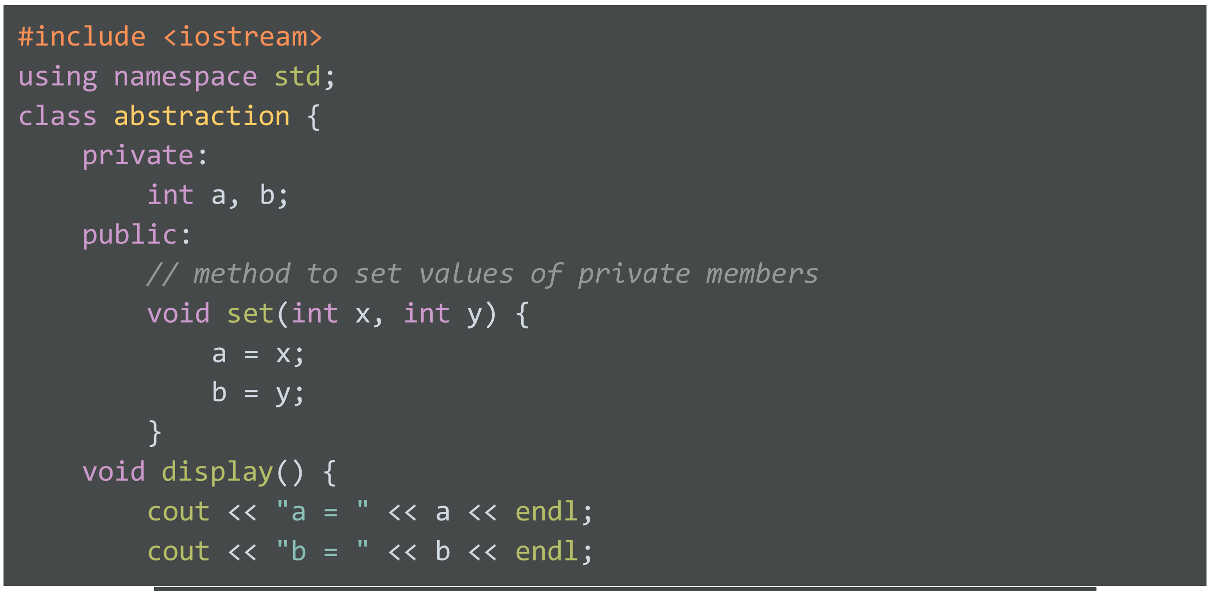
Abstraction

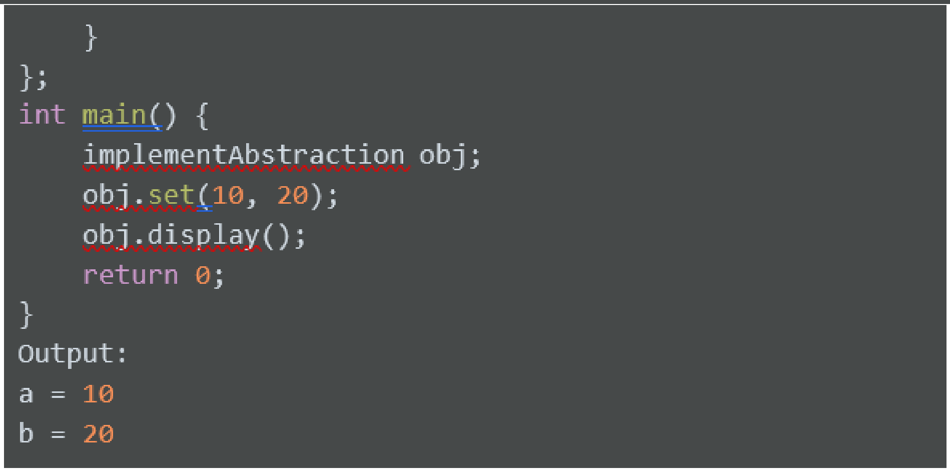
- Abstraction means providing only some of the information to the user by hiding its internal implementation details.
- We just need to know about the methods of the objects that we need to call and the input parameters needed to trigger a specific operation, excluding the details of implementation and type of action performed to get the result.
- Abstraction is selecting data from a larger pool to show only relevant details of the object to the user.
- It helps in reducing programming complexity and efforts.

Real-life example: When you send an email to someone, you just click send, and you get the success message; what happens when you click send, how data is transmitted over the network to the recipient is hidden from you (because it is irrelevant to you).

- We can implement Abstraction in C++ using classes.
- The class helps us to group data members and member functions using available access specifiers.
- A Class can decide which data members will be visible to the outside world and not.
- Access specifiers arethe main pillar of implementing abstraction in C++.
- We can use access specifiers to enforce restrictions on class members.



```
#include <iostream>
using namespace std;
class abstraction {
    private:
        int a, b;
    public:
        // method to set values of private members
        void set(int x, int y) {
            a = x;
            b = y;
        }
    void display() {
        cout << "a = " << a << endl;
        cout << "b = " << b << endl;
```



```
    }
};
int main() {
    implementAbstraction obj;
    obj.set(10, 20);
    obj.display();
    return 0;
}
Output:
a = 10
b = 20
```

Advantages Of Abstraction:

- Only you can make changes to your data or function, and no one else can.
- It makes the application secure by not allowing anyone else to see the background details.
- Increases the reusability of the code.
- Avoids duplication of your code.