

UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA



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*SOFTWARE ENGINEERING*

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**ASSIGNMENT-1 SOLUTION**

SUBMITTED TO : MS.SABA AWAN

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REG NO : 20-SE-56

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## QUESTION

Illustrate a C++ program to develop a "SCIENTIFIC CALCULATOR". The program should include all the concepts related to switches, if-else constructs, and library functions, exceptional Cases/Invalid Choices. Output should be like given below:

## SOLUTION

### CODE:

```
#include<iostream>

#include<math.h>

#include<cmath>

#include<conio.h>

#include<iomanip>

using namespace std;

int main ()

{

    //initialized an integer type variable to select operation user want to perform

    int select_ope;

    cout<<endl<<endl;

    cout<<" WELCOME TO CALCULATOR BY 20-SE-56 MUHAMMAD ARSALAN"<<endl;

    cout<<"-----";

    cout<<"-----";

    cout<<"+++++
+++++";

    cout<<"-----";

    cout<<"-----";

    cout<<endl<<endl;

    //declared this statement so that after performing some operation programm will come to again this
    point by using 'goto'statement
```

start\_programm:

//provided the list of available operation that can be performed

cout<<setw(10)<<" \t \t 1 : Arithmetic Operations "<<setw(10)<<endl;

cout<<setw(10)<<" \t \t 2 : Trigonometric Functions"<<setw(10)<<endl;

cout<<setw(10)<<" \t \t 3 : Logarithmic Functions "<<setw(10)<<endl;

cout<<setw(10)<<" \t \t 4 : Power Functions      "<<setw(10)<<endl;

cout<<setw(10)<<" \t \t 5 : Exit ...              "<<setw(10)<<endl;

cout<<endl;

cout<<"\t \t SELECT OPERATION YOU WANT TO PERFORM "<<endl;

cout<<"\t == ";

//user will select from any of above 5 possible choices

cin>>select\_ope;

cout<<endl<<endl<<endl;

if(select\_ope==1)

cout<<"<--USER CHOSED ARTHEMETIC OPERATION -->"<<endl;

if(select\_ope==2)

cout<<"<--USER CHOSED TRIGNOMETRIC OPERATION-->"<<endl;

if(select\_ope==3)

cout<<"<--USER CHOSED LOGARITHMIC OPERATION-->"<<endl;

if(select\_ope==4)

cout<<"<--USER CHOSED POWER OPERATION"<<endl;

if(select\_ope==5)

cout<<"USER CHOSED TO CLOSE THE CALCULATOR GOOD BYE !!!!"<<endl;

cout<<" -----";

cout<<endl<<endl<<endl;

```
//switch statement to perform case study on any of selected operation from above
```

```
    switch(select_ope)
    {
        case 1:
            astart:
                //a character type data type to select which arithmetic operation to be performed
                char oper;

                double num1, num2;

                cout<<"CHOSE ARTHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/' "<<endl;
                cout<<"SELECT OPERATION TO BE PERFORMED :";
                cout<<" \t----> : ";
                cin>>oper;
                cout<<" \t";
                cout<<endl<<endl;
                cout<<"ENTER FIRST NUMBER : "<<endl;
                cout<<" \t----> : ";
                cin>>num1;
                cout<<"ENTER SECOND NUMBER : "<<endl;
                cout<<" \t----> : ";
                cin>>num2;
                cout<<endl;

                switch(oper)
                {
                    case '+':
```

```

        cout<<"Sum of numbers "<<num1<<" & "<<num2<<" : "<<endl<<"  ANSWER : \n
"<<num1+num2<<endl;

        break;

    case '-':

        cout<<"Difference of numbers "<<num1<<" & "<<num2<<" : "<<endl<<"  ANSWER : \n  "<<num1-
num2<<endl;

        break;

    case '*':

        cout<<"Product of numbers "<<num1<<" & "<<num2<<" : "<<endl<<"  ANSWER : \n
"<<num1*num2<<endl;

        break;

    case '/':

        cout<<"Answer of "<<num1<<" / "<<num2<<" : "<<endl<<"  ANSWER : \n  "<<num1/num2<<endl;

        break;

    case '/0':

        if (num2==0)

        {

            cout<<"\a"" Error : A NUMBER CAN'T BE DIVIDED BY 0 ."<<endl<<endl;

        }

        break;

    default:

        cout<<"MATH ERROR!!INVALID ENTRY!!!!"<<endl;

        }

    break;

    case 2:

        int radian ;

```

```

int trig_ope;

cout<<"\t\t\t > 1 : sin , \t> 2 : cos,\t> 3 : tan. "<<endl;

cout<<"\t\t\t > 4 : cosec,\t> 5 : sec,\t> 6 : cot. "<<endl;

cout<<endl;

cout<<"PLEASE SELECT FROM ABOVE GIVEN TRIGNOMETRIC OPERATION !!"<<endl<<endl;

cout<<" \t\t\t----> : ";

cin>>trig_ope;

switch (trig_ope)
{
case 1:

    cout<<"\t\t\t NOTE : Enter the angle to be measured in Radian "<<" \t----> : ";

    cin>>radian;

    cout<<"\t\t\t You chose sine function "<<endl;

    cout<<" \t\t\t\t sine(radian) : "<<endl<<"\t\t\t\t ANSWER = "<<sin(radian)<<endl;

    break;

case 2:

    cout<<"\t\t\t NOTE : Enter the angle to be measured in Radian "<<" \t----> : ";

    cin>>radian;

    cout<<"\t\t\t You chose COSECANT function "<<endl;

    cout<<" \t\t\t\t COS(radian) : "<<endl<<"\t\t\t\t ANSWER = "<<cos(radian)<<endl;

    break;

case 3:

    cout<<"\t\t\t NOTE : Enter the angle to be measured in Radian "<<" \t----> : ";

    cin>>radian;

    cout<<"\t\t\t You chose TANGENT function "<<endl;

    cout<<" \t\t\t\t TAN(radian) : "<<endl<<"\t\t\t\t ANSWER = "<<tan(radian)<<endl;

```

```
break;
```

```
case 4:
```

```
cout<<"\t\t\t NOTE : Enter the angle to be measured in Radian "<<" \t----> : ";
```

```
cin>>radian;
```

```
cout<<"\t\t\t You chose COSECANT function "<<endl;
```

```
cout<<"\t\t\t\t COSEC(radian) : "<<endl<<"\t\t\t\t ANSWER = "<<1/sin(radian)<<endl;
```

```
break;
```

```
case 5:
```

```
cout<<"\t\t\t NOTE : Enter the angle to be measured in Radian "<<" \t----> : ";
```

```
cin>>radian;
```

```
cout<<"\t\t\t You chose SECANT function "<<endl;
```

```
cout<<"\t\t\t\t SEC(radian) : "<<endl<<"\t\t\t\t ANSWER = "<<1/cos(radian)<<endl;
```

```
break;
```

```
case 6:
```

```
cout<<"\t\t\t NOTE : Enter the angle to be measured in Radian "<<" \t----> : ";
```

```
cin>>radian;
```

```
cout<<"\t\t\t You chose COTANGENT function "<<endl;
```

```
cout<<"\t\t\t\t COT(radian) : "<<endl<<"\t\t\t\t ANSWER = "<<1/tan(radian)<<endl;
```

```
break;
```

```
default:
```

```
cout<<"ERROR, INVALID ENTRY !!! ";
```

```
}
```

```
break;
```

```
case 3:
```

```
{
```

```
float num;
```

```
cout<<endl<<endl;
```

```

    cout<<" *****Enter a Positive Number to take the log of that number
*****"<<endl;

    cout<<" \t\t\t----> : ";

    cin>>num;

    cout<<endl<<endl<<endl<<endl;

    if (num>=0)
    {
        cout<<" \t\t\t log of "<<num<<" : " <<endl<<"\t\t\t ANSWER = " <<log(num)<<endl;
    }

    else
    {
        cout<<"MATH ERROR";
    }

    cout<<endl<<endl;

    cout<<" -----";

    cout<<endl<<endl;


    break;


case 4:
{

    int base_num, exp_num;

    cout<<"ENTER A NUMBER YOU WANT TO RAISE:"<<endl;

    cin>>base_num;

    cout<<endl;

    cout<<"ENTER EXPONENT YOU WANT TO RAISE THE BASE UPTO :"<<endl;

    cout<<"\t\t ";

```



```
cin>>exp_num;
```

```
cout<<endl;
```

```
cout<<base_num<<" raised to "<<exp_num<<" = "<<pow(base_num,exp_num);
```

```
cout<<endl<<endl<<endl;
```

```
}
```

```
break;
```

```
case 5:
```

```
int num5;
```

```
//USER WANTED TO CLOSE THE CALCULATOR
```

```
cout<<"SHUKRIA CALCULATOR USER KRNY KY LIAY EXIT K LIAY KOI BH KEY PRESS KRAIN.";
```

```
cout<<endl<<endl;
```

```
cout<<"\t \t ---> ";
```

```
cin>>num5;
```

```
cout<<endl;
```

```
exit(0);
```

```
break;
```

```
case 6:
```

```
//if user perform any other inout without these 5 cases than it will prompt error message
```

```
if(trig_ope!=1)
```

```
    cout<<"ERROR INVALID INSERTION BY USER";
```

```
else if(trig_ope!=2)
```

```
    cout<<"ERROR INVALID INSERTION BY USER";
```

```
else if(trig_ope!=3)
```

```
    cout<<"ERROR INVALID INSERTION BY USER";
```

```

else if(trig_ope!=4)

    cout<<"ERROR INVALID INSERTION BY USER";

else if(trig_ope!=5)

    cout<<"ERROR INVALID INSERTION BY USER";

else

    cout<<"THANKS FOR USING CALCULATOR BY MUHAMMAD ARSALAN 20-SE-56";

break;

default:

    cout<<"CALCULATOR BY MUHAMMAD ARSALAN 20-SE-56"<<endl;

}}

cout<<endl<<endl<<endl<<endl;

cout<<" -----";

cout<<endl<<endl<<endl<<endl;

goto start_programm;

cout<<endl<<endl<<endl<<endl;

cout<<" -----";

cout<<endl<<endl;

cout<<endl<<endl<<endl<<endl<<endl;

return 0;

}

```

Calculator.cpp [20-SE-56 ASSIGNMENT 1] - CodeBlocks 20.03

```
1 #include<iostream>
2 #include<math.h>
3 #include<cmath>
4 #include<conio.h>
5 #include<cstdlib>
6 using namespace std;
7 int main ()
8 {
9     //Initialized an integer type variable to select operation user want to perform
10    int select_ope;
11    cout<<endl<<endl;
12    cout<<" WELCOME TO CALCULATOR BY 20-SE-56 MUHAMMAD ARSALAN"<<endl;
13    cout<<"-----";
14    cout<<"-----";
15    cout<<"-----";
16    cout<<"-----";
17    cout<<"-----";
18    cout<<endl<<endl;
19    //declared this statement so that after performing some operation program will come to again this point by using 'goto'statement
20    start_program:
21    //provided the list of available operation that can be performed
22    cout<<setw(10)<<" \t \t 1 : Arithmetic Operations "<<setw(10)<<endl;
23    cout<<setw(10)<<" \t \t 2 : Trigonometric Functions"<<setw(10)<<endl;
24    cout<<setw(10)<<" \t \t 3 : Logarithmic Functions "<<setw(10)<<endl;
25    cout<<setw(10)<<" \t \t 4 : Power Functions "<<setw(10)<<endl;
26    cout<<setw(10)<<" \t \t 5 : Exit ... "<<setw(10)<<endl;
27
28    cout<<endl;
29
30    cout<<"\t \t SELECT OPERATION YOU WANT TO PERFORM "<<endl;
31    cout<<"\t \t ==> ";
32    //user will select from any of above 5 possible choices
33    cin>>select_ope;
34    cout<<endl<<endl;
35    if(select_ope==1)
36    {
37        cout<<"--USER CHOSER ARITHMETIC OPERATION --"<<endl;
38        if(select_ope==2)
39        {
40            cout<<"--USER CHOSER TRIGONOMETRIC OPERATION--"<<endl;
41        }
42        if(select_ope==3)
43        {
44            cout<<"--USER CHOSER LOGARITHMIC OPERATION--"<<endl;
45        }
46        if(select_ope==4)
47        {
48            cout<<"--USER CHOSER POWER OPERATION--"<<endl;
49        }
50        if(select_ope==5)
51        {
52            cout<<"--USER CHOSER TO CLOSE THE CALCULATOR GOOD BYE !!!!"<<endl;
53        }
54    }
55    cout<<endl<<endl<<endl;
56
57    //switch statement to perform case study on any of selected operation from above
58    switch(select_ope)
59    {
60        case 1:
61            astart:
62            //a character type data type to select which arithmetic operation to be performed
63            char oper;
64            double num1, num2;
65            cout<<"CHOOSE ARITHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/' "<<endl;
66            cout<<"SELECT OPERATION TO BE PERFORMED :";
67            cout<<" \t----> ";
68            cin>>oper;
69            cout<<" \t";
70            cout<<endl<<endl;
71            cout<<"ENTER FIRST NUMBER : "<<endl;
72            cout<<" \t----> ";
73            cin>>num1;
74            cout<<"ENTER SECOND NUMBER : "<<endl;
75            cout<<" \t----> ";
76            cin>>num2;
77            cout<<endl;
78            switch(oper)
79            {
80                case '+':
81                    cout<<"Sum of numbers "<<num1<<" + "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1+num2<<endl;
82                case '-':
83                    cout<<"Difference of numbers "<<num1<<" - "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1-num2<<endl;
84                case '*':
85                    cout<<"Product of numbers "<<num1<<" * "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1*num2<<endl;
86                case '/':
87                    cout<<"Division of numbers "<<num1<<" / "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1/num2<<endl;
88            }
89            goto start_program;
90    }
91    }
```

Run: Debug in 20-SE-56 ASSIGNMENT 1 (compiler: GNU GCC Compiler)-----  
Checking for existence: C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe  
Set variable: PATH=C:\CodeBlocks\MinGW\bin;C:\CodeBlocks\MinGW\bin\i686\;C:\Windows\System32;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH\;C:\MinGW\bin;C:\Users\hp\AppData\Local\Microsoft\WindowsApps  
Executing: "C:\CodeBlocks\cb\_console\_runner.exe" "C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe" (in C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\.)

Calculator.cpp [20-SE-56 ASSIGNMENT 1] - CodeBlocks 20.03

```
34 cout<<endl<<endl<<endl;
35 if(select_ope==1)
36 {
37     cout<<"--USER CHOSER ARITHMETIC OPERATION --"<<endl;
38     if(select_ope==2)
39     {
40         cout<<"--USER CHOSER TRIGONOMETRIC OPERATION--"<<endl;
41     }
42     if(select_ope==3)
43     {
44         cout<<"--USER CHOSER LOGARITHMIC OPERATION--"<<endl;
45     }
46     if(select_ope==4)
47     {
48         cout<<"--USER CHOSER POWER OPERATION--"<<endl;
49     }
50     if(select_ope==5)
51     {
52         cout<<"--USER CHOSER TO CLOSE THE CALCULATOR GOOD BYE !!!!"<<endl;
53     }
54 }
55 cout<<endl<<endl<<endl;
56
57 //switch statement to perform case study on any of selected operation from above
58 switch(select_ope)
59 {
60     case 1:
61         astart:
62         //a character type data type to select which arithmetic operation to be performed
63         char oper;
64         double num1, num2;
65         cout<<"CHOOSE ARITHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/' "<<endl;
66         cout<<"SELECT OPERATION TO BE PERFORMED :";
67         cout<<" \t----> ";
68         cin>>oper;
69         cout<<" \t";
70         cout<<endl<<endl;
71         cout<<"ENTER FIRST NUMBER : "<<endl;
72         cout<<" \t----> ";
73         cin>>num1;
74         cout<<"ENTER SECOND NUMBER : "<<endl;
75         cout<<" \t----> ";
76         cin>>num2;
77         cout<<endl;
78         switch(oper)
79         {
80             case '+':
81                 cout<<"Sum of numbers "<<num1<<" + "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1+num2<<endl;
82             case '-':
83                 cout<<"Difference of numbers "<<num1<<" - "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1-num2<<endl;
84             case '*':
85                 cout<<"Product of numbers "<<num1<<" * "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1*num2<<endl;
86             case '/':
87                 cout<<"Division of numbers "<<num1<<" / "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1/num2<<endl;
88         }
89         goto start_program;
90     }
91 }
```

Run: Debug in 20-SE-56 ASSIGNMENT 1 (compiler: GNU GCC Compiler)-----  
Checking for existence: C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe  
Set variable: PATH=C:\CodeBlocks\MinGW\bin;C:\CodeBlocks\MinGW\bin\i686\;C:\Windows\System32;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH\;C:\MinGW\bin;C:\Users\hp\AppData\Local\Microsoft\WindowsApps  
Executing: "C:\CodeBlocks\cb\_console\_runner.exe" "C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe" (in C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\.)

The screenshot shows a C++ IDE with the following components:

- Top Menu Bar:** File, Edit, View, Search, Project, Build, Debug, Fortran, wsSmith, Tools, Plugins, DsxyBlocks, Settings, Help.
- Top Toolbar:** Standard IDE icons for file operations, editing, and debugging.
- Project Explorer (Left):** Shows a project named "20-SE-56 ASSIGNMENT 1" with a sub-folder "Sources".
- Code Editor (Center):** Displays the file "CALCULATOR.cpp". The code includes:
  - Line 72: `int num1, num2;`
  - Line 73: `case 1:`
    - Line 74: `cout<<"Sum of numbers "<<num1<<" + "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1+num2<<endl;`
    - Line 75: `break;`
  - Line 76: `case 2:`
    - Line 77: `cout<<"Difference of numbers "<<num1<<" - "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1-num2<<endl;`
    - Line 78: `break;`
  - Line 79: `case 3:`
    - Line 80: `cout<<"Product of numbers "<<num1<<" * "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1*num2<<endl;`
    - Line 81: `break;`
  - Line 82: `case 4:`
    - Line 83: `cout<<"Answer of "<<num1<<" / "<<num2<<" : "<<endl<<" ANSWER : \n "<<num1/num2<<endl;`
    - Line 84: `break;`
  - Line 85: `case 5:`
    - Line 86: `if (num2==0)`
      - Line 87: `{`
      - Line 88: `cout<<"a" Error : A NUMBER CAN'T BE DIVIDED BY 0 . "<<endl<<endl;`
      - Line 89: `break;`
      - Line 90: `}`
  - Line 91: `default:`
    - Line 92: `cout<<"MATH ERROR!INVALID ENTRY!!!"<<endl;`
  - Line 93: `break;`
  - Line 94: `case 2:`
  - Line 95: `int radian ;`
  - Line 96: `int trig_ope;`
  - Line 97: `int trig_ope;`
  - Line 98: `int trig_ope;`
  - Line 99: `int trig_ope;`
  - Line 100: `int trig_ope;`
  - Line 101: `int trig_ope;`
  - Line 102: `int trig_ope;`
  - Line 103: `int trig_ope;`
  - Line 104: `int trig_ope;`
  - Line 105: `int trig_ope;`
  - Line 106: `int trig_ope;`
  - Line 107: `int trig_ope;`
  - Line 108: `int trig_ope;`
  - Line 109: `int trig_ope;`
  - Line 110: `int trig_ope;`
  - Line 111: `int trig_ope;`
  - Line 112: `int trig_ope;`
- Output Console (Bottom):** Shows the compiler output for "20-SE-56 ASSIGNMENT 1.cpp". It includes the compiler command and the execution path.

The screenshot displays the Visual Studio Code interface with the following components:

- Top Bar:** Shows the file name "CALCULATOR.cpp [20-SE-56 ASSIGNMENT 1] - CodeBlocks 20.03" and various menu options like File, Edit, View, Search, Project, Build, Debug, Fortran, ws5mish, Tools, Plugins, Dowsbld, Settings, Help.
- Left Panel:** Contains the "Management" tab with "Projects", "Files", and "Symbols" views. The "20-SE-56 ASSIGNMENT 1" project is selected.
- Main Editor:** Displays the source code for "CALCULATOR.cpp". The code is a C++ program that implements a menu-driven calculator. It uses a switch statement to handle different trigonometric functions: sine, cosine, tangent, cosecant, secant, and cotangent. The code includes input validation and uses the  $\sin$ ,  $\cos$ ,  $\tan$ ,  $\csc$ ,  $\sec$ , and  $\cot$  functions.
- Bottom Panel:** Shows the "Logs & others" tab with a list of open files and the "Run" output window. The output window displays the compilation and execution process, including the compiler command and the execution of the program.

The screenshot displays a C++ IDE with the following components:

- Top Menu Bar:** File, Edit, View, Search, Project, Build, Run, Fortran, wSmith, Tools, Plugins, DoryBlocks, Settings, Help.
- Top Toolbar:** Standard IDE icons for file operations, editing, and running.
- Project Explorer (Left):** Shows a workspace named "20-SE-56 ASSIGNMENT 1" with a sub-folder "Sources" containing "CALCULATOR.cpp".
- Code Editor (Center):** Displays the source code for "CALCULATOR.cpp". The code is a C++ program that implements a calculator with a menu-driven interface. It uses a `switch` statement to handle various operations:
  - `case 1:` Addition
  - `case 2:` Subtraction
  - `case 3:` Multiplication
  - `case 4:` Division
  - `case 5:` Logarithm (calculates  $\log_{10}$ )
  - `case 6:` Exponentiation
  - `default:` "MATH ERROR"
- Output Window (Bottom):** Titled "Logs & others", it shows the execution output:
 

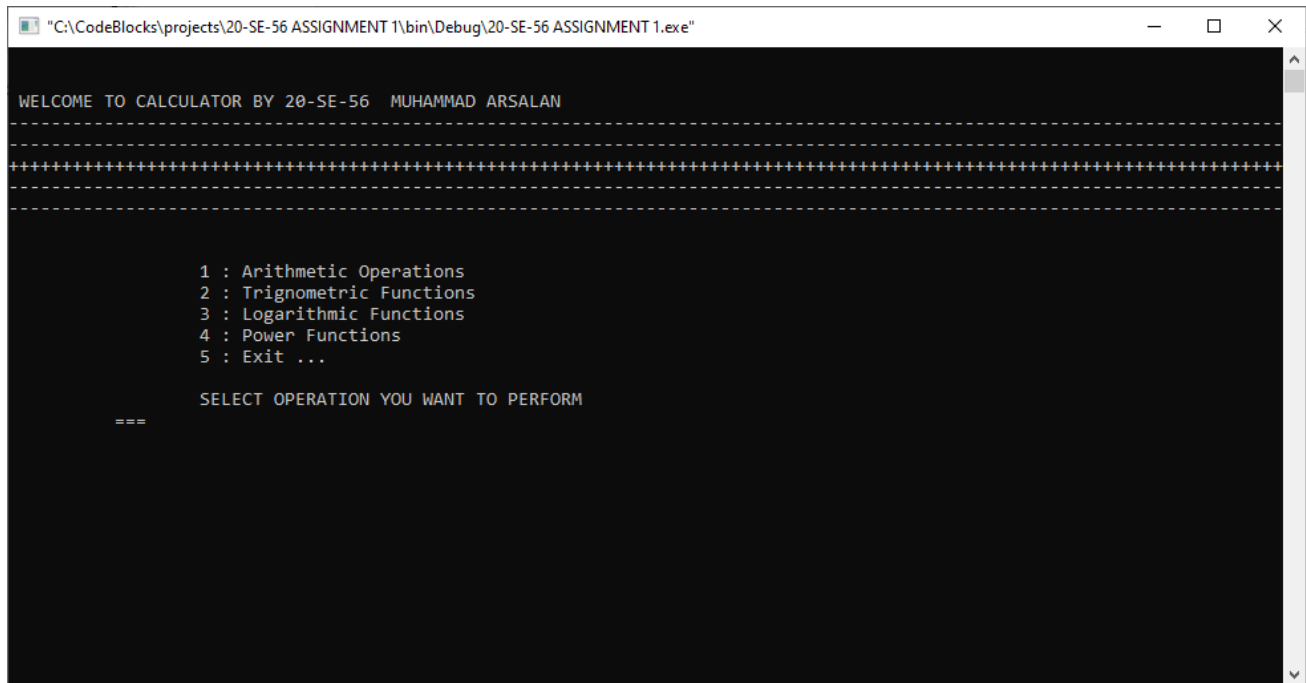
```

Run: Debug in 20-SE-56 ASSIGNMENT 1 (compiler: GNU GCC Compiler)
Checking for existence: C:\CodeBlocks\project\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe
Set variable: PATH=C:\CodeBlocks\Windows\bin\;C:\CodeBlocks\Windows\bin\;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Windows\System32\OpenSSH\;C:\Users\hp\AppData\Local\Microsoft\WindowsApps
Executing: "C:\CodeBlocks\bin\console_runner.exe" "C:\CodeBlocks\project\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe" (in C:\CodeBlocks\project\20-SE-56 ASSIGNMENT 1\.)
      
```
- Status Bar (Bottom):** Shows the current file path, compiler, and window state: "C:\CodeBlocks\project\20-SE-56 ASSIGNMENT 1\CALCULATOR.cpp | C++ | Windows (R-LF) | WINDOWS-1252 | Line 192, Col 42, Pos 7905 | Insert | Read/Write | default".

[illegible]

# OUTPUT CODES

## HOME SCREEN



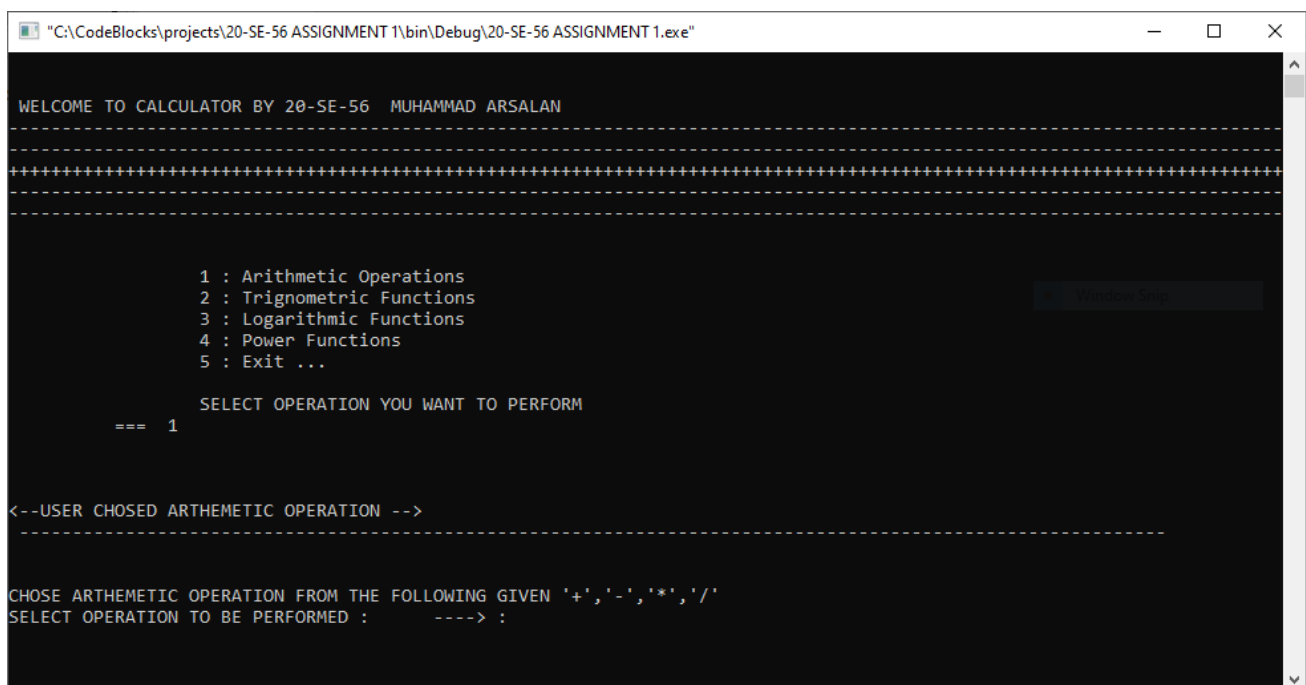
A screenshot of a Windows application window titled "C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe". The window contains a black terminal with white text. The text reads: "WELCOME TO CALCULATOR BY 20-SE-56 MUHAMMAD ARSALAN" followed by a dashed line separator. Below the separator is a list of options: "1 : Arithmetic Operations", "2 : Trigonometric Functions", "3 : Logarithmic Functions", "4 : Power Functions", and "5 : Exit ...". Below the list is the prompt "SELECT OPERATION YOU WANT TO PERFORM" followed by "===".

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

WELCOME TO CALCULATOR BY 20-SE-56 MUHAMMAD ARSALAN
-----
1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM
===
```

## ARTHEMETIC OPERATIONS



A screenshot of the same Windows application window as above, but showing the next step in the program. The text now includes: "1 : Arithmetic Operations" (which is highlighted), "2 : Trigonometric Functions", "3 : Logarithmic Functions", "4 : Power Functions", and "5 : Exit ...". Below the list is the prompt "SELECT OPERATION YOU WANT TO PERFORM" followed by "=== 1". Below this is a dashed line separator. Below the separator is the text "<--USER CHOSD ARTHEMETIC OPERATION -->" followed by a dashed line separator. Below the separator is the text "CHOSE ARTHEMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','\*','/'" followed by "SELECT OPERATION TO BE PERFORMED : ----> :".

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

WELCOME TO CALCULATOR BY 20-SE-56 MUHAMMAD ARSALAN
-----
1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM
=== 1

<--USER CHOSD ARTHEMETIC OPERATION -->
-----
CHOSE ARTHEMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/'
SELECT OPERATION TO BE PERFORMED : ----> :
```

## ADDITION

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

CHOOSE ARITHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/'
SELECT OPERATION TO BE PERFORMED :      ----> : +

ENTER FIRST NUMBER :
----> : 33
ENTER SECOND NUMBER :
----> : 55

Sum of numbers 33 & 55 :
ANSWER :
88

-----

1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## SUBTRACTION

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

CHOOSE ARITHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/'
SELECT OPERATION TO BE PERFORMED :      ----> : -

ENTER FIRST NUMBER :
----> : 44
ENTER SECOND NUMBER :
----> : 22

Difference of numbers 44 & 22 :
ANSWER :
22

-----

1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## MULTIPLY

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

CHOOSE ARTHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/'
SELECT OPERATION TO BE PERFORMED :      ----> : *

ENTER FIRST NUMBER :
----> : 3
ENTER SECOND NUMBER :
----> : 6

Product of numbers 3 & 6 :
ANSWER :
18

-----

1 : Arithmetic Operations
2 : Trignometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## DIVISION

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

CHOOSE ARTHMETIC OPERATION FROM THE FOLLOWING GIVEN '+','-','*','/'
SELECT OPERATION TO BE PERFORMED :      ----> : /

ENTER FIRST NUMBER :
----> : 33
ENTER SECOND NUMBER :
----> : 11

Answer of 33 / 11 :
ANSWER :
3

-----

1 : Arithmetic Operations
2 : Trignometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## TRIGNOMETRIC OPERATIONS



```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

3

-----

1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

=== 2

<--USER CHOSD TRIGNOMETRIC OPERATION-->
-----

> 1 : sin , > 2 : cos, > 3 : tan.
> 4 : cosec, > 5 : sec, > 6 : cot.

PLEASE SELECT FROM ABOVE GIVEN TRIGNOMETRIC OPERATION !!

----> :
```

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

<--USER CHOSD TRIGNOMETRIC OPERATION-->
-----

> 1 : sin , > 2 : cos, > 3 : tan.
> 4 : cosec, > 5 : sec, > 6 : cot.

PLEASE SELECT FROM ABOVE GIVEN TRIGNOMETRIC OPERATION !!

----> : 1
NOTE : Enter the angle to be measured in Radian ----> : 60
You chose sine function
sine(radian) :
ANSWER = -0.304811

-----

1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## LOGARITHMIC OPERATIONS

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

*****Enter a Positive Number to take the log of that number *****
----> : 40

log of 40 :
ANSWER = 3.68888

-----

1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## POWER FUNCTION

```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

<--USER CHOSD POWER OPERATION
-----

ENTER A NUMBER YOU WANT TO RAISE:
20

ENTER EXPONENT YOU WANT TO RAISE THE BASE UPTO :
3

20 raised to 3 = 8000

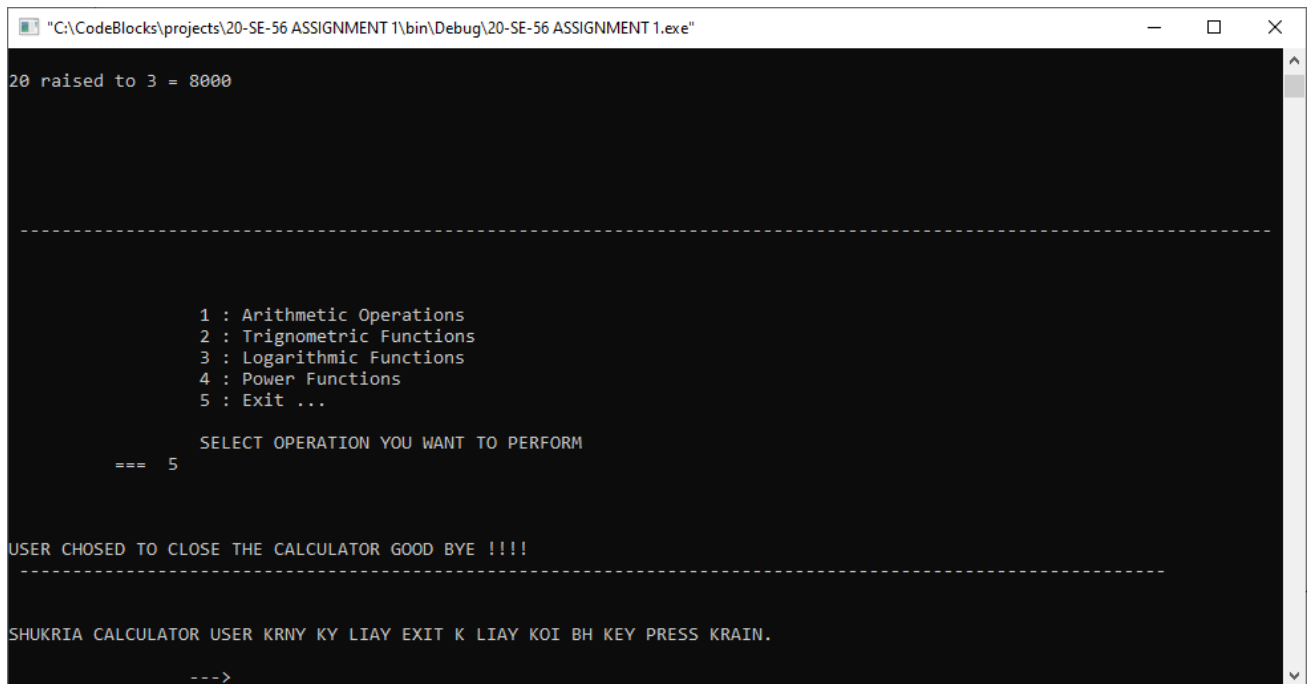
-----

1 : Arithmetic Operations
2 : Trigonometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM

===
```

## CLOSE THE CALCULATOR



```
"C:\CodeBlocks\projects\20-SE-56 ASSIGNMENT 1\bin\Debug\20-SE-56 ASSIGNMENT 1.exe"

20 raised to 3 = 8000

-----

1 : Arithmetic Operations
2 : Trignometric Functions
3 : Logarithmic Functions
4 : Power Functions
5 : Exit ...

SELECT OPERATION YOU WANT TO PERFORM
=== 5

USER CHOSD TO CLOSE THE CALCULATOR GOOD BYE !!!!
-----

SHUKRIA CALCULATOR USER KRNY KY LIAY EXIT K LIAY KOI BH KEY PRESS KRAIN.

--->
```