

Data Structures

The missing steps

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Limitations

- Our current code focused on int. What if we want string?
 - Copy paste? No
 - C++ has **template** programming: `Vector<int>`, `Vector<string>`, etc
- Memory issues
 - Our code lacks proper memory handling for copying and assignments
 - This is handled using **Copy Constructor** and **Assignment operator**
 - For faster code, you also implement **Move Constructor**
- Raw pointers vs **smart pointers**
 - We can use smart pointers to automatically release memory
 - Raw pointers will make the code less verbose + good pointers practice

Limitations

- **Flexibility**
 - We use set/get methods, but it is more convenient to use []
 - This is done using **Operator overloading** []
 - Or print using << operator
- **Exceptional Handling**
 - In practice, we may also raise exceptions to express errors
- **Interface-Implementation Separation**
 - In industry, we typically split the functionalities in a header file
 - Then implement this header
 - Our code include the header to use it
- **Very modern C++ such as C++17**
 - Most guys know up to modern C++11. I will stick to that. Generally, minor concern.

During the course

- If you studied template programming and OOP,
 - you should know how to apply these things
 - They are very **systematic**
- To minimize prerequisites and minimize scope, I will keep the codes simple
 - No template programming
 - No operator loading / No OOP facilities
 - No smart pointers
 - No exception handling
 - No interface/implementation separation
- This should make codes shorter and easier to understand
 - But as mentioned: there are a few **systematic steps** to make it ready for market
 - Refer to my C++ course to learn how to do so.

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”