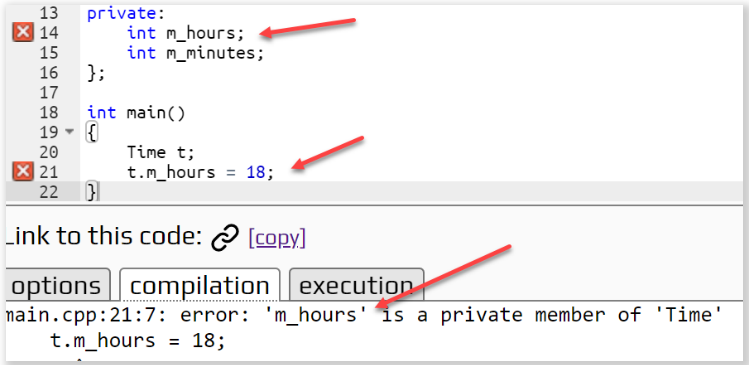
Public and Private

So, what do `public` and `private` mean in C++? If a member of a class is `public`, then **any part of your code** can access and manipulate it directly. If you have a **`public`** member function, any code can **call it using an object of that type**. If a data member is marked **`private`**, then **only** member functions of the class can access it.

The **`public`** and **`private`** keywords are the C++ mechanism for **defining interfaces and enforcing encapsulation**. Once you add **`private`**, the compiler enforces the **appropriate encapsulation**.



```
private:
    int m_hours;
    int m_minutes;
};

int main()
{
    Time t;
    t.m_hours = 18;
}
```

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```
nain.cpp:21:7: error: 'm_hours' is a private member of 'Time'
    t.m_hours = 18;
```

By prohibiting clients from directly accessing **`private`** data, the implementation can assume that all access to that data goes through the **`public`** interface (unlike the **`Time struct`** of last week, where clients **should use the member functions**, but **were not prohibited** from directly accessing the data members **`m_hours`** and **`m_minutes`**.)

*Actually, the only **real** difference between **`class`** and **`struct`** in C++ is that with a **`struct`**, the members are **`public`** by default; with a **`class`** they are **`private`**. By convention, we will use **`struct`** for **POD** (plain-old-data) data types, and **`class`** for encapsulated types.*

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