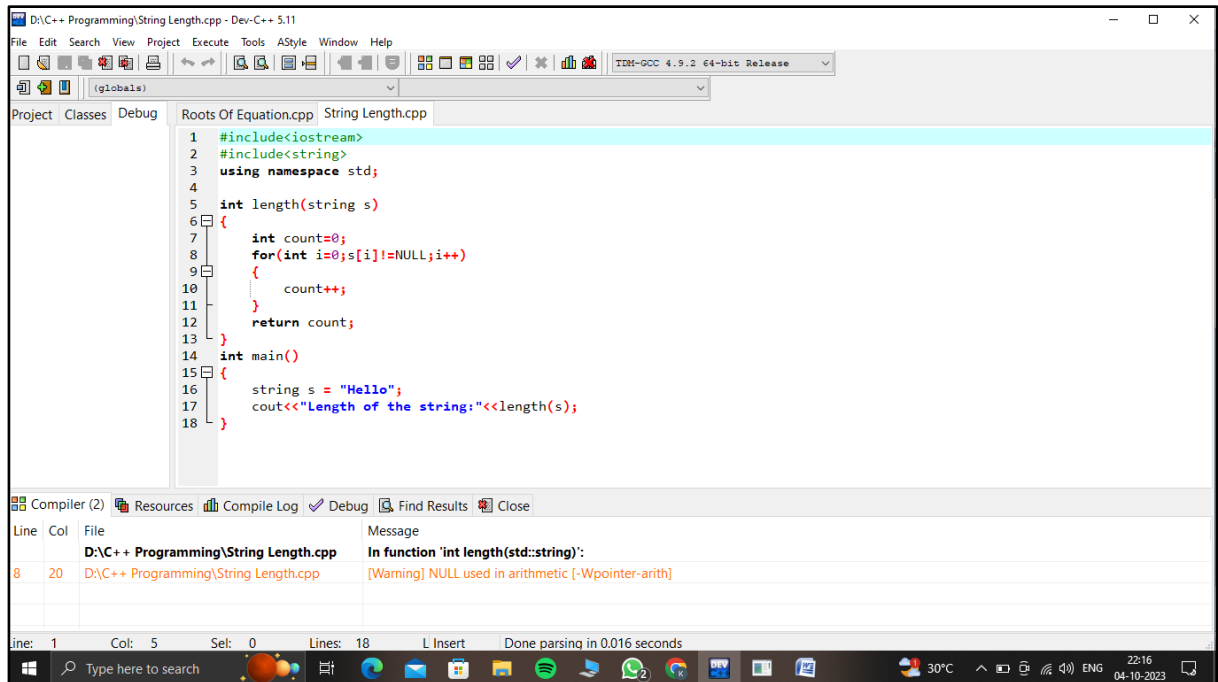


DSA0158 – Object Oriented Programming With C++

Assignment-2

1. String Length:



The screenshot shows a C++ IDE with a file named `String Length.cpp`. The code defines a function `length` that calculates the length of a string by iterating through its characters until a null terminator is found. The `main` function tests this with the string "Hello". A compiler warning is visible in the output window.

```
1 #include<iostream>
2 #include<string>
3 using namespace std;
4
5 int length(string s)
6 {
7     int count=0;
8     for(int i=0;s[i]!=NULL;i++)
9     {
10         count++;
11     }
12     return count;
13 }
14
15 int main()
16 {
17     string s = "Hello";
18     cout<<"Length of the string:"<<length(s);
19 }
```

Compiler (2) Resources Compile Log Debug Find Results Close

Line	Col	File	Message
8	20	D:\C++ Programming\String Length.cpp	In function 'int length(std::string)': [Warning] NULL used in arithmetic [-Wpointer-arith]

line: 1 Col: 5 Sel: 0 Lines: 18 L Insert Done parsing in 0.016 seconds

Output:



Edit with WPS Office

The screenshot shows the Dev-C++ IDE with a project named "D:\C++ Programming\String Length.cpp". The main window displays the output of the program, which calculates the length of the string "5". The output is as follows:

```
Length of the string:5
Process exited after 0.08139 seconds with return value 0
Press any key to continue . . .
```

The bottom status bar indicates the compiler is TDM-GCC 4.9.2 64-bit Release. The taskbar at the bottom shows the system clock as 22:13 on 04-10-2023.

2. Roots of Quadratic Equation:

The screenshot shows the Dev-C++ IDE with a project named "D:\C++ Programming\Roots Of Equation.cpp". The main window displays the source code for a C++ program that calculates the roots of a quadratic equation. The code is as follows:

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

void Root(double a,double b,double c)
{
    double discriminant = b*b - 4*a*c;

    if(discriminant>0)
    {
        double root1 = (-b+sqrt(discriminant))/(2*a);
        double root2 = (-b-sqrt(discriminant))/(2*a);
        cout<<"Root 1:"<<root1<<endl;
        cout<<"Root 2:"<<root2<<endl;
    }
    else if(discriminant==0)
    {
        float root1 = -b/(2*a);
        cout<<"Root 1:"<<root1<<endl;
    }
    else
    {
        double real = -b/(2*a);
        double imag = sqrt(-discriminant)/(2*a);
        cout<<"Root 1:"<<real<<"+"<<imag<<"i"<<endl;
        cout<<"Root 2:"<<real<<"-"<<imag<<"i"<<endl;
    }
}

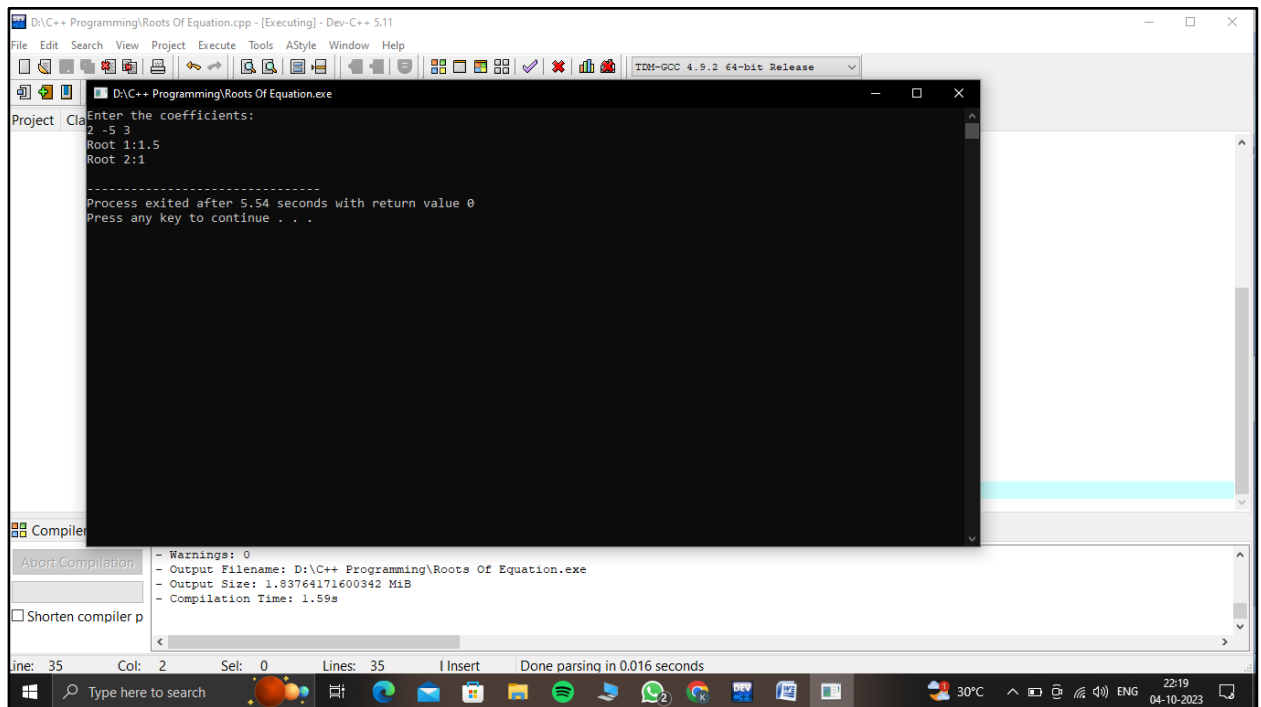
int main()
```

The bottom status bar indicates the compiler is TDM-GCC 4.9.2 64-bit Release. The taskbar at the bottom shows the system clock as 22:18 on 04-10-2023.



Edit with WPS Office

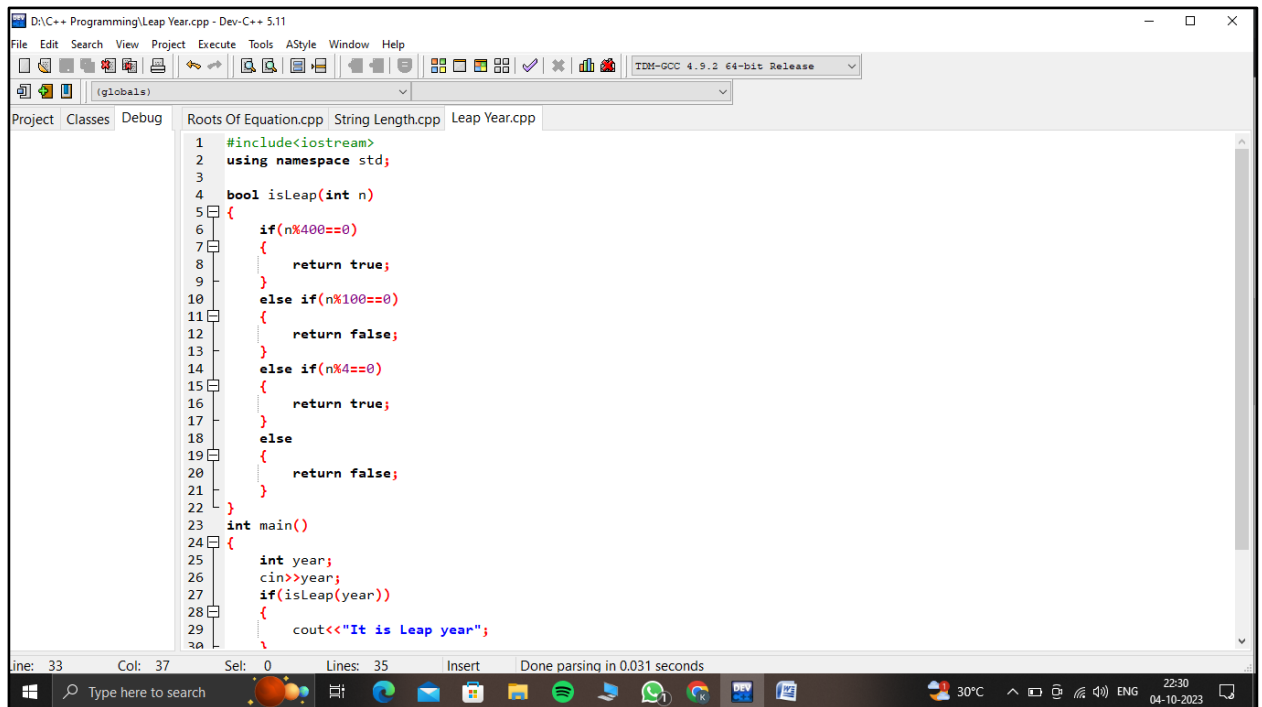
Output:



```
D:\C++ Programming\Roots Of Equation.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
D:\C++ Programming\Roots Of Equation.exe
Enter the coefficients:
2 -5 3
Root 1:1.5
Root 2:1
-----
Process exited after 5.54 seconds with return value 0
Press any key to continue . . .

Compiler
- Warnings: 0
- Output Filename: D:\C++ Programming\Roots Of Equation.exe
- Output Size: 1.83764171600342 MiB
- Compilation Time: 1.59s
Shorten compiler p
```

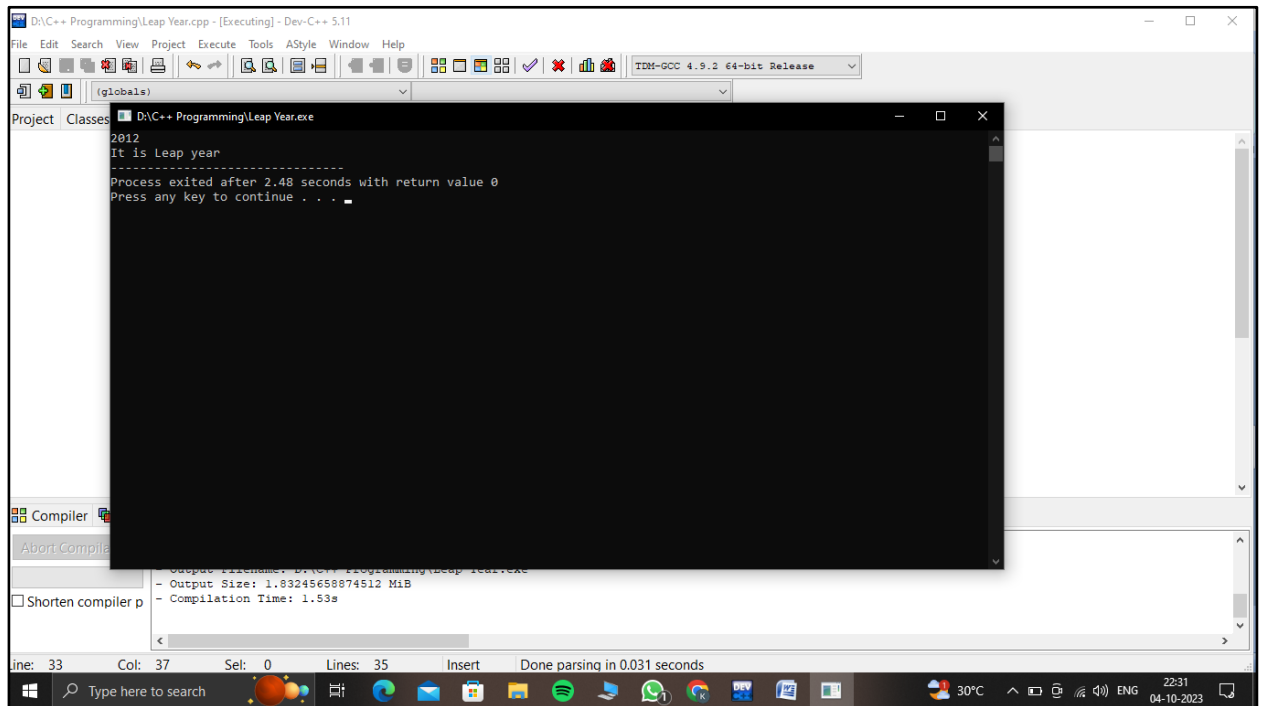
3. Leap Year:



The screenshot shows a C++ IDE with the file "Leap Year.cpp" open. The code defines a function `isLeap` that checks if a year is a leap year based on the rules: divisible by 400, or divisible by 4 but not by 100. The `main` function takes a year as input and prints "It is Leap year" if it is a leap year.

```
1 #include<iostream>
2 using namespace std;
3
4 bool isLeap(int n)
5 {
6     if(n%400==0)
7     {
8         return true;
9     }
10    else if(n%100==0)
11    {
12        return false;
13    }
14    else if(n%4==0)
15    {
16        return true;
17    }
18    else
19    {
20        return false;
21    }
22 }
23
24 int main()
25 {
26     int year;
27     cin>>year;
28     if(isLeap(year))
29     {
30         cout<<"It is Leap year";
31     }
32 }
```

Output:



The screenshot shows the program's output in a terminal window. The input is the year 2012, and the output is "It is Leap year". The terminal also shows the process exit message and a prompt to press any key to continue.

```
2012
It is Leap year
-----
Process exited after 2.48 seconds with return value 0
Press any key to continue . . .
```