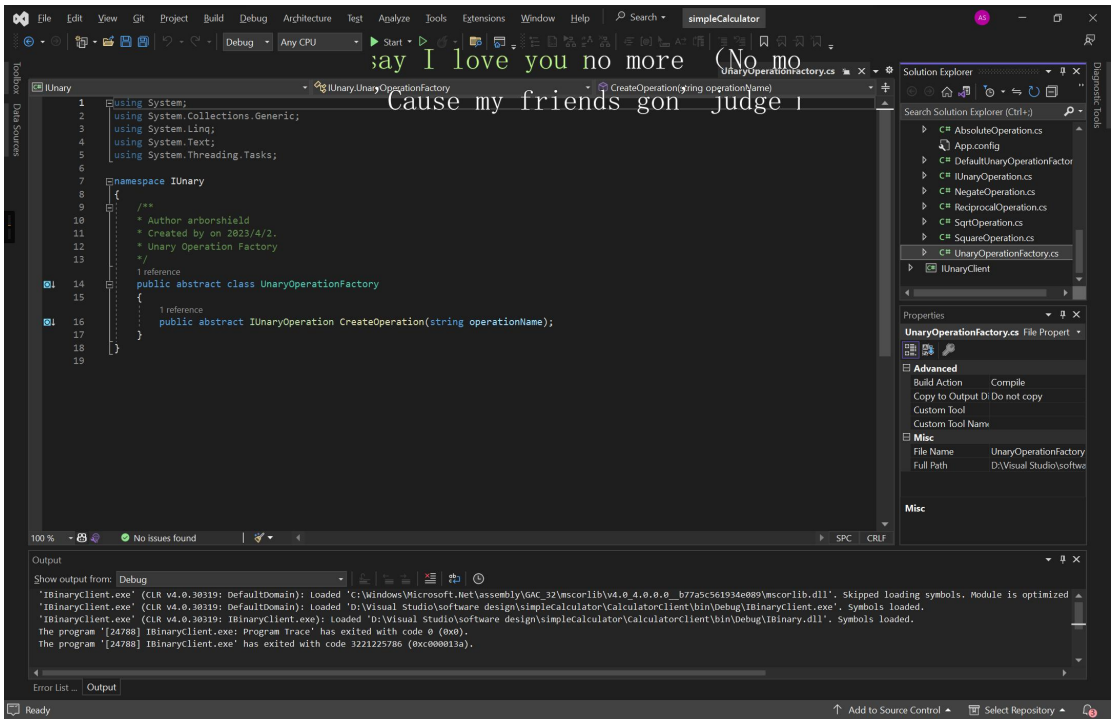
Class Sqrt



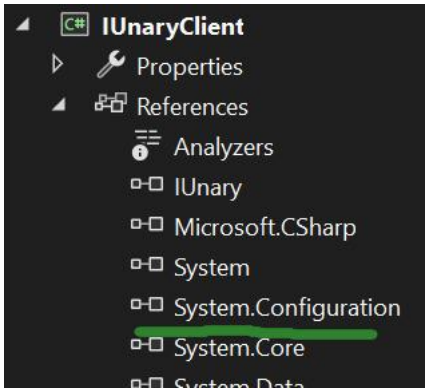
Class Square



Abstract Class Unary Operation Factory

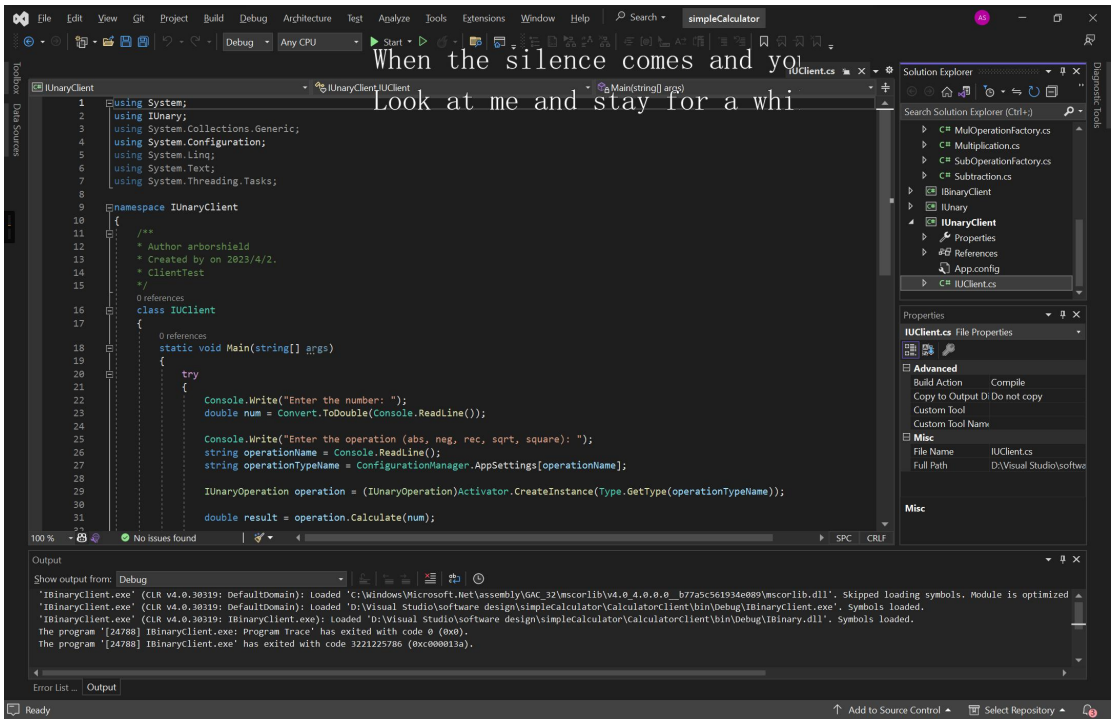


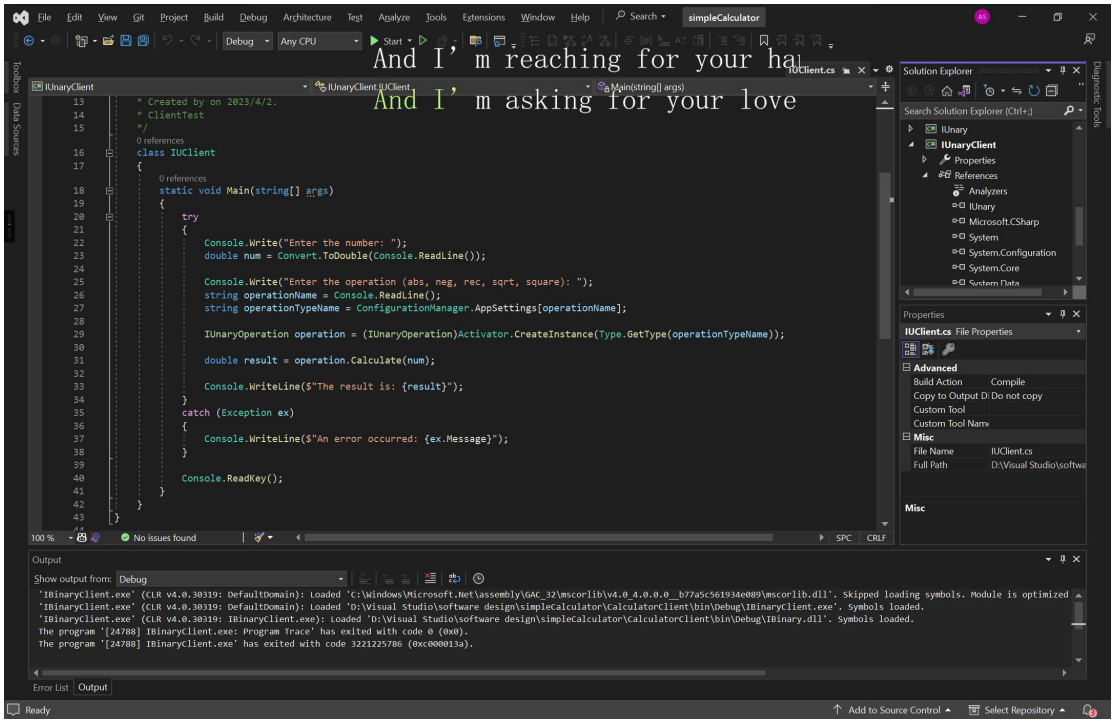
④客户端代码



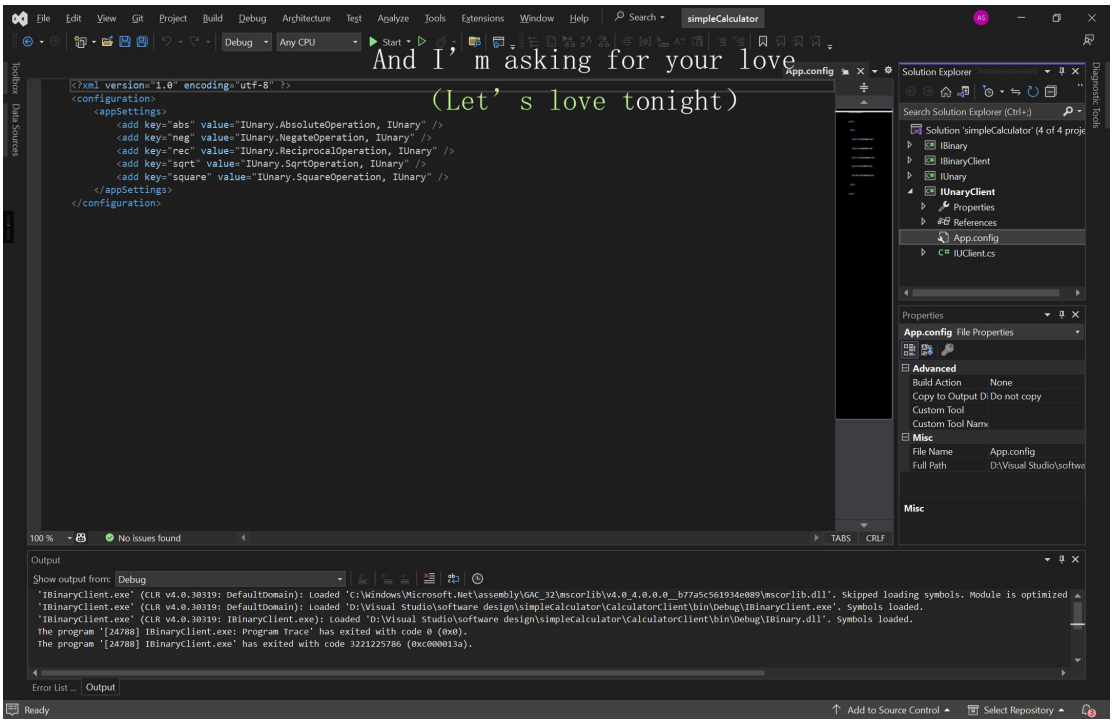
Project IUnaryClient

Class IUClient


When the silence comes and yo
Look at me and stay for a whi

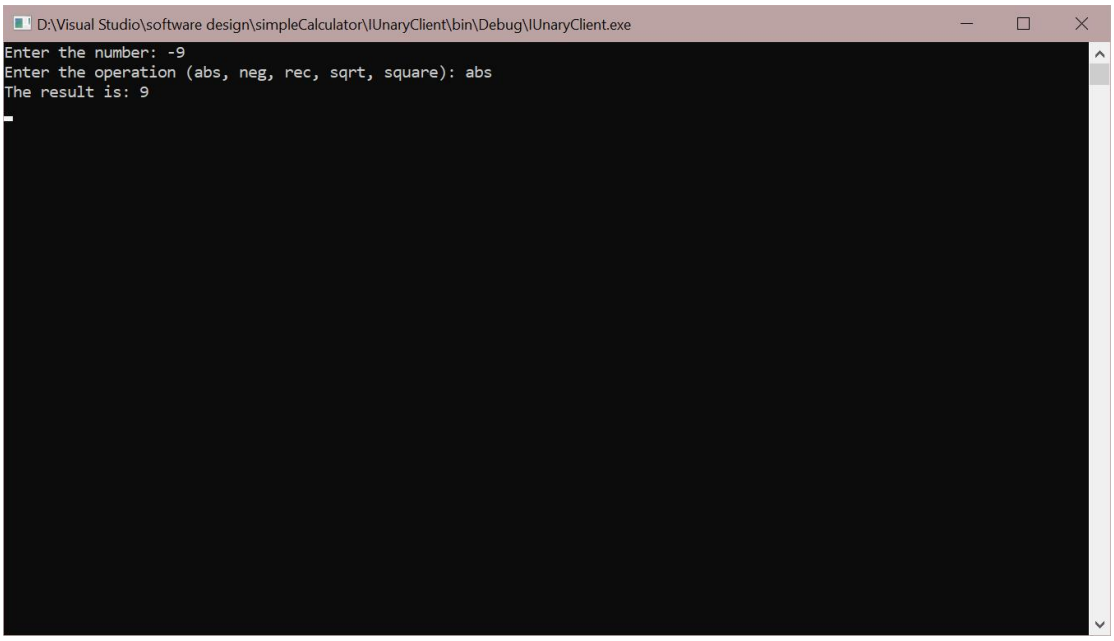

And I’ m reaching for your ha
And I’ m asking for your love

⑤配置文件

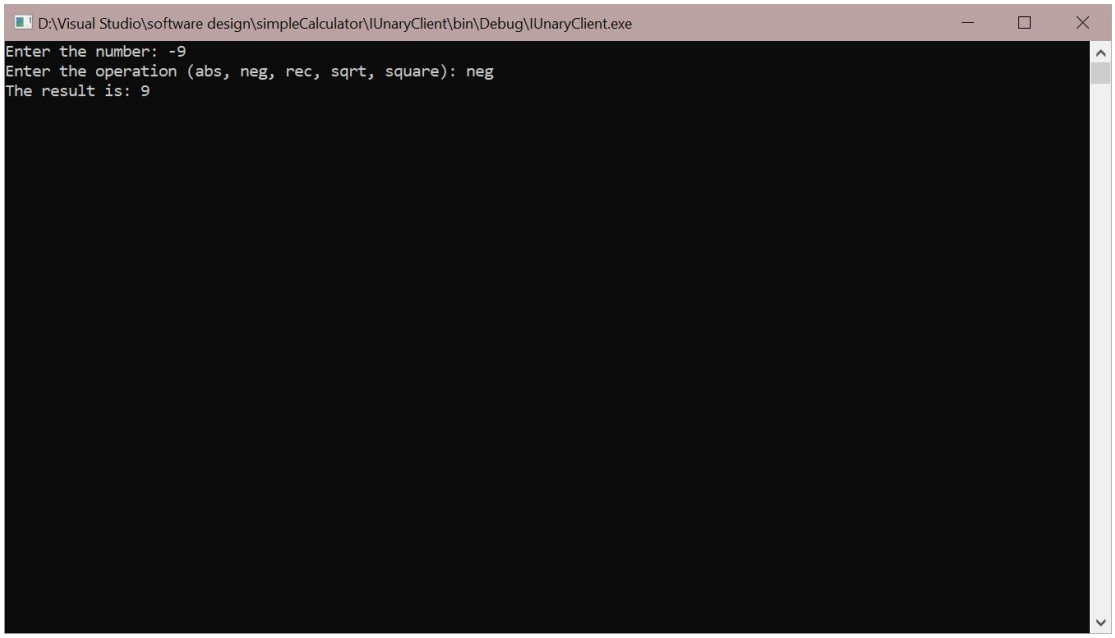


⑥客户端测试

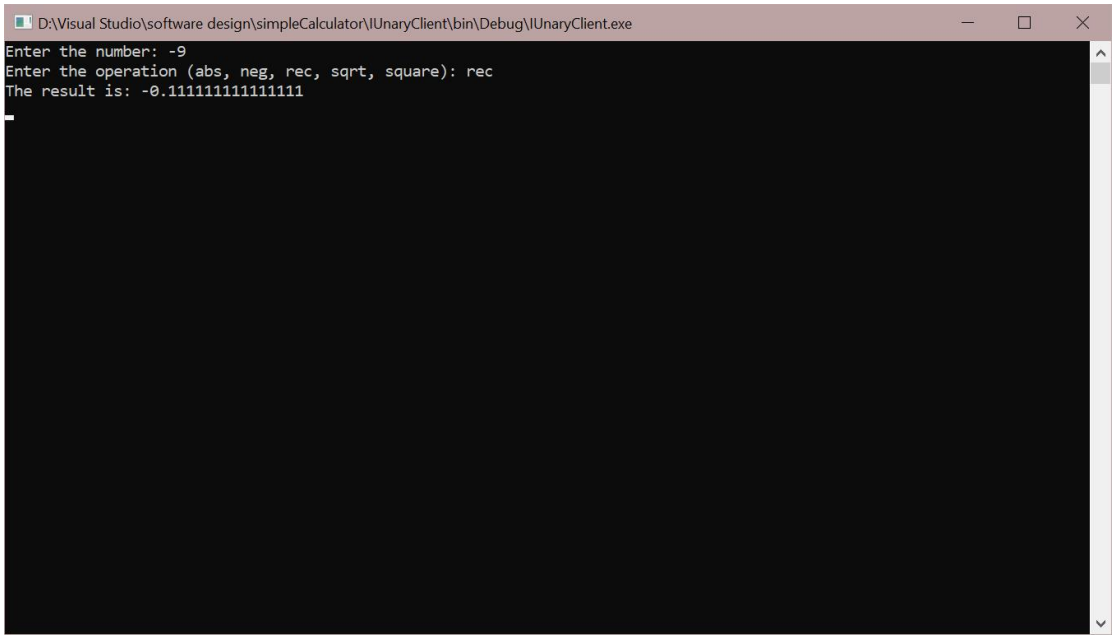
Abs



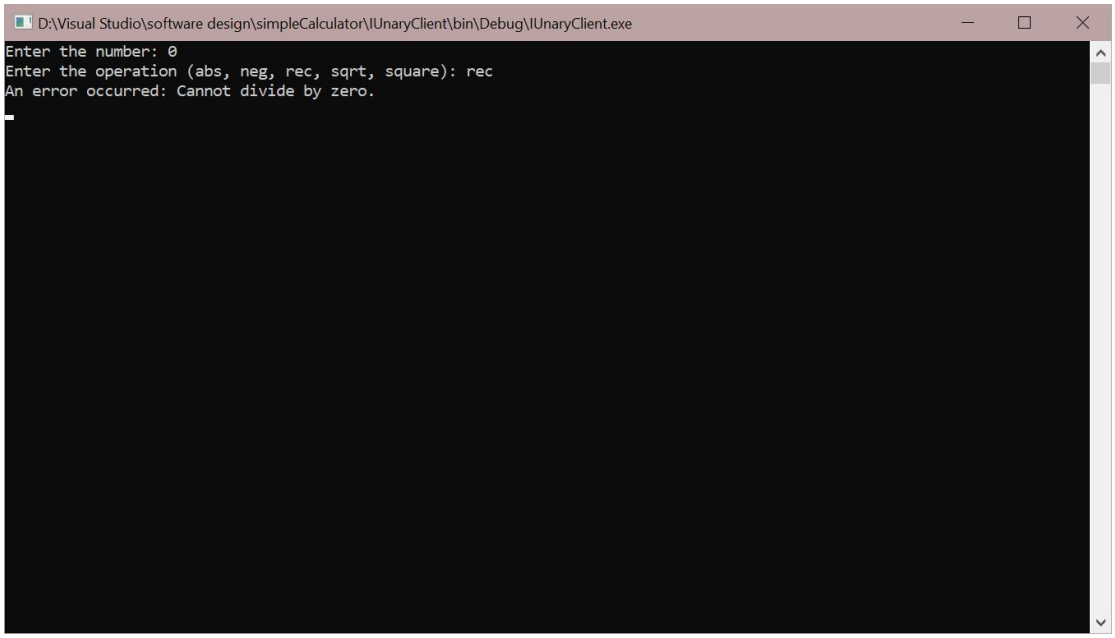
Neg


D:\Visual Studio\software design\simpleCalculator\IUnaryClient\bin\Debug\IUnaryClient.exe
Enter the number: -9
Enter the operation (abs, neg, rec, sqrt, square): neg
The result is: 9

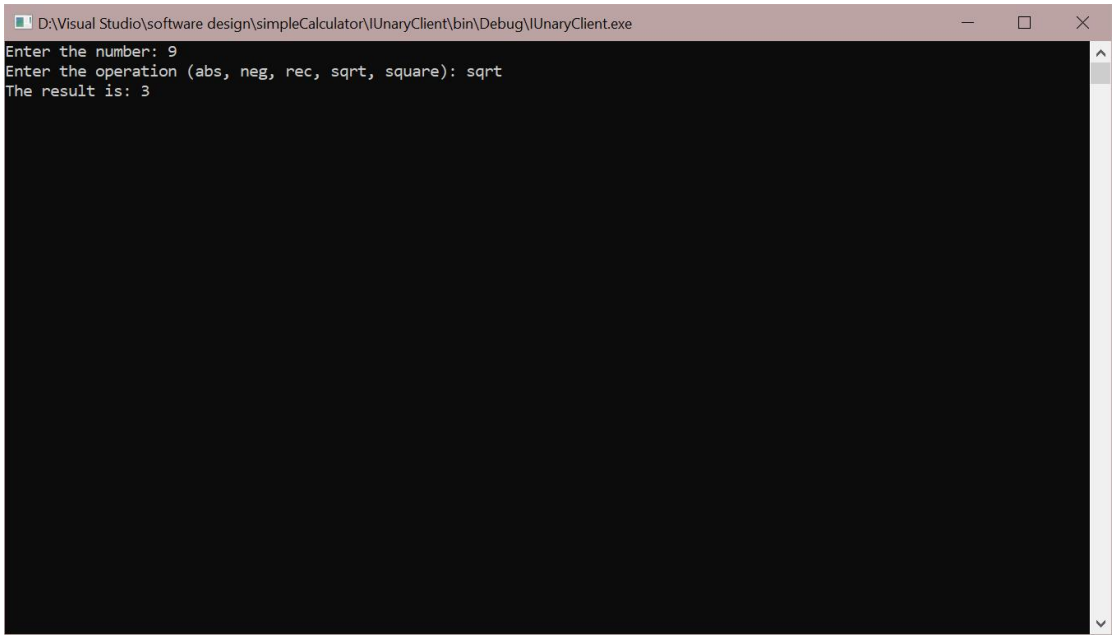
Rec


D:\Visual Studio\software design\simpleCalculator\IUnaryClient\bin\Debug\IUnaryClient.exe
Enter the number: -9
Enter the operation (abs, neg, rec, sqrt, square): rec
The result is: -0.111111111111111

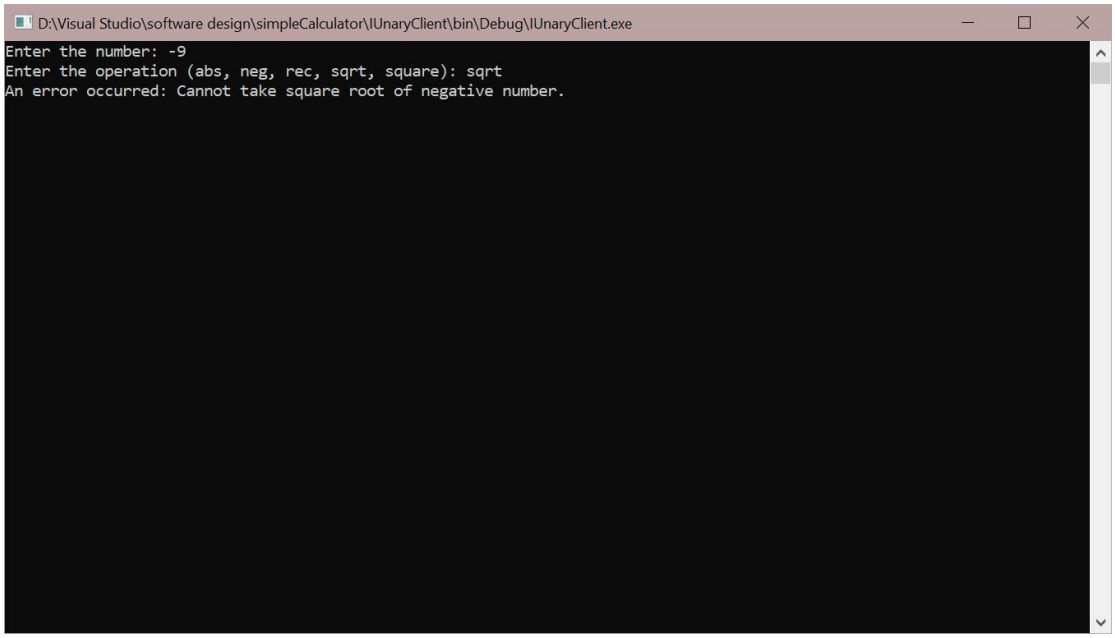
参数为 0


D:\Visual Studio\software design\simpleCalculator\IUnaryClient\bin\Debug\IUnaryClient.exe
Enter the number: 0
Enter the operation (abs, neg, rec, sqrt, square): rec
An error occurred: Cannot divide by zero.

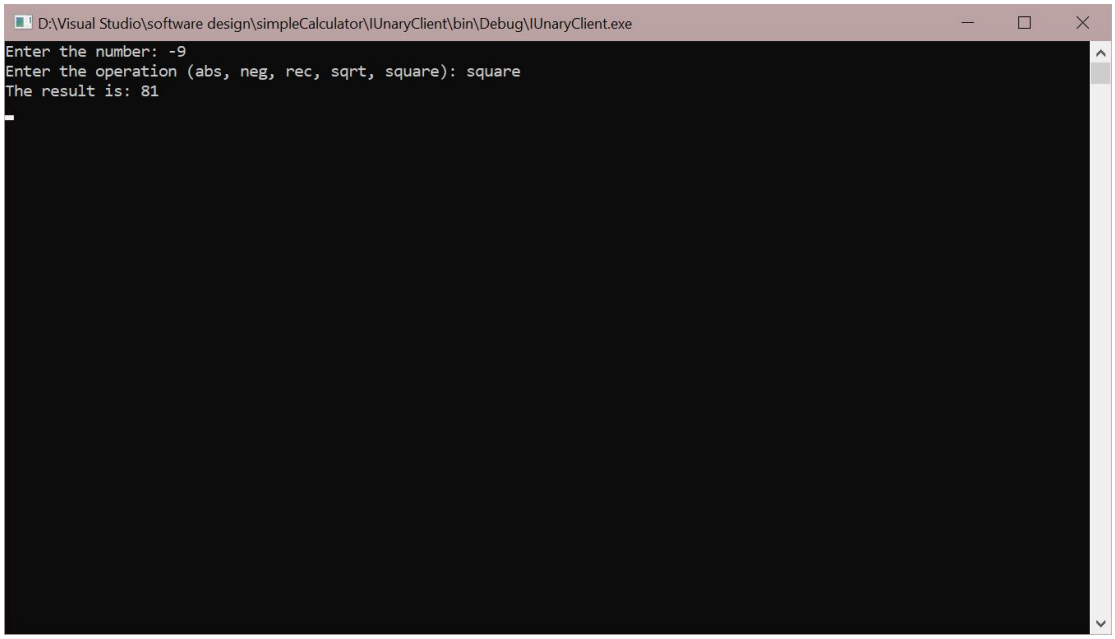
Sqrt


D:\Visual Studio\software design\simpleCalculator\IUnaryClient\bin\Debug\IUnaryClient.exe
Enter the number: 9
Enter the operation (abs, neg, rec, sqrt, square): sqrt
The result is: 3

参数为负

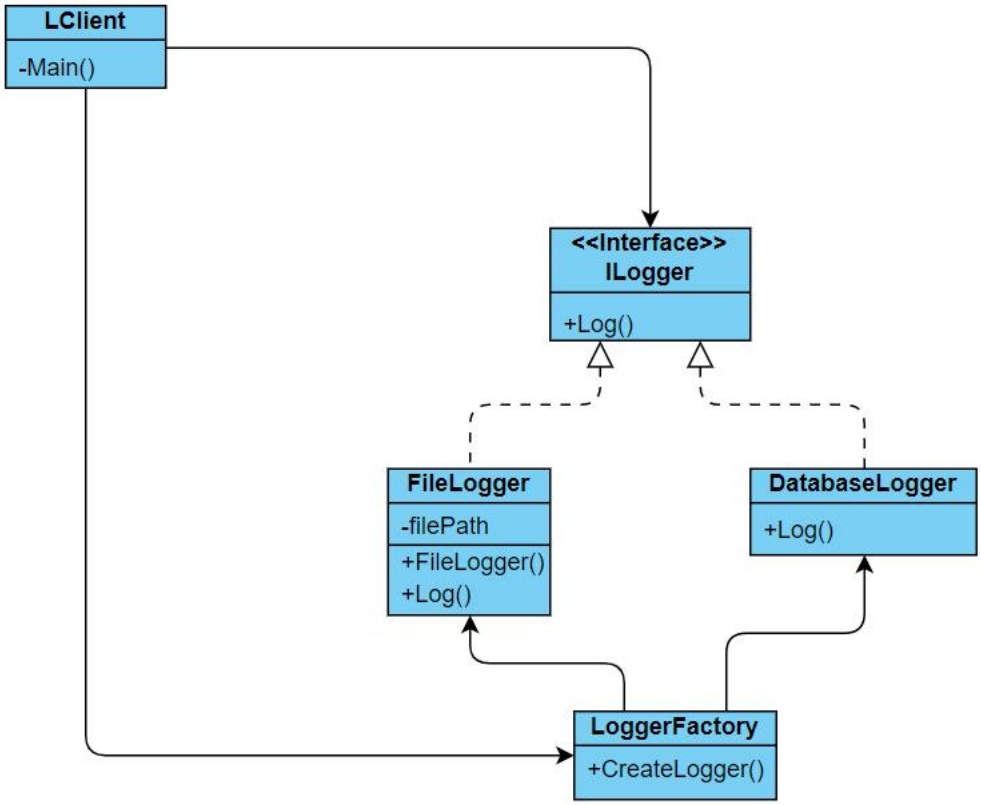


Square

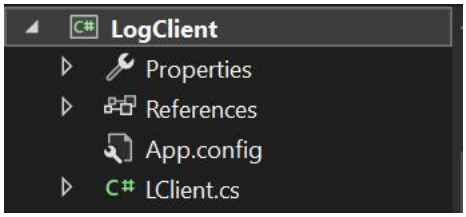


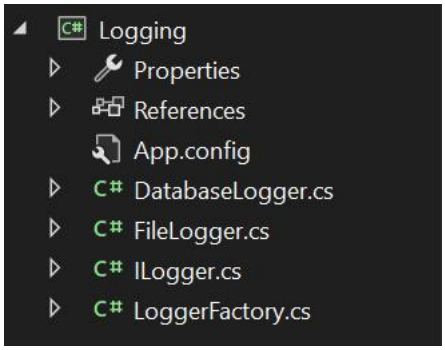
（5）采用工厂方法模式设计实现计算器的写日志功能，将日志写入到本地文档，要考虑写日志功能的扩展性，即后期可能需要将日志写入数据库。

①类图



②代码结构

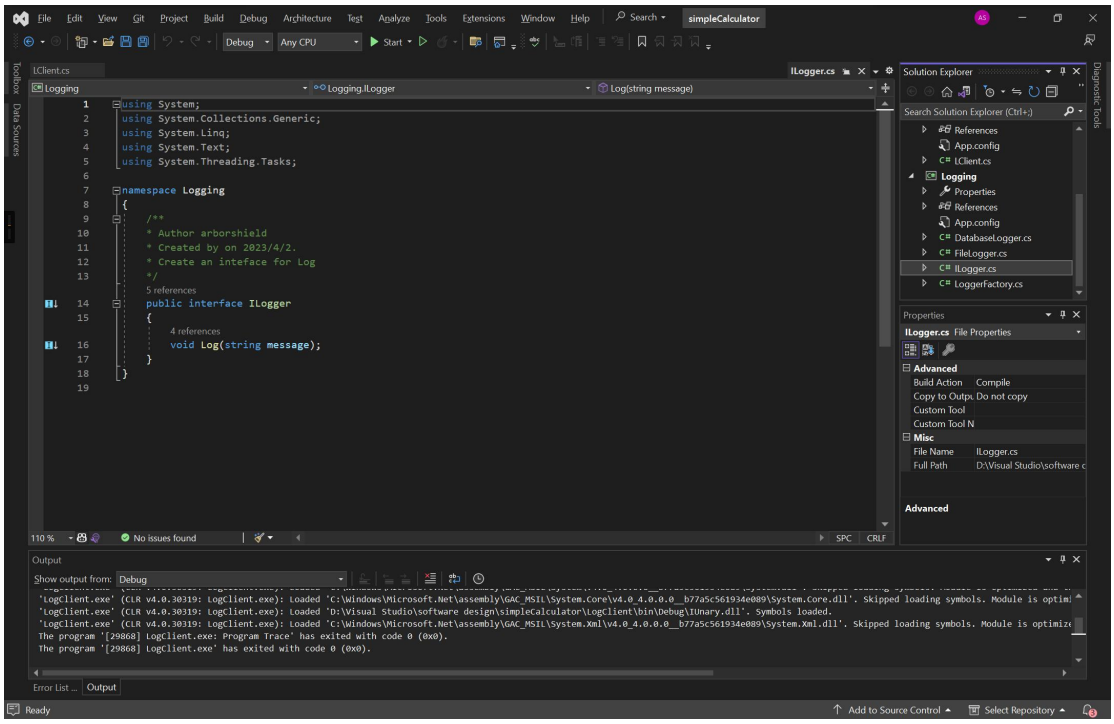




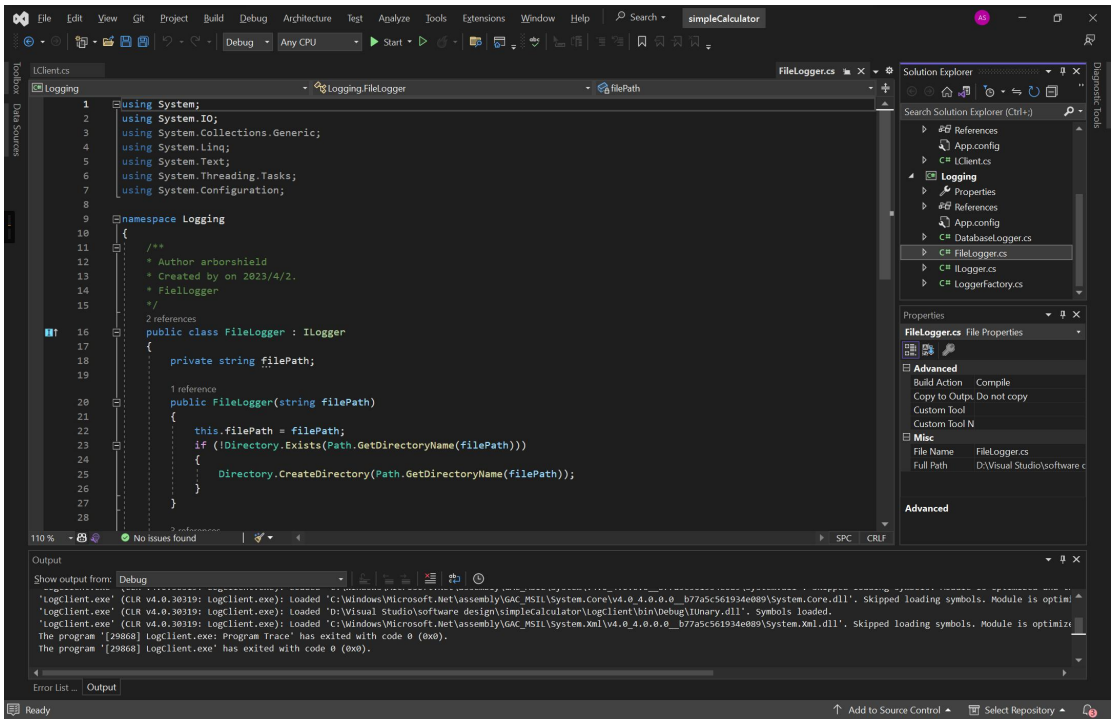
③核心类代码

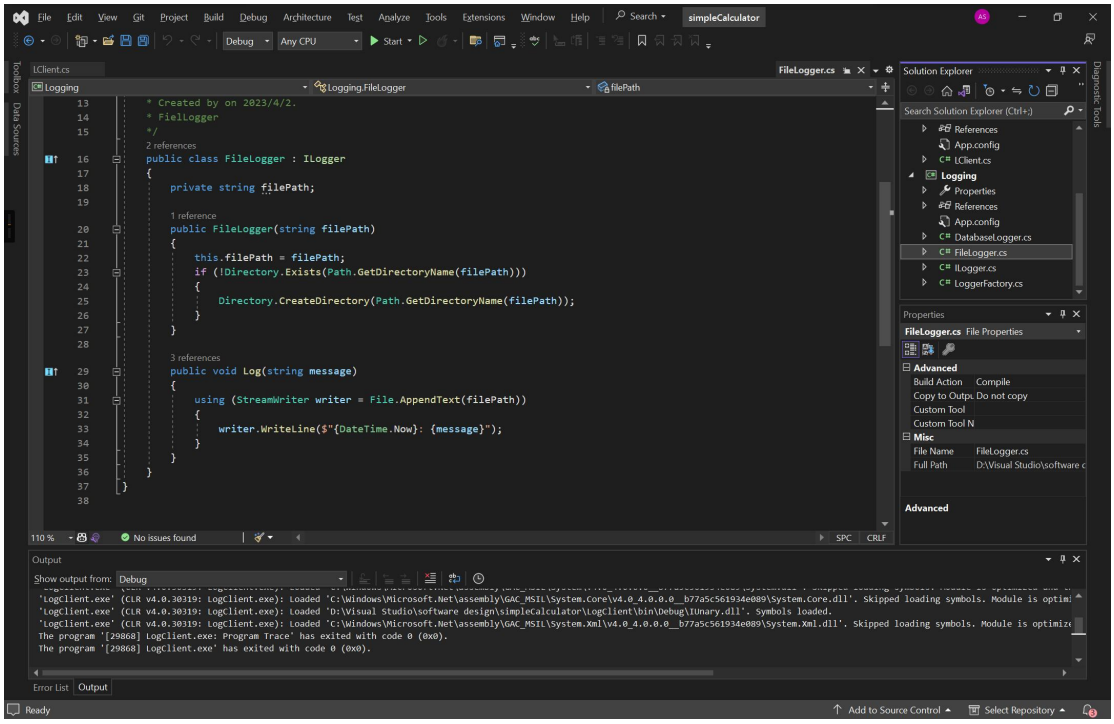
Project Logging

Interface ILogger

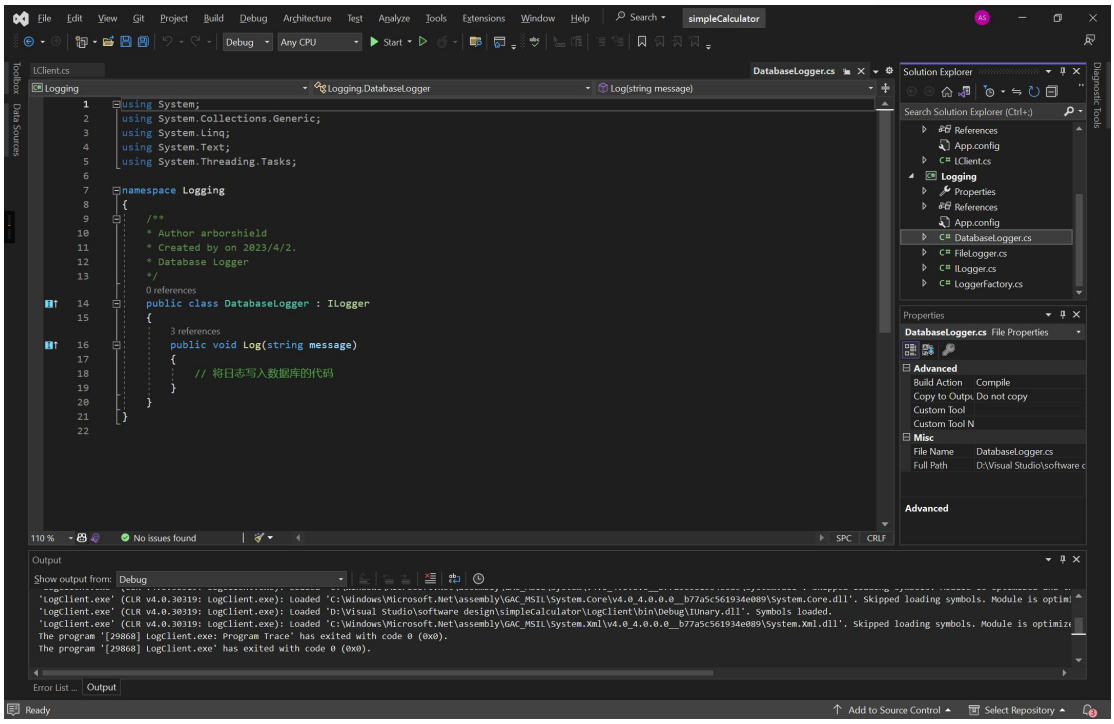


Class FileLogger

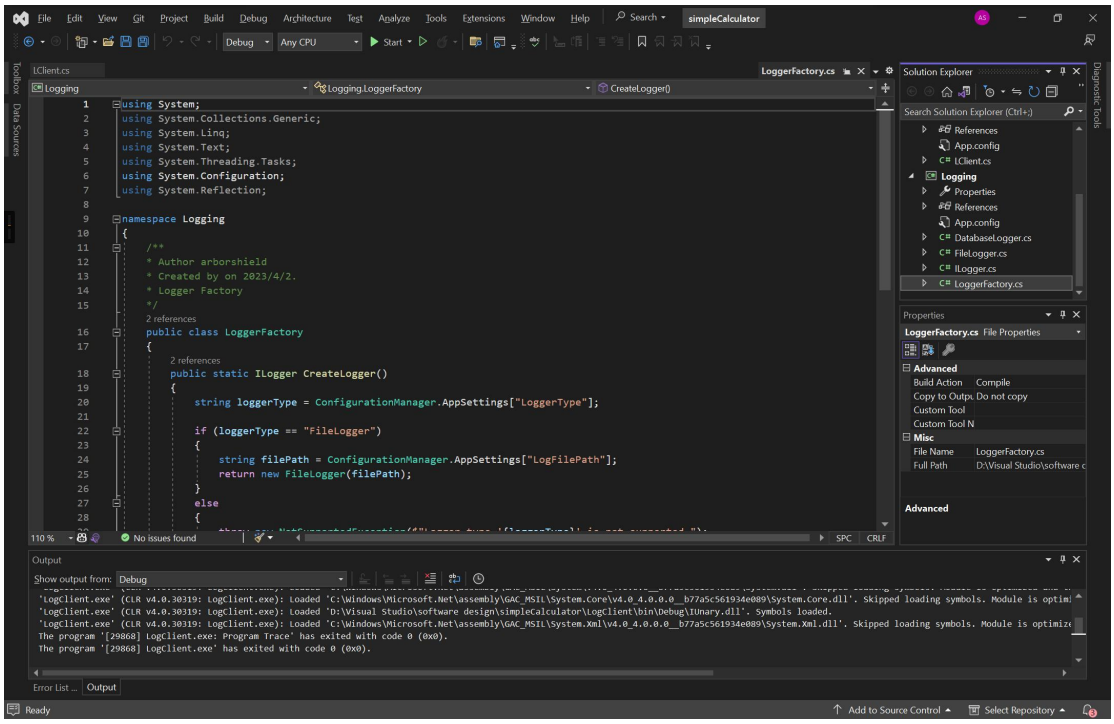


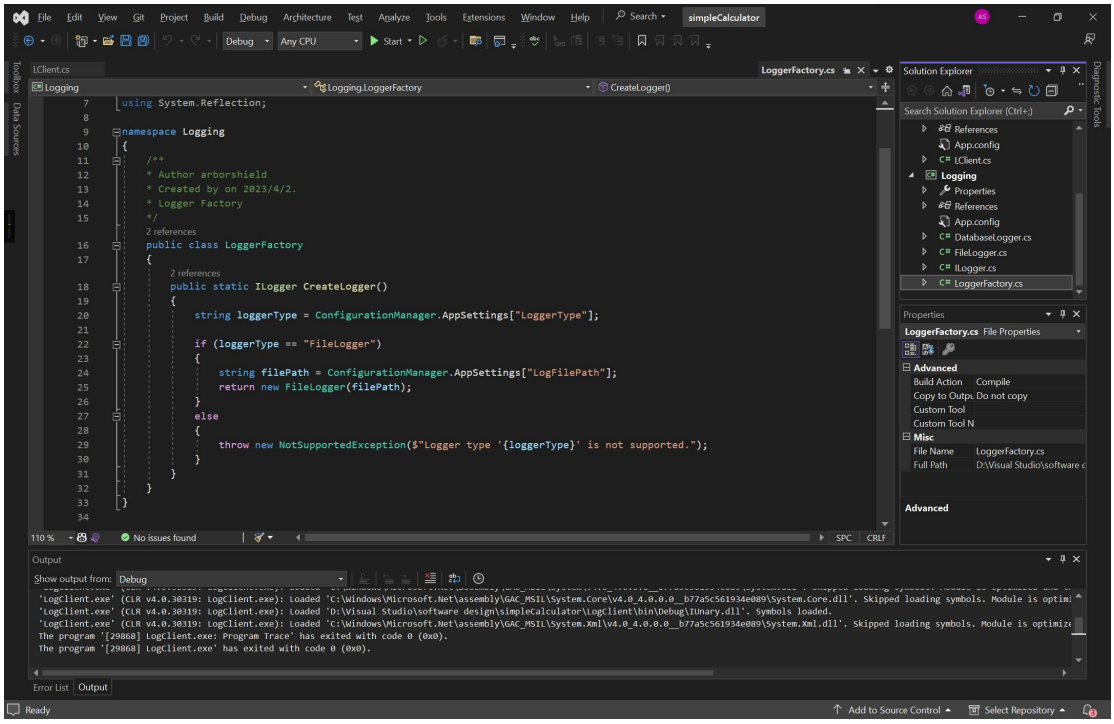


Class DatabaseLogger

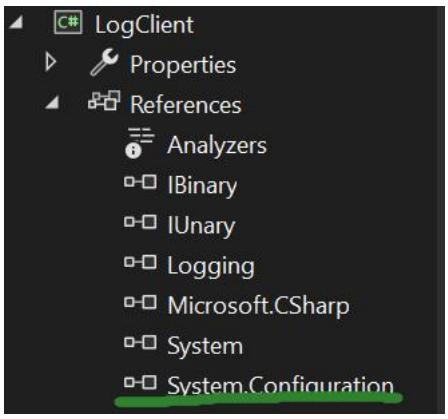


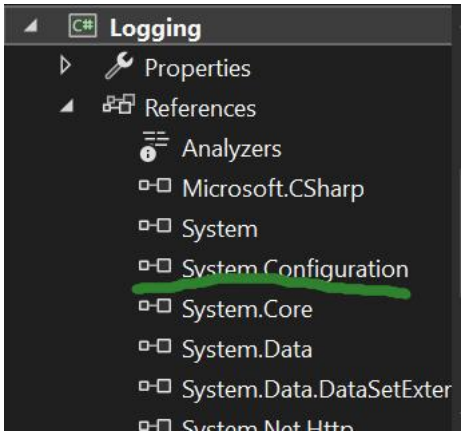
Class Logger Factory


File Edit View Git Project Build Debug Architecture Test Analyze Tools Extensions Window Help
simpleCalculator
Debug
Any CPU
Start
LClient.cs
LoggerFactory.cs
Logging
Logging.LoggerFactory
CreateLogger()
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Configuration;
using System.Reflection;
namespace Logging
{
/**
* Author arborshield
* Created by on 2023/4/2.
* Logger Factory
*/
2 references
public class LoggerFactory
{
2 references
public static ILogger CreateLogger()
{
string loggerType = ConfigurationManager.AppSettings["LoggerType"];
if (loggerType == "FileLogger")
{
string filePath = ConfigurationManager.AppSettings["LogFilePath"];
return new FileLogger(filePath);
}
else
{
Solution Explorer
Search Solution Explorer (Ctrl+;)
References
App.config
LClient.cs
Logging
Properties
References
App.config
DatabaseLogger.cs
FileLogger.cs
ILogger.cs
LoggerFactory.cs
Properties
LoggerFactory.cs File Properties
Advanced
Build Action Compile
Copy to Outpu Do not copy
Custom Tool
Custom Tool N
Misc
File Name LoggerFactory.cs
Full Path D:\Visual Studio\software
Advanced
110 %
No issues found
SPC
CRLF
Output
Show output from: Debug
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Core\v4.0_4.0.0.0__b77a5c561934e089\System.Core.dll'. Skipped loading symbols. Module is optim
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\IUnary.dll'. Symbols loaded.
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Xml\v4.0_4.0.0.0__b77a5c561934e089\System.Xml.dll'. Skipped loading symbols. Module is optimize
The program '[29868] LogClient.exe: Program Trace' has exited with code 0 (0x0).
The program '[29868] LogClient.exe' has exited with code 0 (0x0).
Error List ...
Output
Ready
Add to Source Control
Select Repository


File Edit View Git Project Build Debug Architecture Test Analyze Tools Extensions Window Help
simpleCalculator
Debug
Any CPU
Start
LClient.cs
LoggerFactory.cs
Logging
Logging.LoggerFactory
CreateLogger()
using System.Reflection;
namespace Logging
{
/**
* Author arborshield
* Created by on 2023/4/2.
* Logger Factory
*/
2 references
public class LoggerFactory
{
2 references
public static ILogger CreateLogger()
{
string loggerType = ConfigurationManager.AppSettings["LoggerType"];
if (loggerType == "FileLogger")
{
string filePath = ConfigurationManager.AppSettings["LogFilePath"];
return new FileLogger(filePath);
}
else
{
throw new NotSupportedException($"Logger type '{loggerType}' is not supported.");
}
}
}
}
Solution Explorer
Search Solution Explorer (Ctrl+;)
References
App.config
LClient.cs
Logging
Properties
References
App.config
DatabaseLogger.cs
FileLogger.cs
ILogger.cs
LoggerFactory.cs
Properties
LoggerFactory.cs File Properties
Advanced
Build Action Compile
Copy to Outpu Do not copy
Custom Tool
Custom Tool N
Misc
File Name LoggerFactory.cs
Full Path D:\Visual Studio\software
Advanced
110 %
No issues found
SPC
CRLF
Output
Show output from: Debug
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Core\v4.0_4.0.0.0__b77a5c561934e089\System.Core.dll'. Skipped loading symbols. Module is optim
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\IUnary.dll'. Symbols loaded.
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Xml\v4.0_4.0.0.0__b77a5c561934e089\System.Xml.dll'. Skipped loading symbols. Module is optimize
The program '[29868] LogClient.exe: Program Trace' has exited with code 0 (0x0).
The program '[29868] LogClient.exe' has exited with code 0 (0x0).
Error List
Output
Ready
Add to Source Control
Select Repository

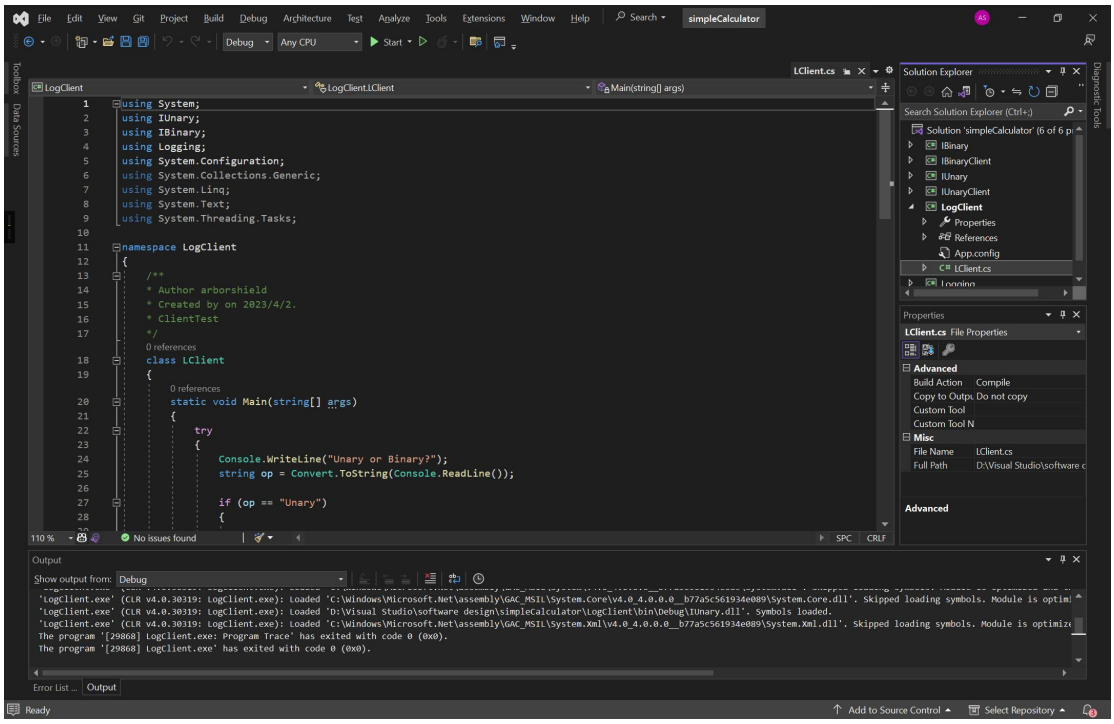
④客户端代码

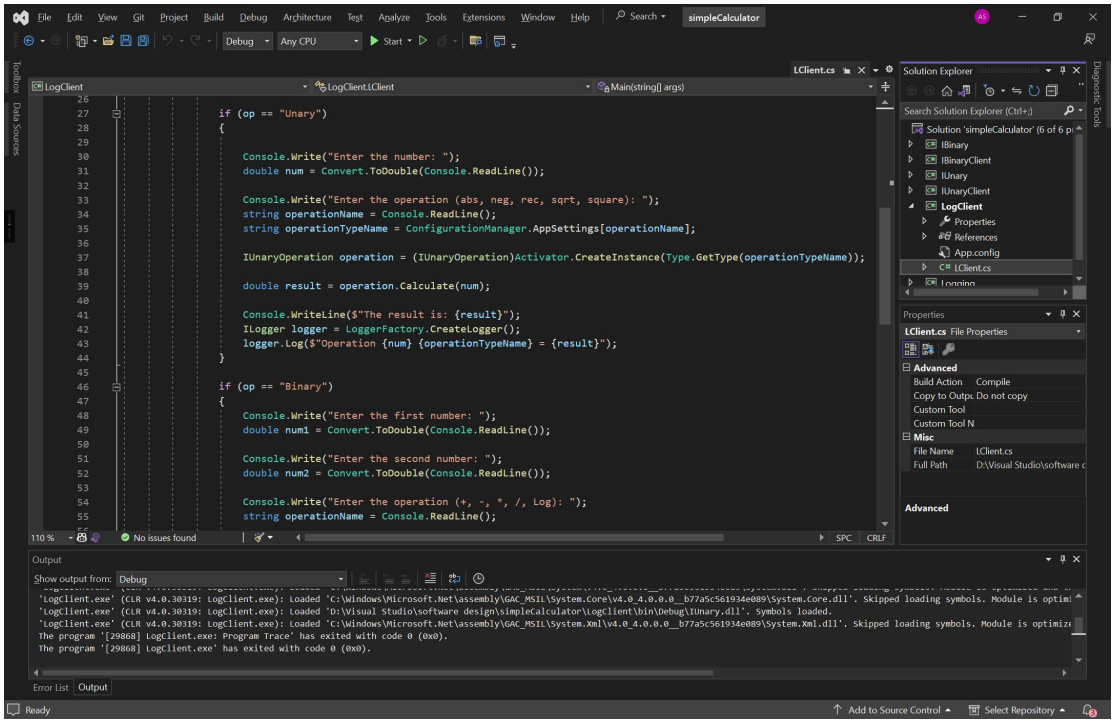


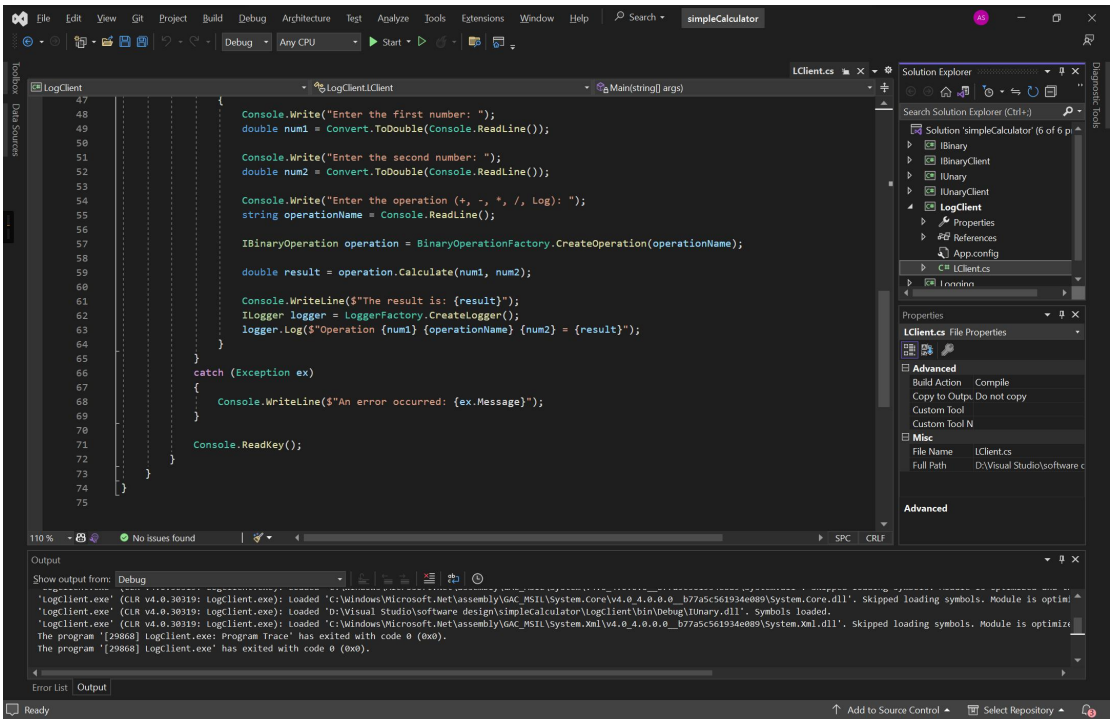


Project LogClient

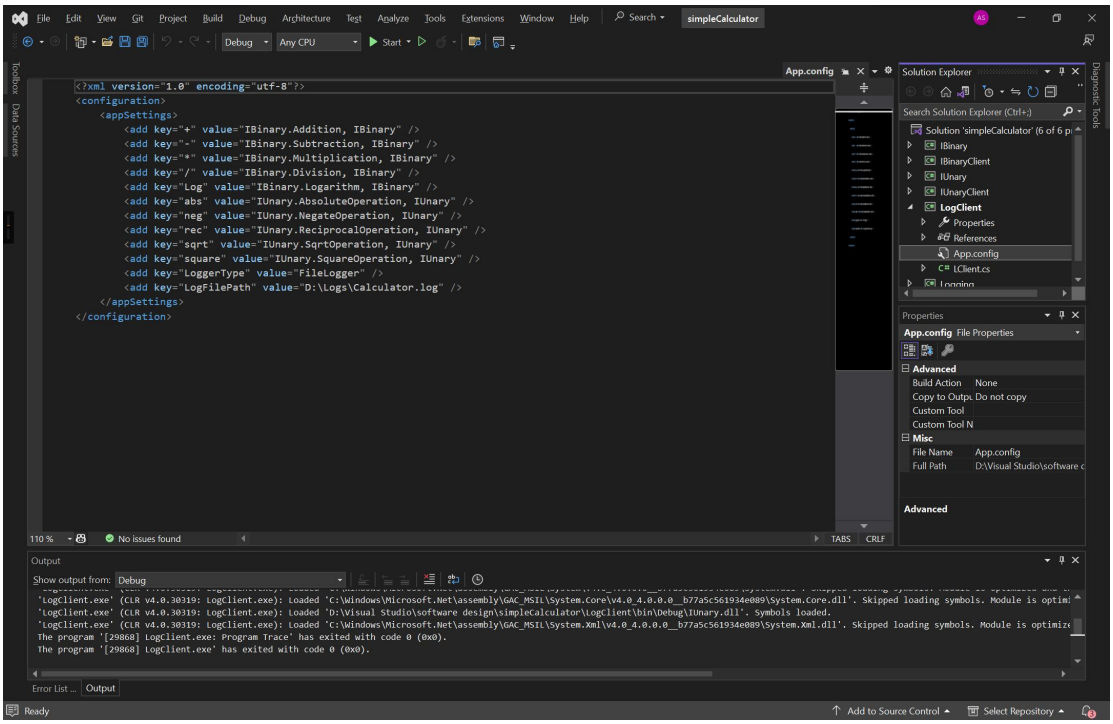
Class LClient


File Edit View Git Project Build Debug Architecture Test Analyze Tools Extensions Window Help
simpleCalculator
Debug
Any CPU
Start
LClient.cs
LogClient
LogClient.LClient
Main(string[] args)
using System;
using IUnary;
using IBinary;
using Logging;
using System.Configuration;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace LogClient
{
/**
* Author arborshield
* Created by on 2023/4/2.
* ClientTest
*/
0 references
class LClient
{
0 references
static void Main(string[] args)
{
try
{
Console.WriteLine("Unary or Binary?");
string op = Convert.ToString(Console.ReadLine());
if (op == "Unary")
{
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'simpleCalculator' (6 of 6 p
IBinary
IBinaryClient
IUnary
IUnaryClient
LogClient
Properties
References
App.config
LClient.cs
Logging
Properties
LClient.cs File Properties
Advanced
Build Action Compile
Copy to Outpu Do not copy
Custom Tool
Custom Tool N
Misc
File Name LClient.cs
Full Path D:\Visual Studio\software
Advanced
110 %
No issues found
SPC
CRLF
Output
Show output from: Debug
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Core\v4.0_4.0.0.0__b77a5c561934e089\System.Core.dll'. Skipped loading symbols. Module is optim
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\IUnary.dll'. Symbols loaded.
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Xml\v4.0_4.0.0.0__b77a5c561934e089\System.Xml.dll'. Skipped loading symbols. Module is optimize
The program '[29868] LogClient.exe: Program Trace' has exited with code 0 (0x0).
The program '[29868] LogClient.exe' has exited with code 0 (0x0).
Error List ...
Output
Ready
Add to Source Control
Select Repository

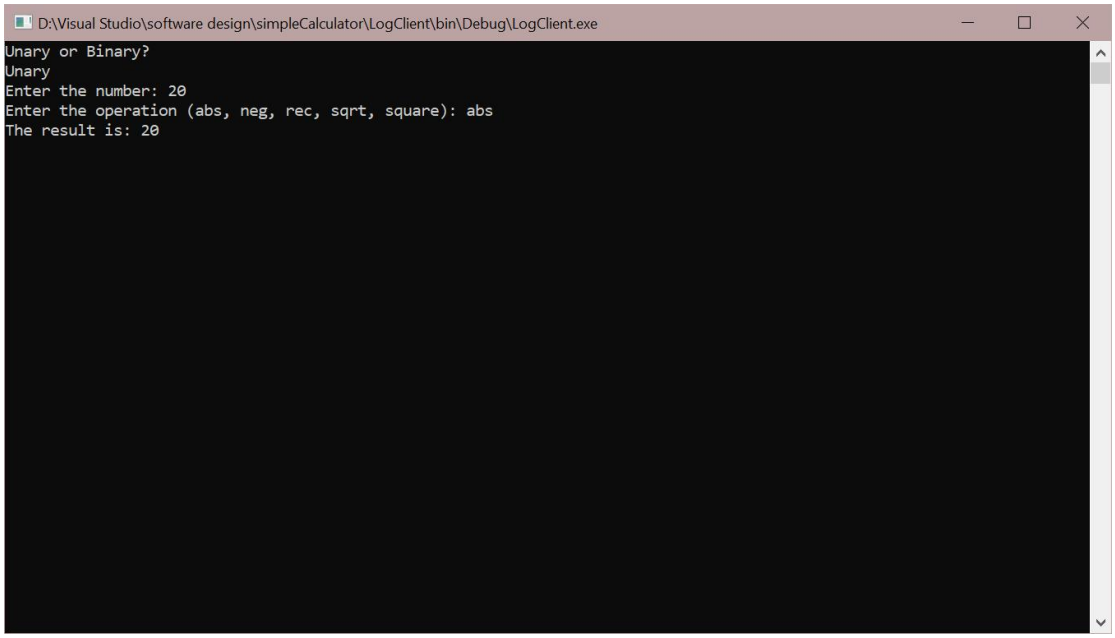

File Edit View Git Project Build Debug Architecture Test Analyze Tools Extensions Window Help
simpleCalculator
Debug
Any CPU
Start
LClient.cs
LogClient
LogClient.LClient
Main(string[] args)
if (op == "Unary")
{
Console.Write("Enter the number: ");
double num = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the operation (abs, neg, rec, sqrt, square): ");
string operationName = Console.ReadLine();
string operationTypeName = ConfigurationManager.AppSettings[operationName];
IUnaryOperation operation = (IUnaryOperation)Activator.CreateInstance(Type.GetType(operationTypeName));
double result = operation.Calculate(num);
Console.WriteLine($"The result is: {result}");
ILogger logger = LoggerFactory.CreateLogger();
logger.Log($"Operation {num} {operationTypeName} = {result}");
}
if (op == "Binary")
{
Console.Write("Enter the first number: ");
double num1 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the second number: ");
double num2 = Convert.ToDouble(Console.ReadLine());
Console.Write("Enter the operation (+, -, *, /, Log): ");
string operationName = Console.ReadLine();
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'simpleCalculator' (6 of 6 p
IBinary
IBinaryClient
IUnary
IUnaryClient
LogClient
Properties
References
App.config
LClient.cs
Logging
Properties
LClient.cs File Properties
Advanced
Build Action Compile
Copy to Outpu Do not copy
Custom Tool
Custom Tool N
Misc
File Name LClient.cs
Full Path D:\Visual Studio\software
Advanced
110 %
No issues found
SPC
CRLF
Output
Show output from: Debug
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Core\v4.0_4.0.0.0__b77a5c561934e089\System.Core.dll'. Skipped loading symbols. Module is optim
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\IUnary.dll'. Symbols loaded.
'LogClient.exe' (CLR v4.0.30319: LogClient.exe): Loaded 'C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Xml\v4.0_4.0.0.0__b77a5c561934e089\System.Xml.dll'. Skipped loading symbols. Module is optimize
The program '[29868] LogClient.exe: Program Trace' has exited with code 0 (0x0).
The program '[29868] LogClient.exe' has exited with code 0 (0x0).
Error List
Output
Ready
Add to Source Control
Select Repository

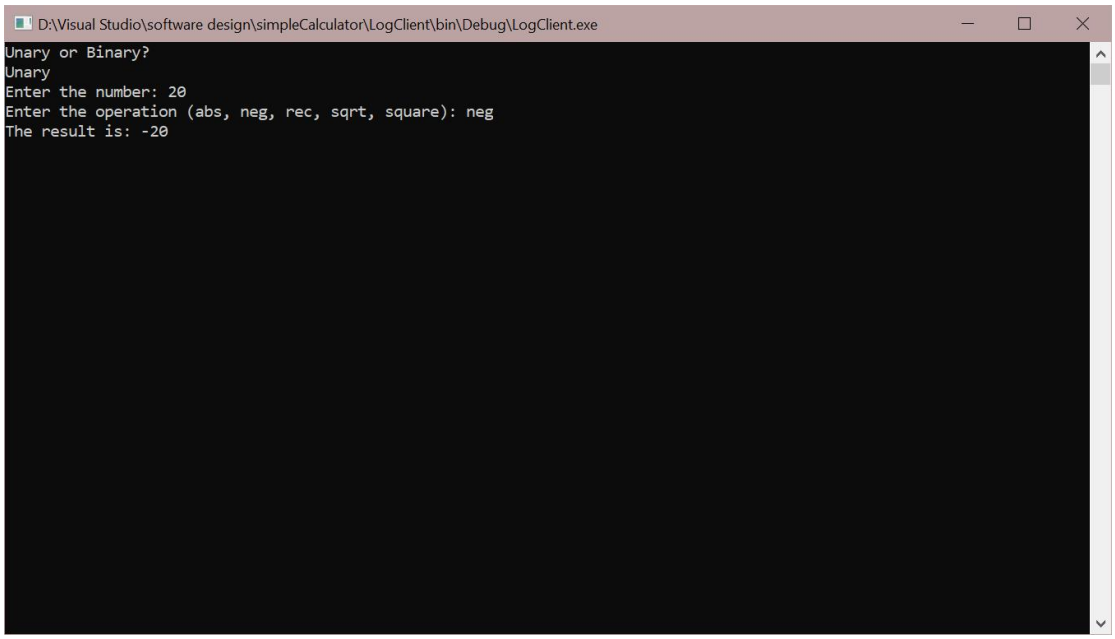


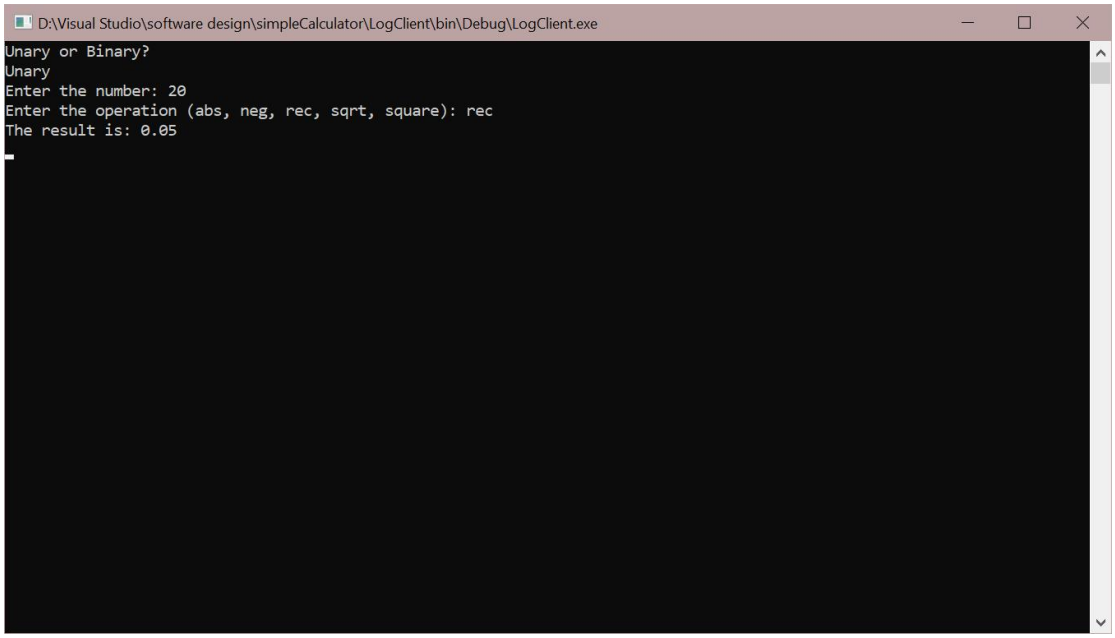
⑤配置文件

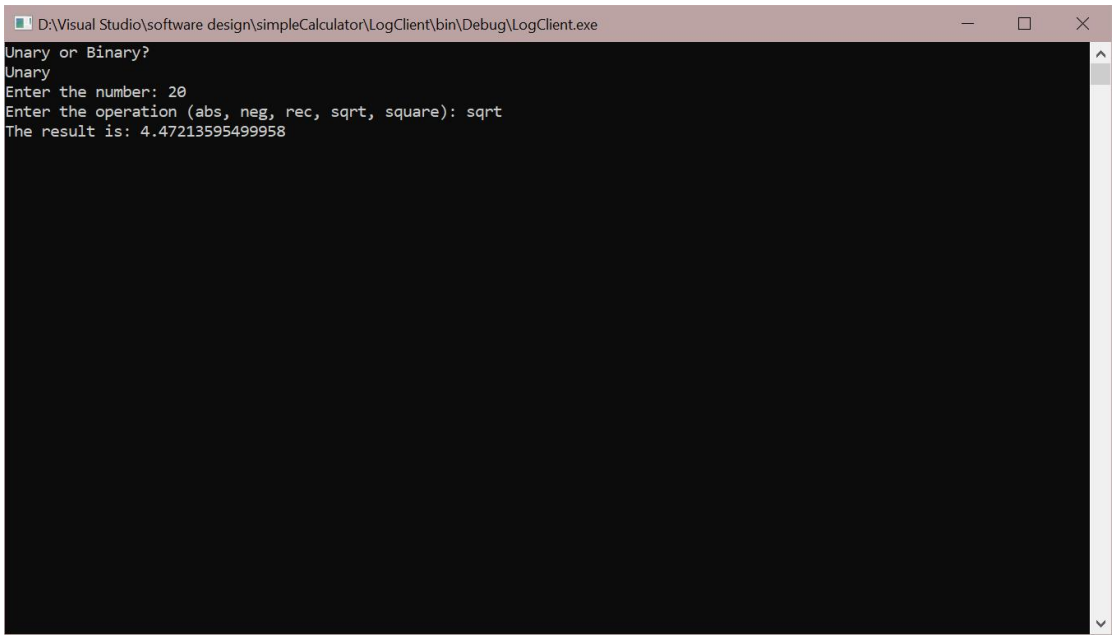


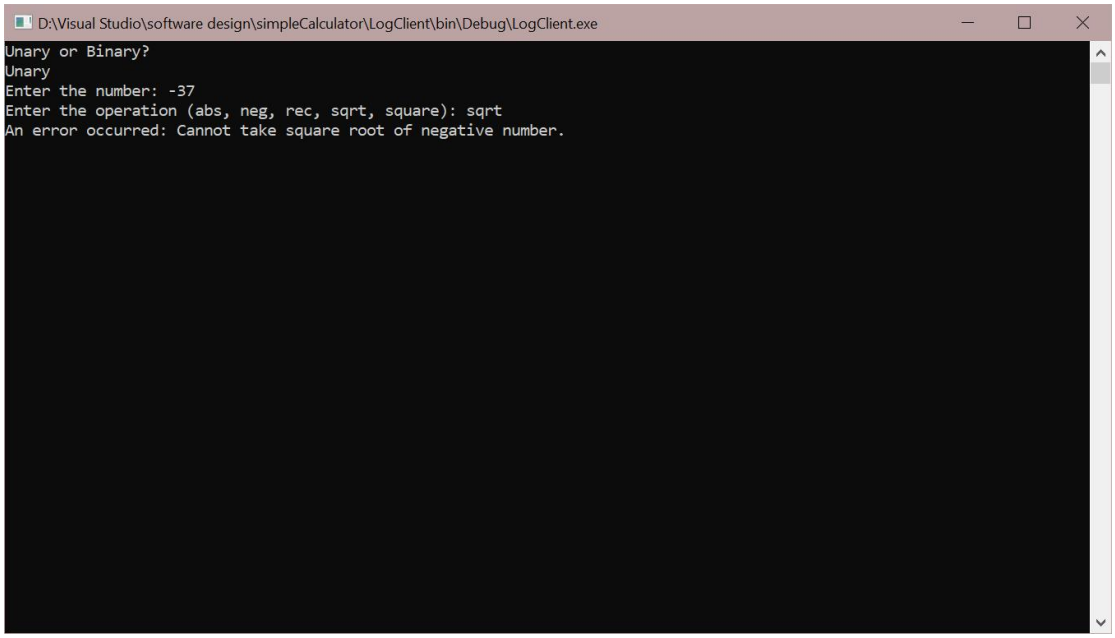
⑥客户端测试

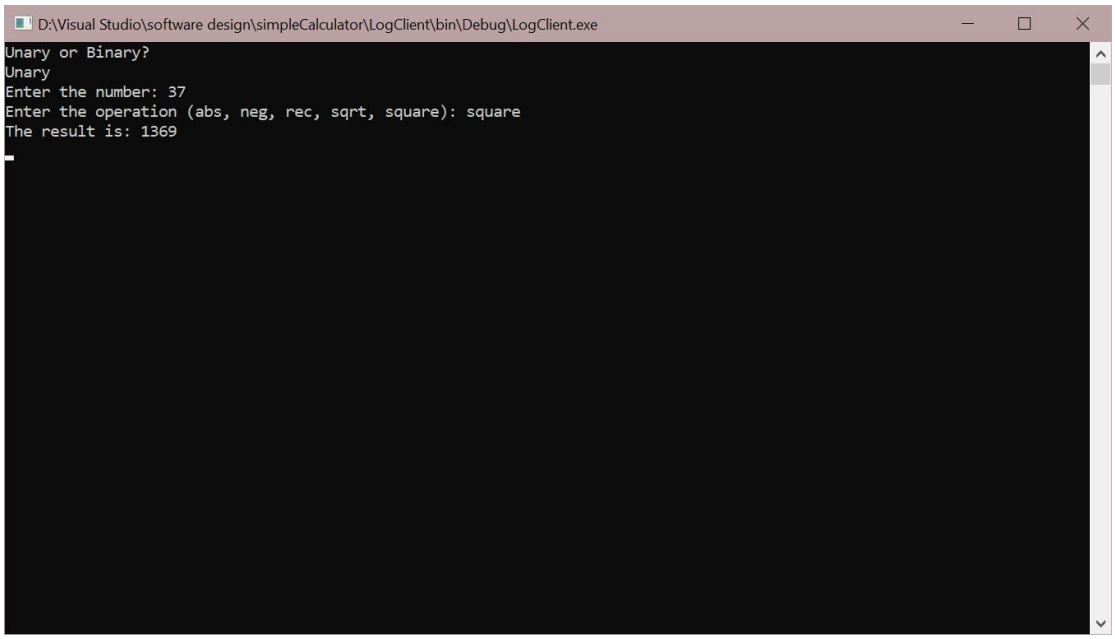

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Unary
Enter the number: 20
Enter the operation (abs, neg, rec, sqrt, square): abs
The result is: 20

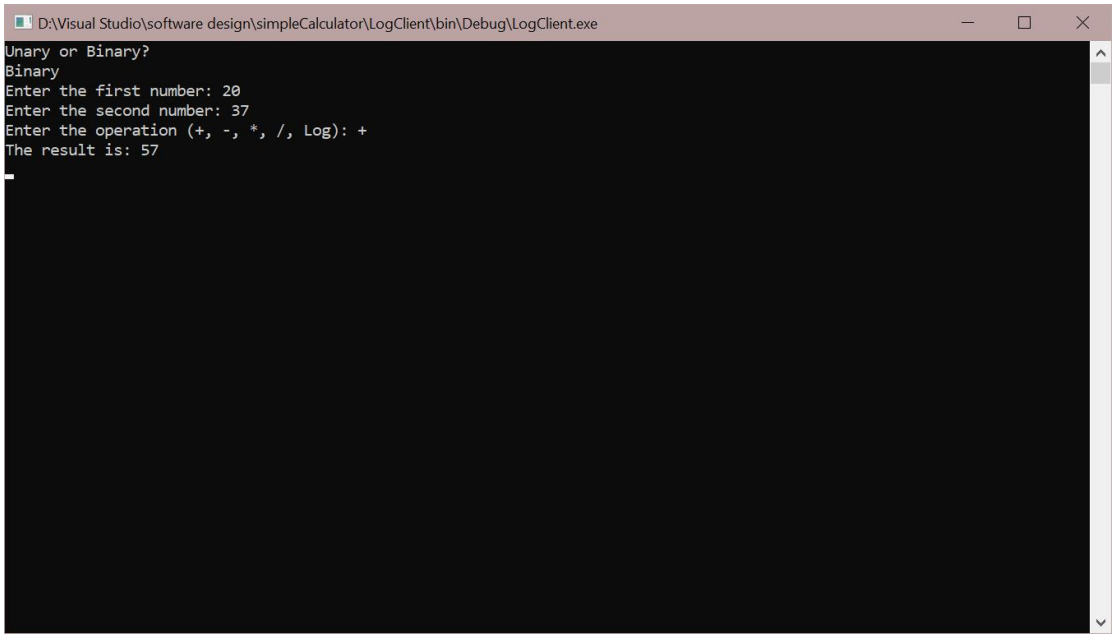

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Unary
Enter the number: 20
Enter the operation (abs, neg, rec, sqrt, square): neg
The result is: -20

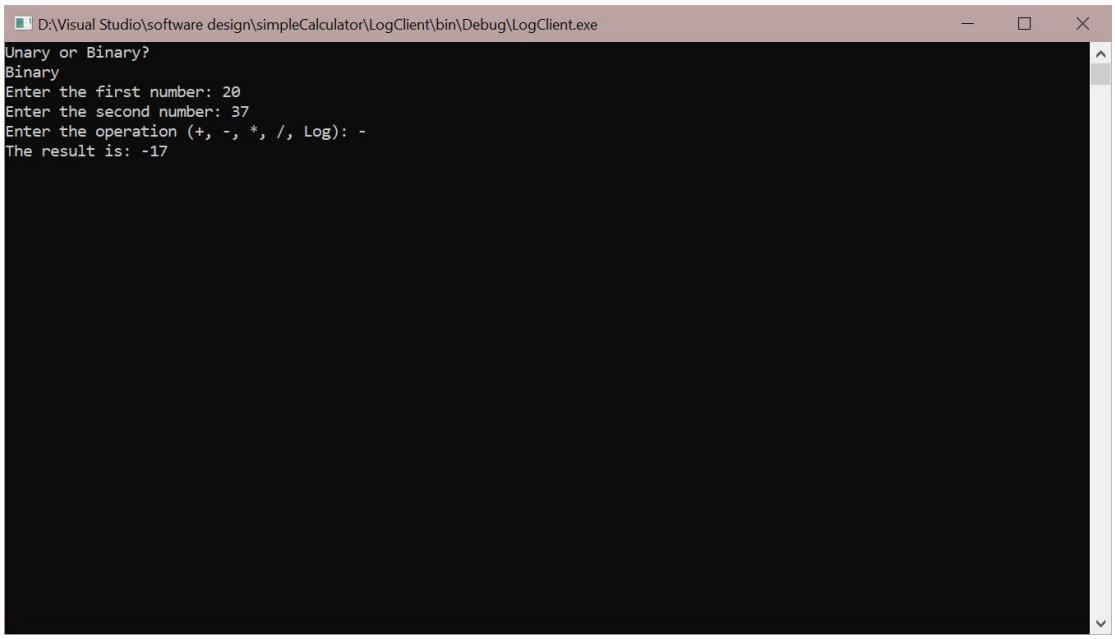

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Unary
Enter the number: 20
Enter the operation (abs, neg, rec, sqrt, square): rec
The result is: 0.05

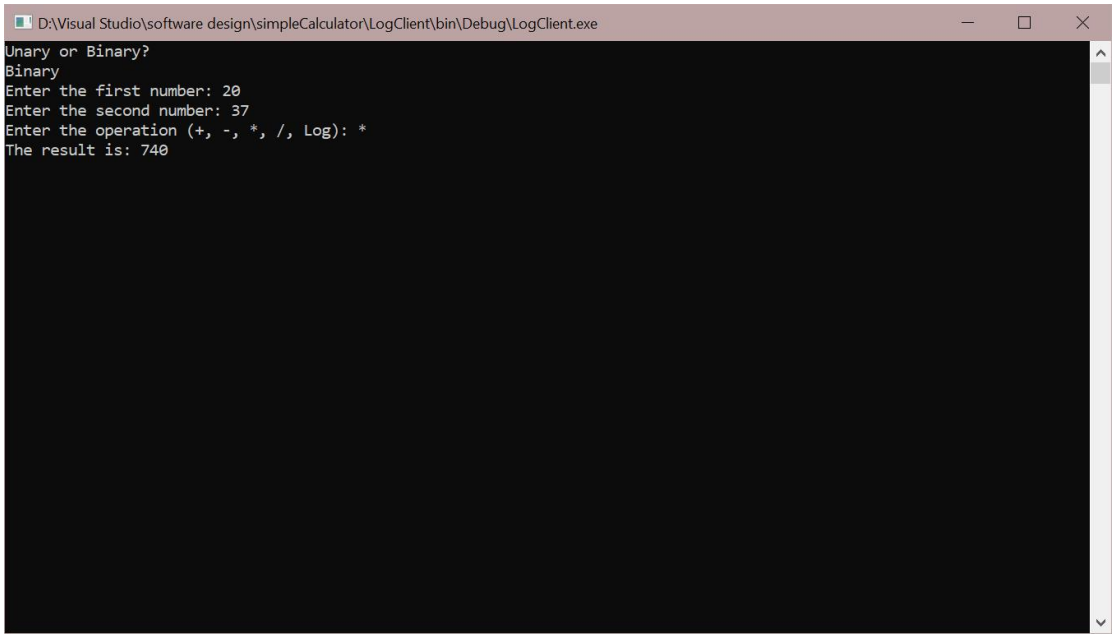

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Unary
Enter the number: 20
Enter the operation (abs, neg, rec, sqrt, square): sqrt
The result is: 4.47213595499958

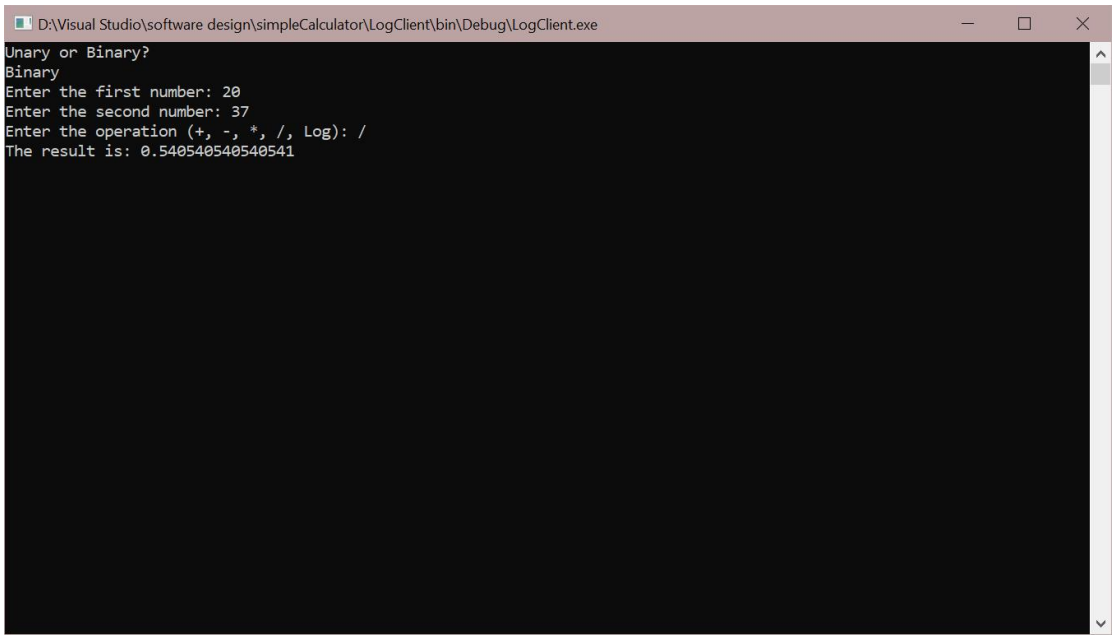

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Unary
Enter the number: -37
Enter the operation (abs, neg, rec, sqrt, square): sqrt
An error occurred: Cannot take square root of negative number.

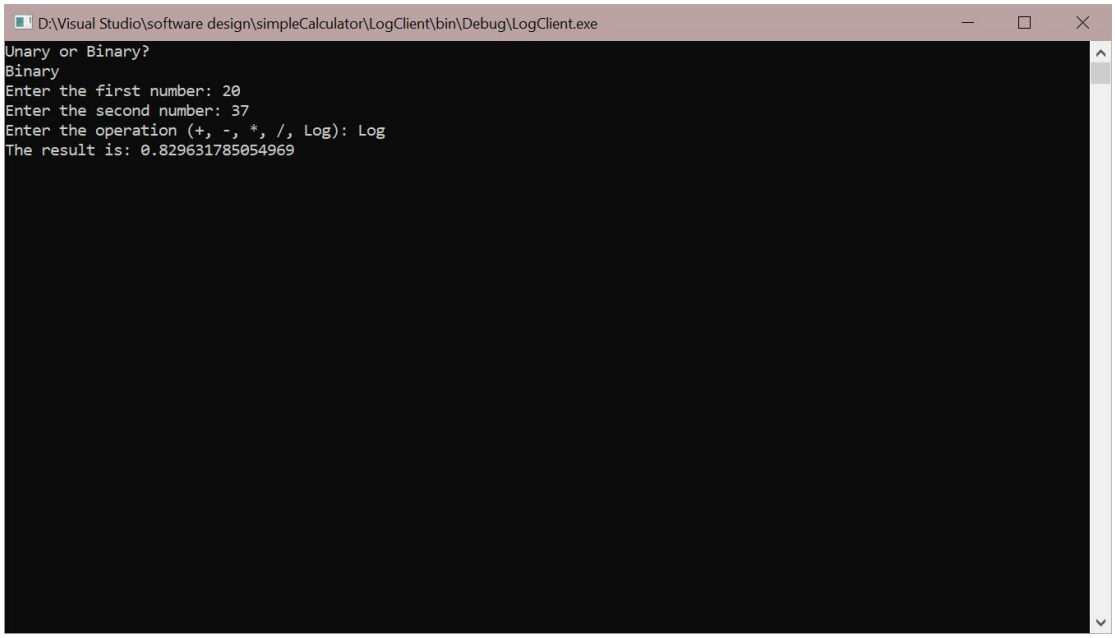

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Unary
Enter the number: 37
Enter the operation (abs, neg, rec, sqrt, square): square
The result is: 1369

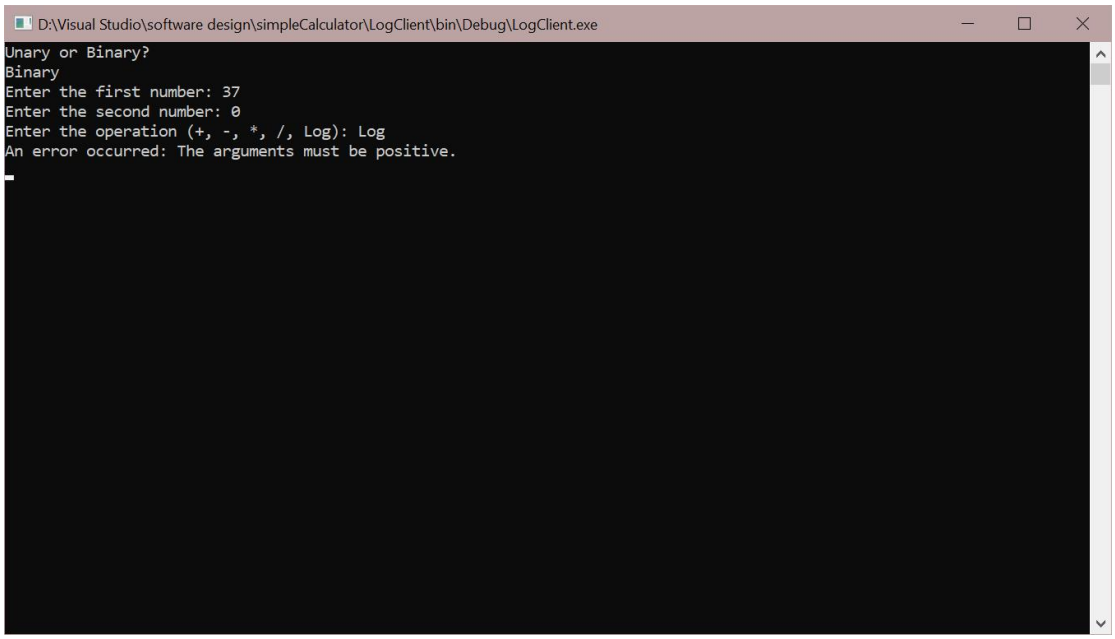

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Binary
Enter the first number: 20
Enter the second number: 37
Enter the operation (+, -, *, /, Log): +
The result is: 57


D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Binary
Enter the first number: 20
Enter the second number: 37
Enter the operation (+, -, *, /, Log): -
The result is: -17

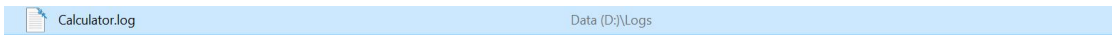

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Binary
Enter the first number: 20
Enter the second number: 37
Enter the operation (+, -, *, /, Log): *
The result is: 740

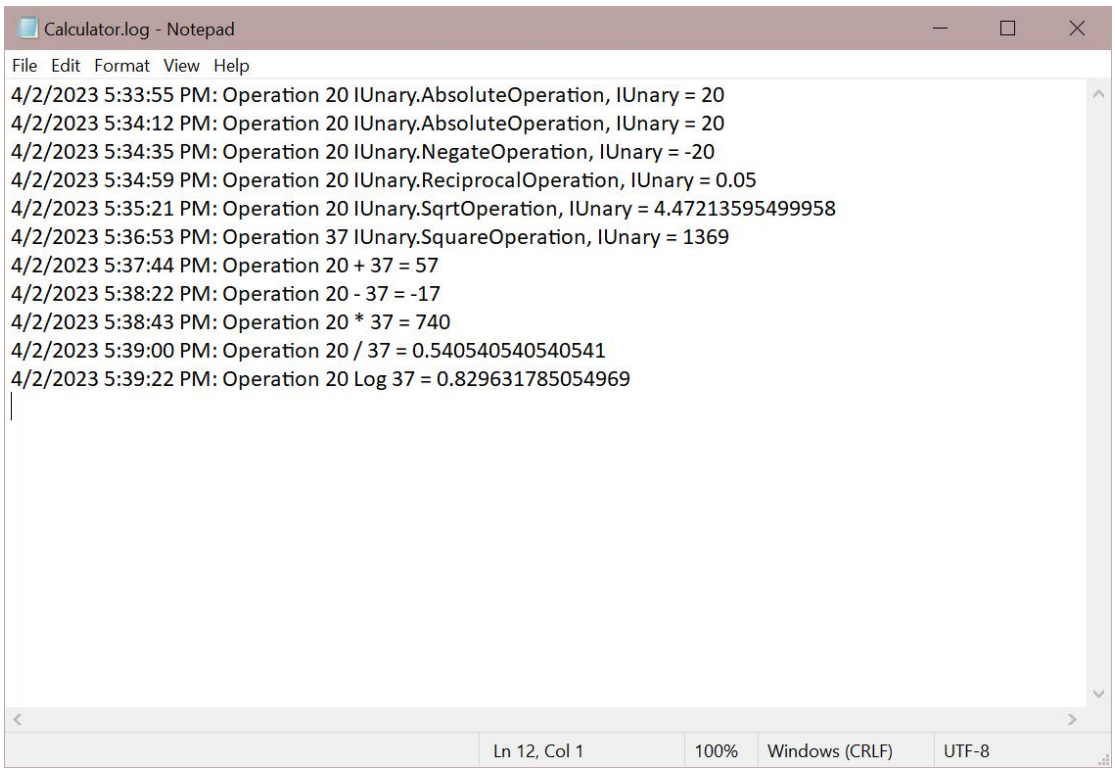

D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Binary
Enter the first number: 20
Enter the second number: 37
Enter the operation (+, -, *, /, Log): /
The result is: 0.540540540540541


D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Binary
Enter the first number: 20
Enter the second number: 37
Enter the operation (+, -, *, /, Log): Log
The result is: 0.829631785054969


D:\Visual Studio\software design\simpleCalculator\LogClient\bin\Debug\LogClient.exe
Unary or Binary?
Binary
Enter the first number: 37
Enter the second number: 0
Enter the operation (+, -, *, /, Log): Log
An error occurred: The arguments must be positive.

日志如下：


Calculator.log
Data (D:)\Logs


Calculator.log - Notepad
File Edit Format View Help
4/2/2023 5:33:55 PM: Operation 20 IUnary.AbsoluteOperation, IUnary = 20
4/2/2023 5:34:12 PM: Operation 20 IUnary.AbsoluteOperation, IUnary = 20
4/2/2023 5:34:35 PM: Operation 20 IUnary.NegateOperation, IUnary = -20
4/2/2023 5:34:59 PM: Operation 20 IUnary.ReciprocalOperation, IUnary = 0.05
4/2/2023 5:35:21 PM: Operation 20 IUnary.SqrtOperation, IUnary = 4.47213595499958
4/2/2023 5:36:53 PM: Operation 37 IUnary.SquareOperation, IUnary = 1369
4/2/2023 5:37:44 PM: Operation 20 + 37 = 57
4/2/2023 5:38:22 PM: Operation 20 - 37 = -17
4/2/2023 5:38:43 PM: Operation 20 * 37 = 740
4/2/2023 5:39:00 PM: Operation 20 / 37 = 0.540540540540541
4/2/2023 5:39:22 PM: Operation 20 Log 37 = 0.829631785054969
Ln 12, Col 1
100%
Windows (CRLF)
UTF-8