

Basic Programs

Print Hello World

```
hello_world.cpp
#include <iostream>
int main(){
    std::cout << "Hello, Modern C++" << std::endl;
}
```

To run the above program, following are the steps:

- Compile the code using the command: `c++ hello_world.cpp`
This will generate a file with name `a.out`
- This can be executed with command: `./a.out`
This will print "Hello, Modern C++" on the screen.

Print the input on screen

```
print_input.cpp
#include <iostream>
using namespace std;
int main(){
    int num;
    cout << "Please enter any number: " << endl;
    cin >> num;
    cout << "number is " << num << endl;
    cerr << "boring error message" << endl;
    return 0;
}
```

After compiling the code, we can save:

- The output on file `stdout.txt` with command: `./a.out 1> stdout.txt`

```
Please enter any number:
number is 22
```

- The error on file `stderr.txt` with command: `./a.out 2> stderr.txt`

```
boring error message
```

- With command: `./a.out`, the following appears on terminal

Please enter any number:

22

number is 22

boring error message

- **Every** C++ program starts with `main`
- `main` is a function that returns an error code
- Error code `0` means `OK`
- Error code can be any number in `[1, 255]`

```
1 int main() {  
2     return 0; // Program finished without errors.  
3 }
```

```
1 int main() {  
2     return 1; // Program finished with error code 1.  
3 }
```

Two variants:

- `#include <file>` — system include files
- `#include "file"` — local include files

Copies the content of `file` into the current file

```
1 #include "some_file.hpp"  
2 // We can use contents of file "some_file.hpp" now.  
3 int main() { return 0; }
```