

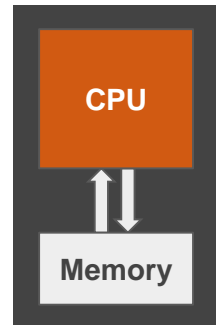


Displaying Output on Console in C++



Review: CPU Operations

- Some of these operations include
 1. Addition (0010)
 2. Multiplication (0011)
 3. Take Input (1100)
 4. Give Output (0110)
 5. Store Data (1110)
 6. Load Data (0111)



Give Output

Computers can **give output** in different forms using:

Monitor/LCD



Printer

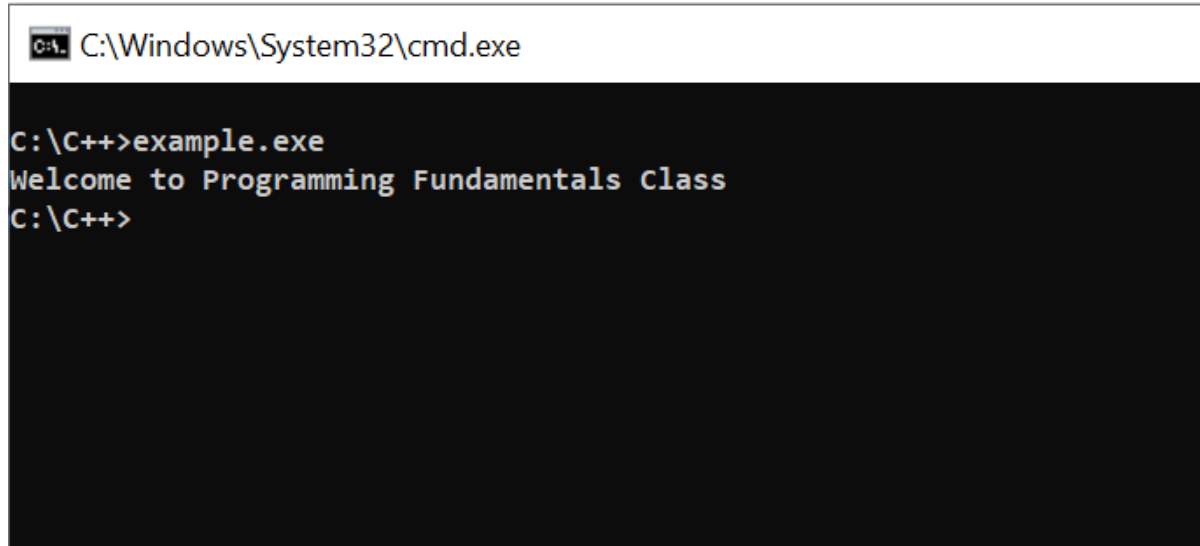


Speakers



Give Output on Console

Let's see how we can take output on Console.

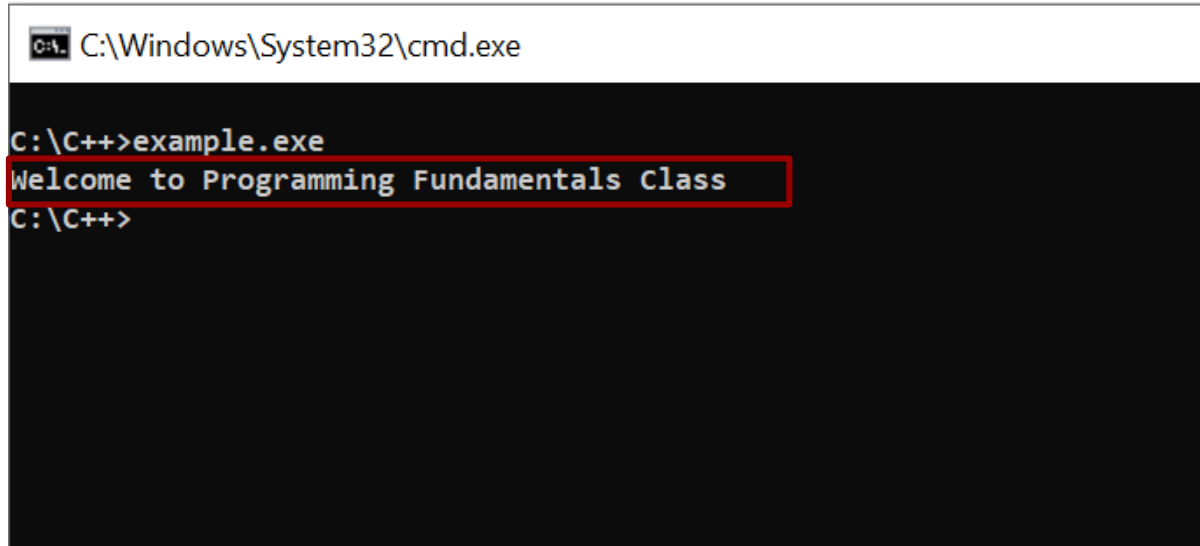


```
C:\Windows\System32\cmd.exe

C:\C++>example.exe
Welcome to Programming Fundamentals Class
C:\C++>
```

Working Example

We want to Write “Welcome to Programming Fundamentals Class” on Console.



```
C:\Windows\System32\cmd.exe  
  
C:\C++>example.exe  
Welcome to Programming Fundamentals Class  
C:\C++>
```

The screenshot shows a Windows command prompt window with the title bar "C:\Windows\System32\cmd.exe". The command prompt is at "C:\C++>". The command "example.exe" has been entered and executed, resulting in the output "Welcome to Programming Fundamentals Class" being displayed on the next line. The prompt "C:\C++>" is shown again on the following line.

How can we do it?

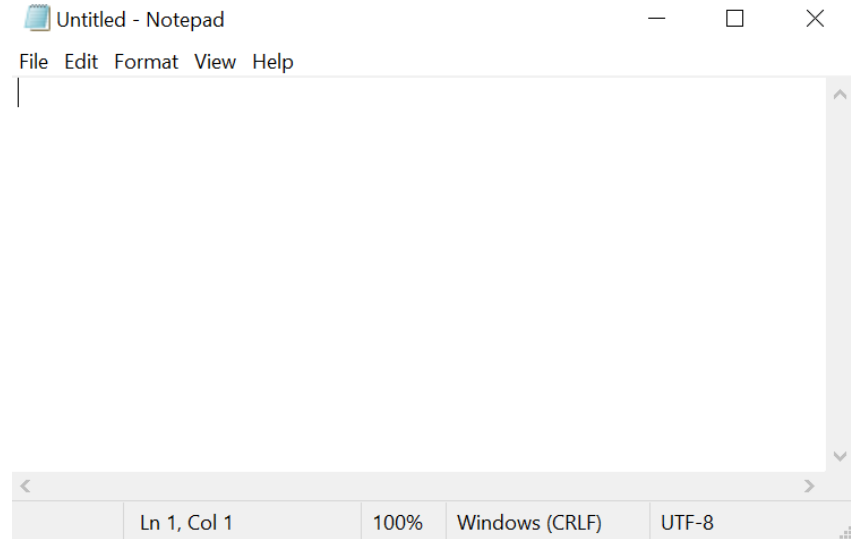
We have to **instruct** the Computer.

Where to write Instructions?

We have to **instruct** the Computer. We will be Writing the instructions on **NotePad**.



NotePad



How to Write Instructions?

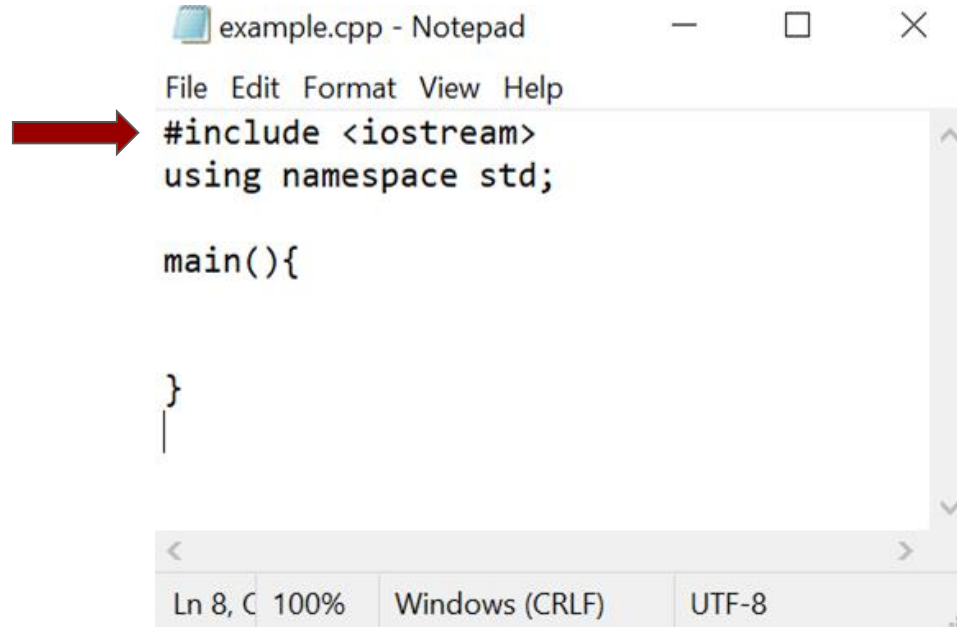
We have to **instruct** the Computer. And we are using **C++** (High Level Language) to do that.



C++

Basic Skeleton of C++

This Skeleton is needed to run your program.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

main(){

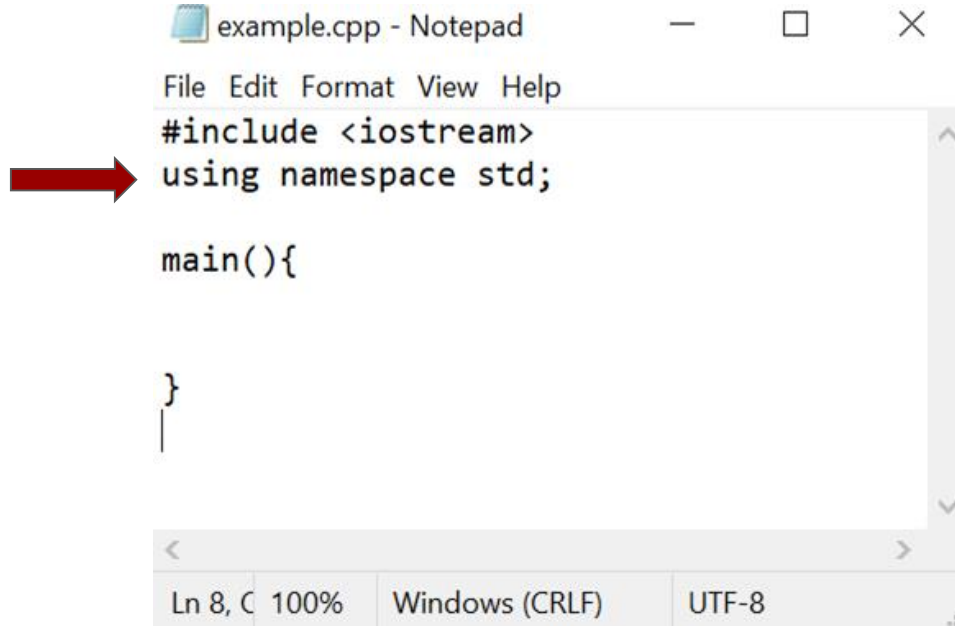
}

Ln 8, C 100% Windows (CRLF) UTF-8
```

It includes the **iostream library**, that will help our program to use **input/output commands**

Basic Skeleton of C++

This **Skeleton** is needed to run your program.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

main(){

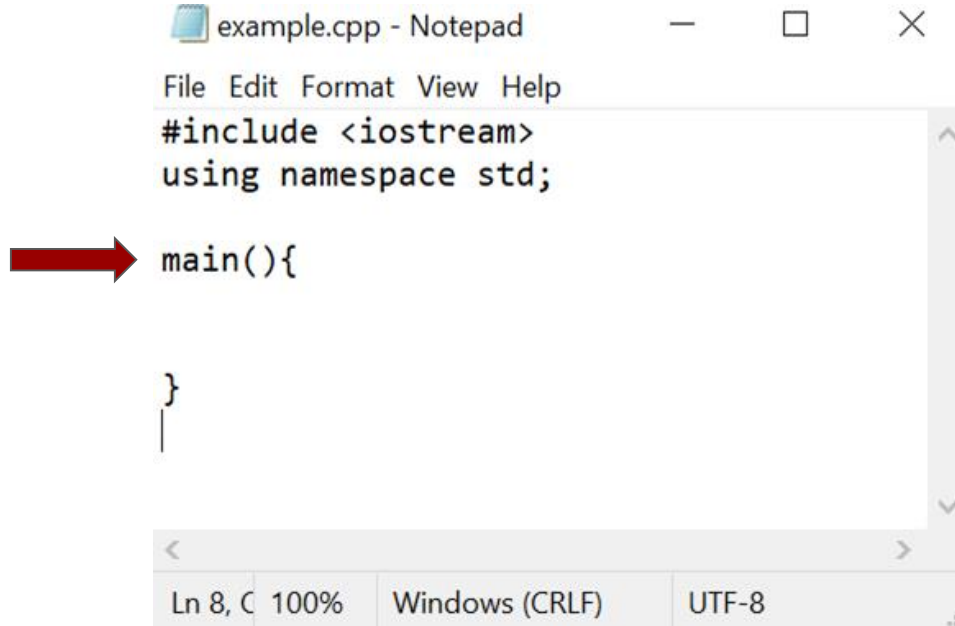
}

Ln 8, C 100% Windows (CRLF) UTF-8
```

It tells to use the **standard (std)** namespace in our program.

Basic Skeleton of C++

This **Skeleton** is needed to run your program.



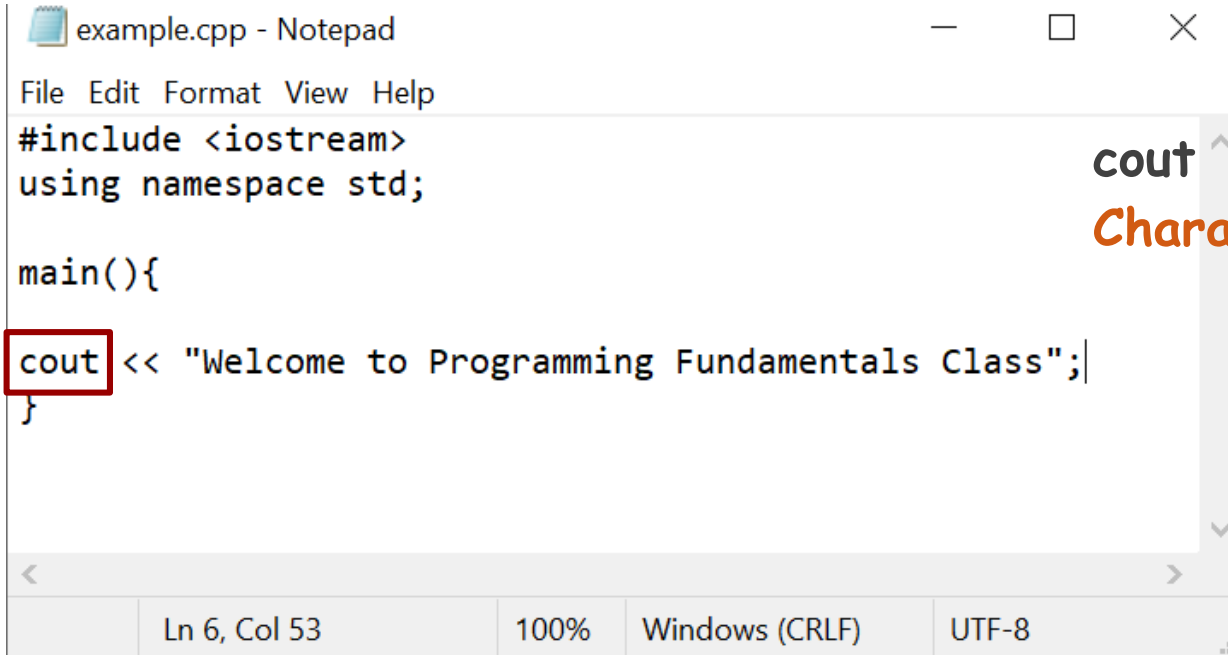
```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;
main(){

}
Ln 8, C 100% Windows (CRLF) UTF-8
```

It defines the **main()** function.
We will write our code inside the delimiters **{ }** of the main function.

Output on Console in C++

cout command is used to display output on Console in C++.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

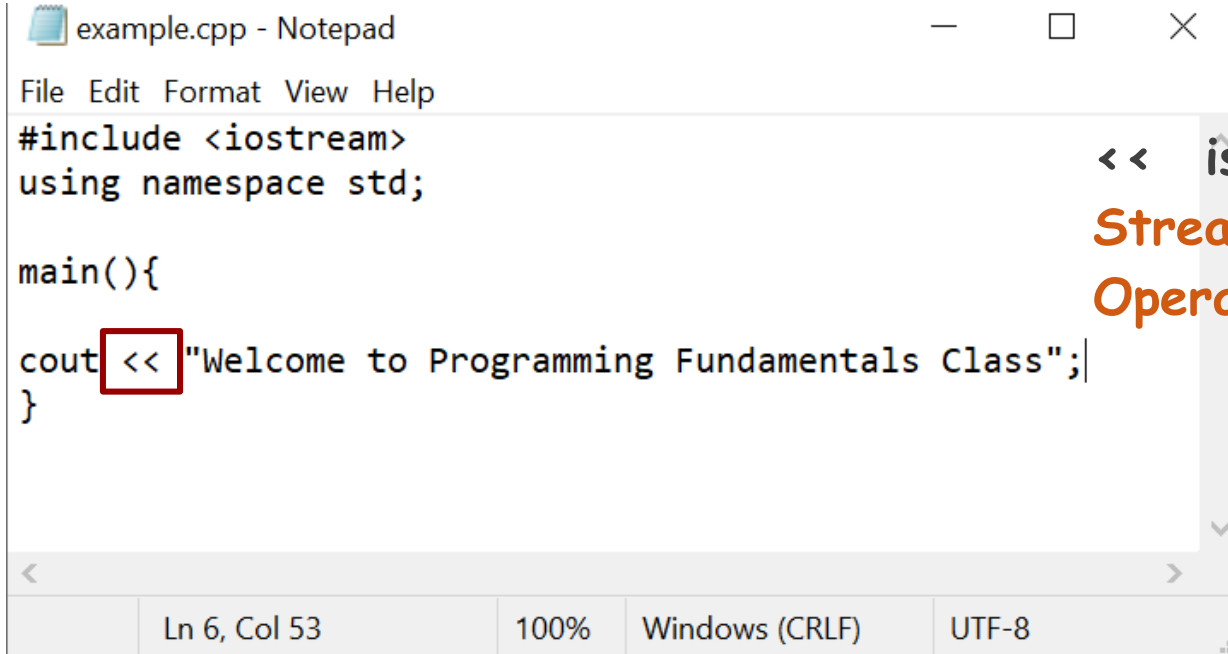
main(){
cout << "Welcome to Programming Fundamentals Class";
}
```

Ln 6, Col 53 100% Windows (CRLF) UTF-8

cout stands for
Character Output

Output on Console in C++

cout command is used to display output on Console in C++.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

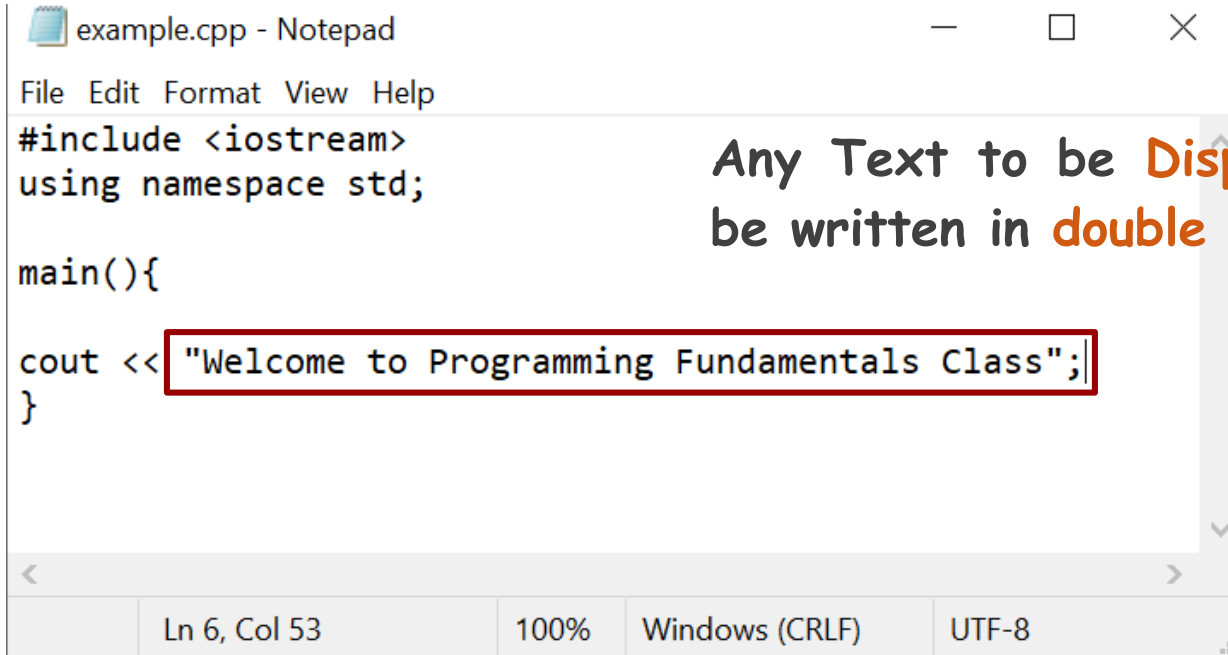
main(){
cout << "Welcome to Programming Fundamentals Class";
}
```

Ln 6, Col 53 100% Windows (CRLF) UTF-8

<< is called the
Stream Insertion
Operator

Output on Console in C++

cout command is used to display output on Console in C++.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

main(){

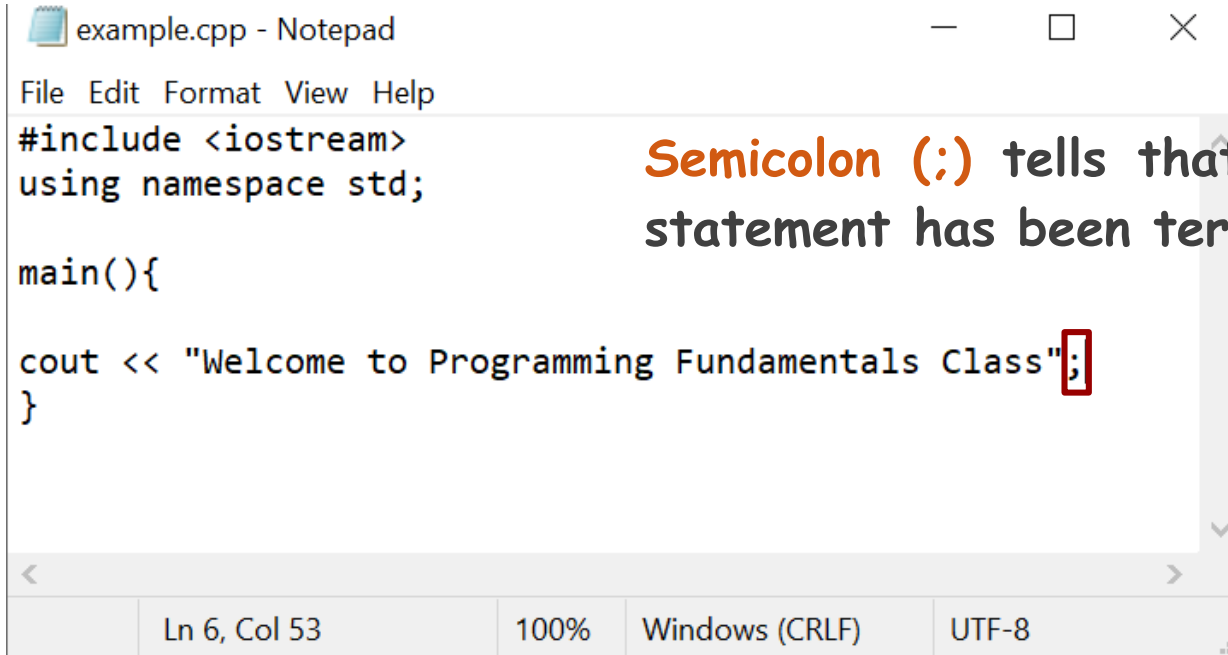
cout << "Welcome to Programming Fundamentals Class";
}

Ln 6, Col 53    100%    Windows (CRLF)    UTF-8
```

Any Text to be Displayed has to be written in double quotes (" ").

Output on Console in C++

cout command is used to display output on Console in C++.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

main(){

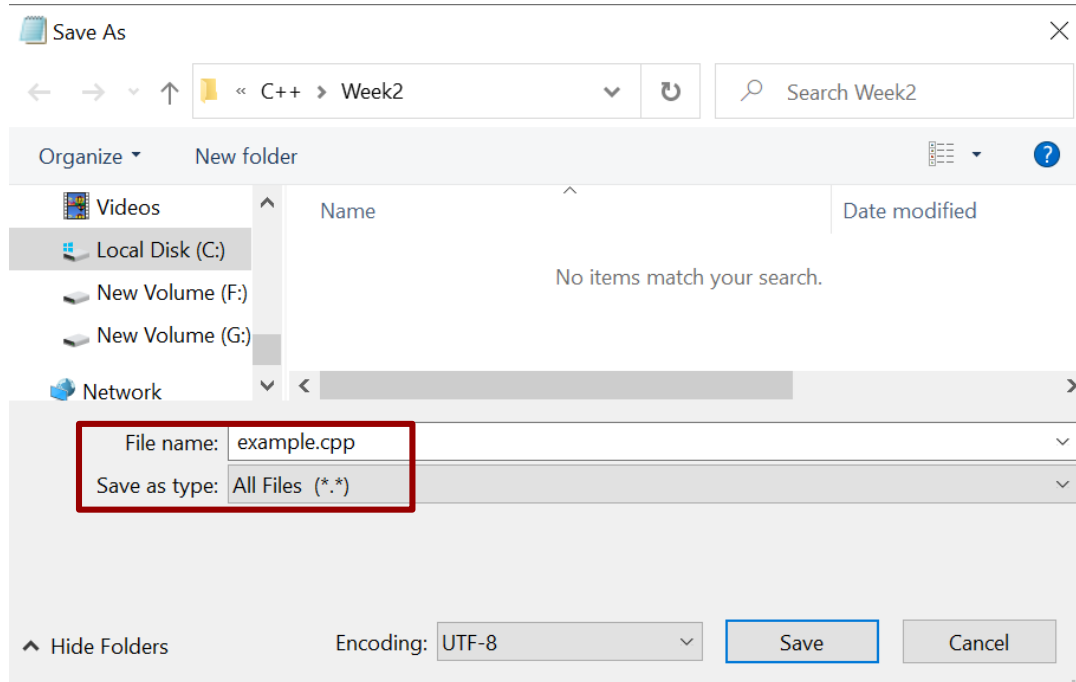
cout << "Welcome to Programming Fundamentals Class";
}

Ln 6, Col 53    100%    Windows (CRLF)    UTF-8
```

Semicolon (;) tells that the current statement has been terminated.

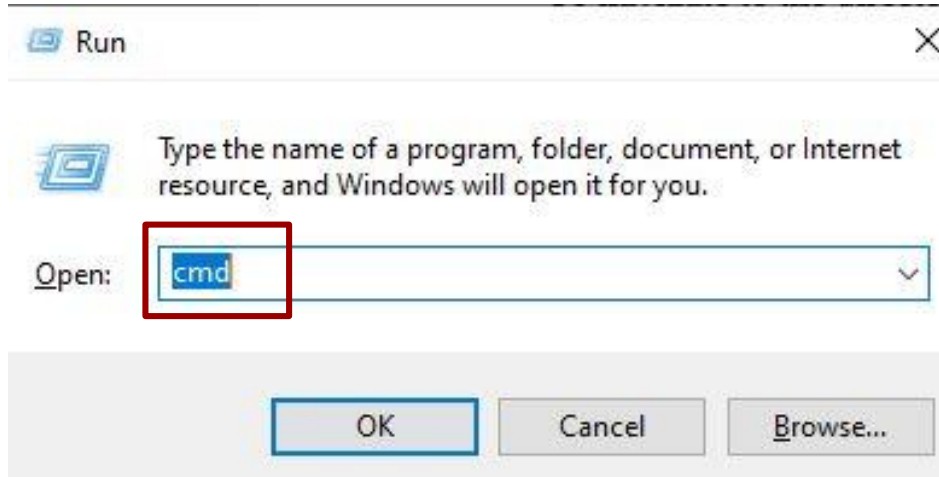
Output on **C++**

Save the file with **.cpp** extension.



Output on Console in C++

To open the command prompt, press **Windows key + R**



Output on Console in C++

Go to the Specific directory and Write:

```
c++ filename.cpp -o filename.exe
```

This tells the computer to convert the cpp file (.cpp)
(High level language code) into binary file (.exe)
(Machine language code).

```
C:\C++\Week2>c++ example.cpp -o example.exe
```

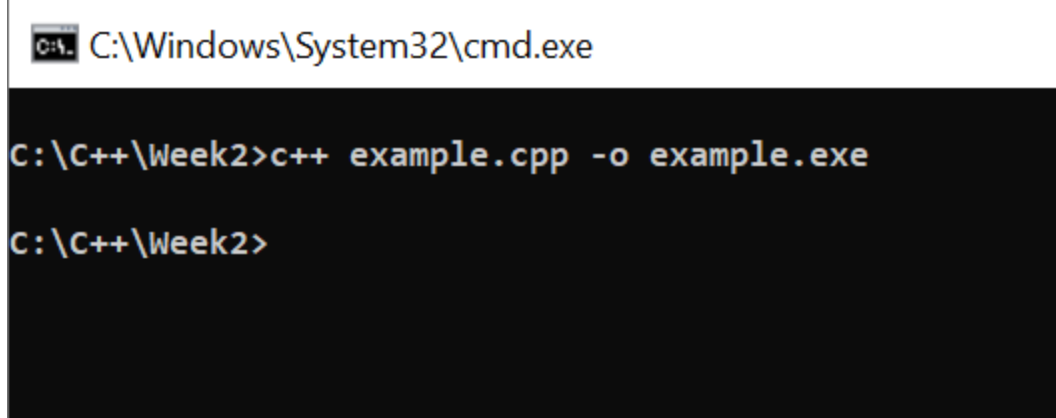
Output on Console in C++

If you get this error message, it means your **Compiler** is not installed, that was needed to convert cpp file (**.cpp**) into binary file (**.exe**)

```
'c++' is not recognized as an internal or external command,  
operable program or batch file.
```

Output on Console in C++

If you have successfully installed the compiler (instructions will be given thoroughly in Programming Day on Friday) then the cmd will look like this.



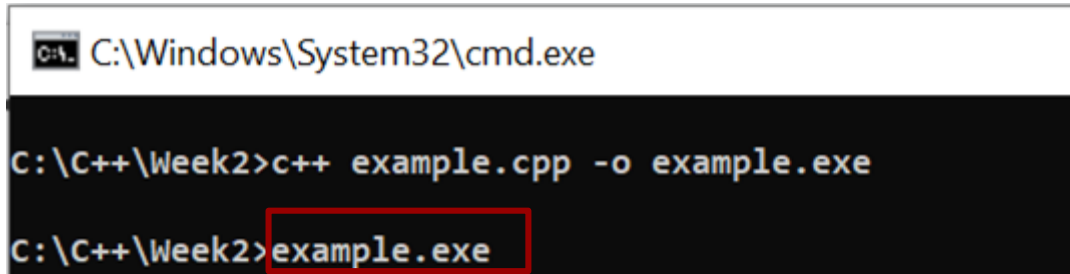
```
C:\Windows\System32\cmd.exe

C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>
```

Output on Console in C++

Then write `filename.exe` to execute the binary file.



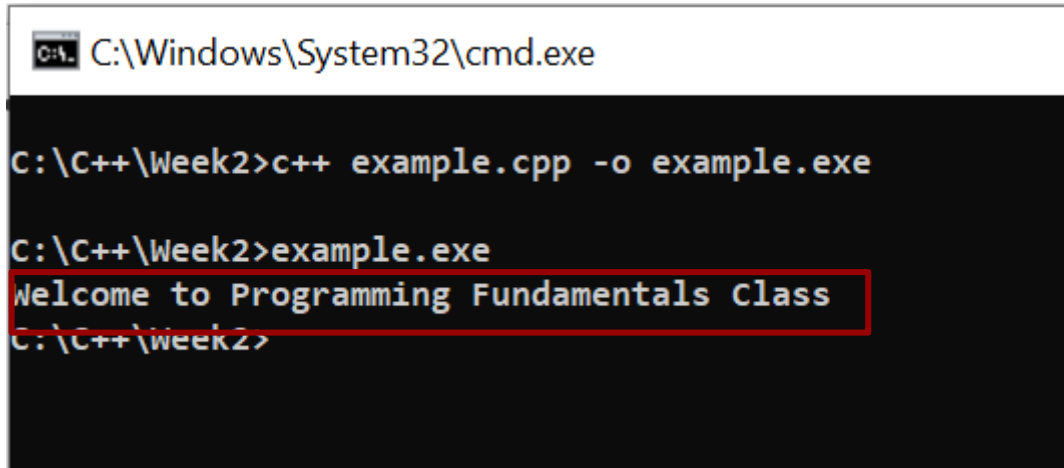
```
C:\Windows\System32\cmd.exe

C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>example.exe
```

Output on Console in C++

Then write `filename.exe` to execute the binary file.



```
C:\Windows\System32\cmd.exe

C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>example.exe
Welcome to Programming Fundamentals Class
C:\C++\Week2>
```

The screenshot shows a Windows command prompt window with the title bar "C:\Windows\System32\cmd.exe". The command prompt is at the directory "C:\C++\Week2". The user has entered the command "c++ example.cpp -o example.exe" to compile a C++ program. The next prompt shows the user has entered "example.exe" to run the compiled program. The output of the program, "Welcome to Programming Fundamentals Class", is displayed on the next line and is highlighted with a red rectangular box. The prompt then returns to "C:\C++\Week2>" for further input.

Working Example: Updated

What if now I want to write this? What changes we need to do?

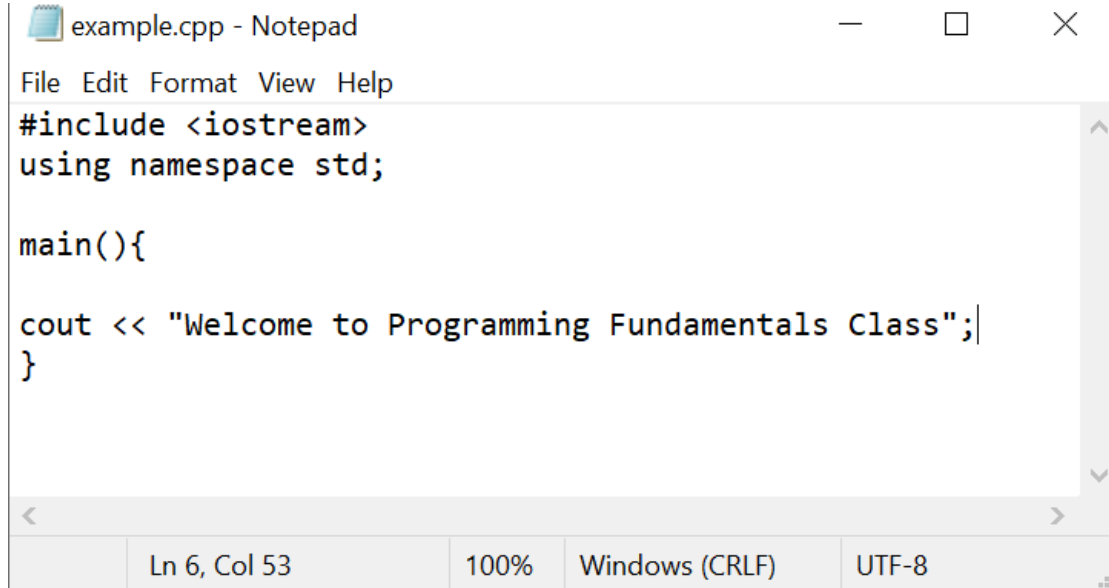
C:\Windows\System32\cmd.exe

```
C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>example.exe
Welcome to Programming Fundamentals Class.
This is my first Program
C:\C++\Week2>
```

Working Example: Updated

What if now I want to write this? What changes we need to do?

A screenshot of a Notepad window titled "example.cpp - Notepad". The window has a menu bar with "File", "Edit", "Format", "View", and "Help". The text area contains C++ code:

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

main(){

cout << "Welcome to Programming Fundamentals Class";
}
```

 The status bar at the bottom shows "Ln 6, Col 53", "100%", "Windows (CRLF)", and "UTF-8".

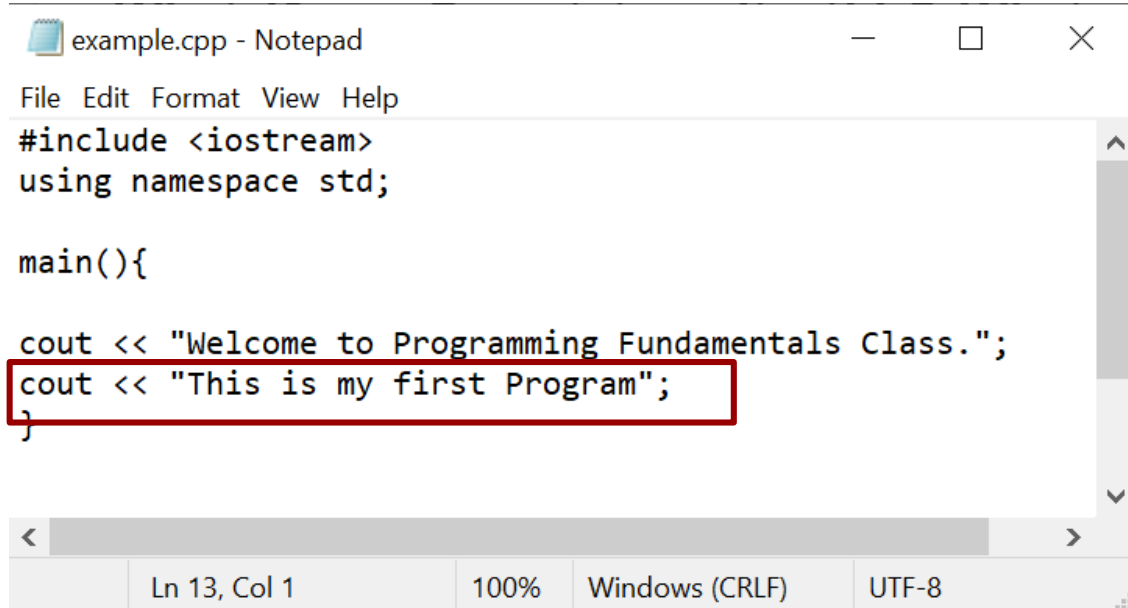
```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

main(){

cout << "Welcome to Programming Fundamentals Class";
}
Ln 6, Col 53 100% Windows (CRLF) UTF-8
```


Working Example: Updated

What if now I want to write this? What changes we need to do? Will it Work?



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

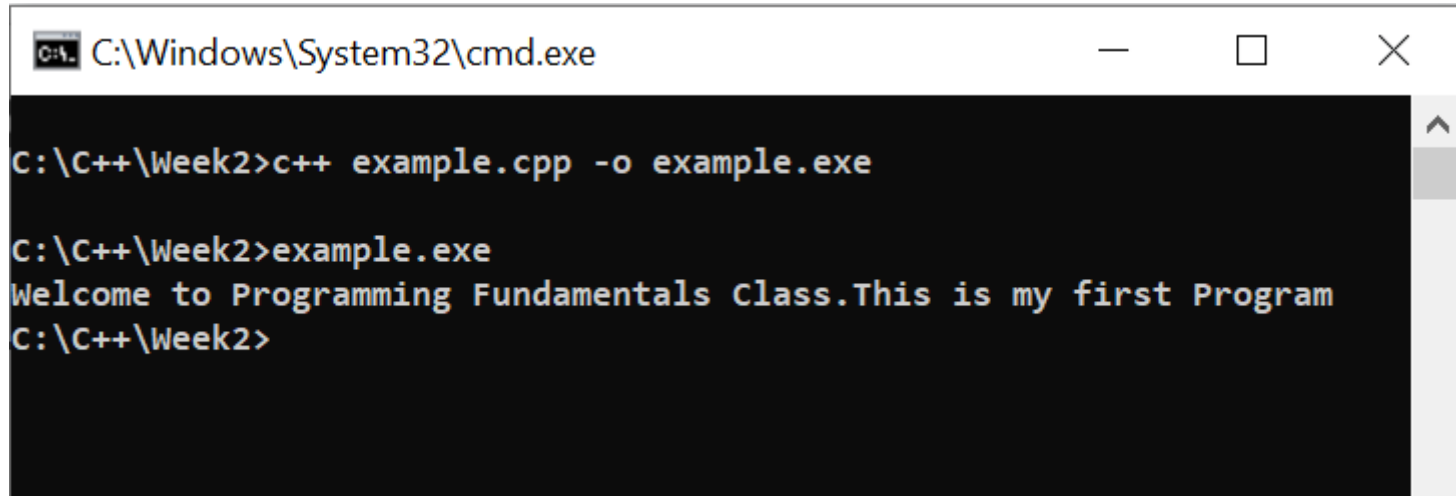
main(){

cout << "Welcome to Programming Fundamentals Class.";
cout << "This is my first Program";
}
```

Ln 13, Col 1 100% Windows (CRLF) UTF-8

Working Example: Updated

It displayed the output on the same line.



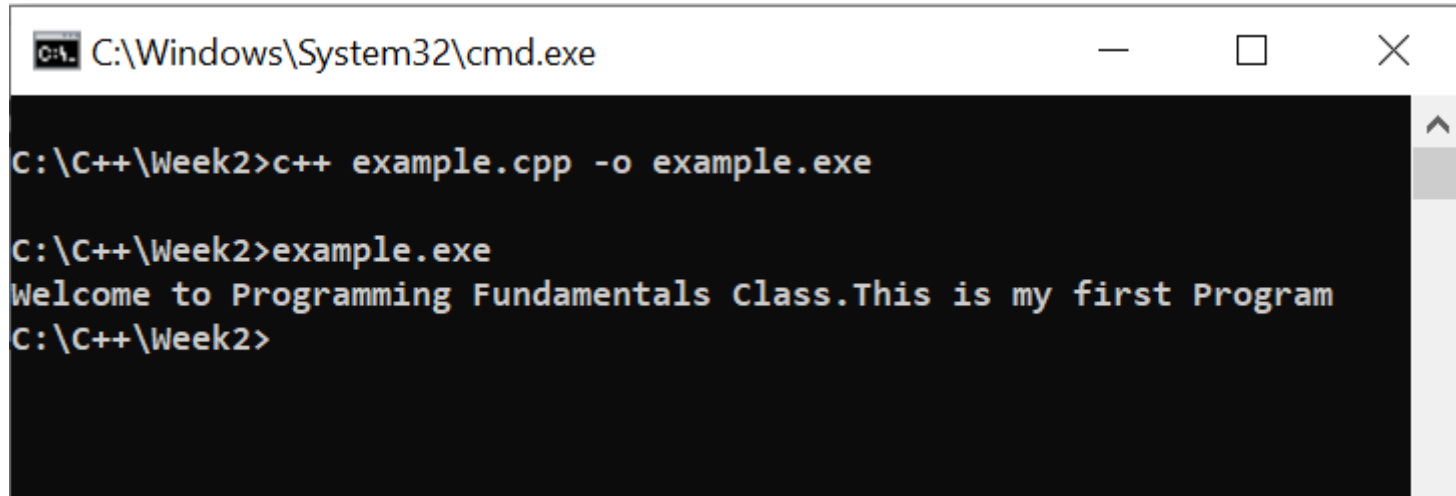
```
C:\Windows\System32\cmd.exe

C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>example.exe
Welcome to Programming Fundamentals Class.This is my first Program
C:\C++\Week2>
```

Working Example: Updated

It displayed the output on the same line.
Now what do we have to change?



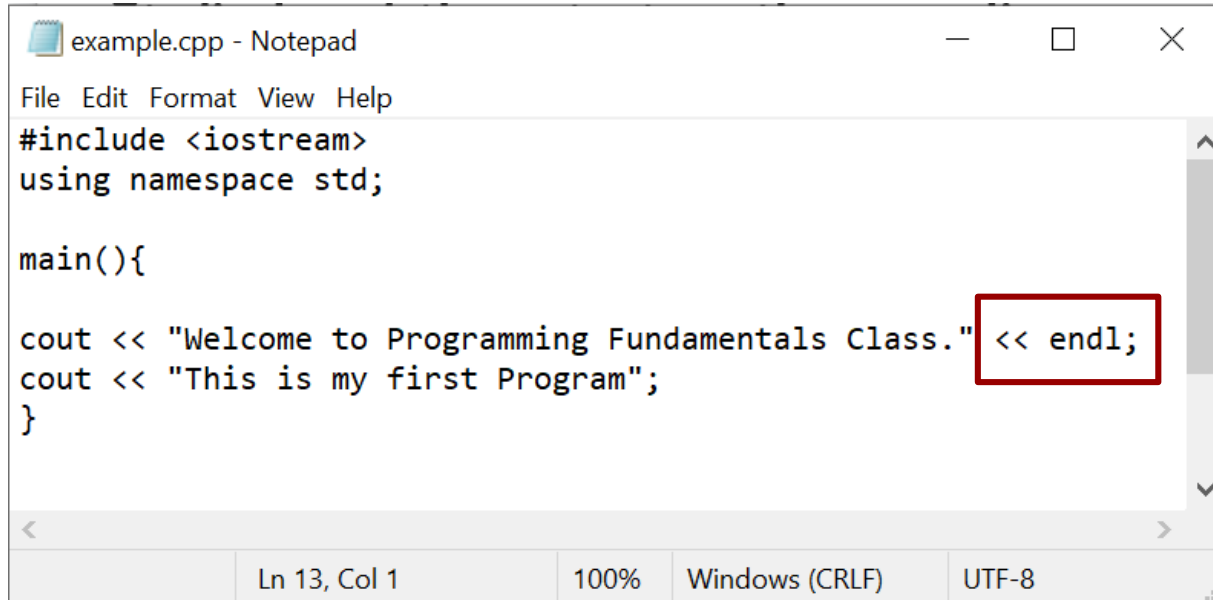
```
C:\Windows\System32\cmd.exe

C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>example.exe
Welcome to Programming Fundamentals Class.This is my first Program
C:\C++\Week2>
```

Working Example: Updated

We have to write `<< endl` at the end of first line.



```
example.cpp - Notepad
File Edit Format View Help
#include <iostream>
using namespace std;

main(){

cout << "Welcome to Programming Fundamentals Class." << endl;
cout << "This is my first Program";
}

Ln 13, Col 1    100%    Windows (CRLF)    UTF-8
```

`endl`
command is
used to
insert a new
line on the
monitor
screen.

Working Example: Updated

Finally, the required output. Yayyyyyy!!!!

C:\Windows\System32\cmd.exe

```
C:\C++\Week2>c++ example.cpp -o example.exe

C:\C++\Week2>example.exe
Welcome to Programming Fundamentals Class.
This is my first Program
C:\C++\Week2>
```

Learning Objective

Write and execute a **C++** **program** that shows **output** on the monitor screen (console).



Conclusion

- In C++, to display the numeric and textual output on the monitor screen (console), the available command is `cout`.
- To end the line, we use the `endl` keyword.



Self Assessment

- What will be the output of this code?

```
cout << " Well" << "Come" << endl << " to programming";
```

- Which of the following is the correct syntax to print the message in C++ language?
 - Cout << Hello world! ;
 - cout <<"Hello world!"
 - Out <<"Hello world!;
 - cout<<"Hello world!";



Self Assessment

- Write a C++ program that shows your name on the screen.
- Write a C++ program that shows your name at first line and your city name at second line.

