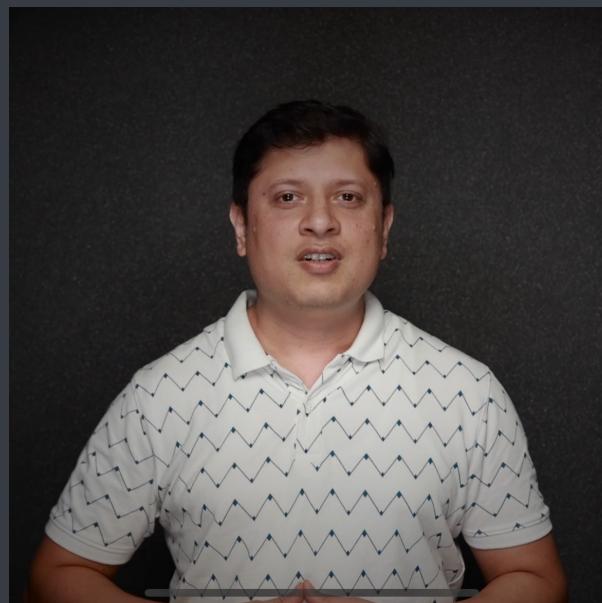


C, C++, DSA in depth

Structure in C++



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Agenda

- ① Recall Structure in C language
- ② Use structure of C in C++ program
- ③ New rules in C++ Structure.

Structure in C

- ① Structure can be a collection of dissimilar elements.
- ② Structure is a way to group variables.
- ③ Defining structure is creating custom data type

Primitive and Non- Primitive Data Types

int
char
float
double

Book ← Custom data type
Student ← Secondary data type
Customer ← user defined data type
Employee

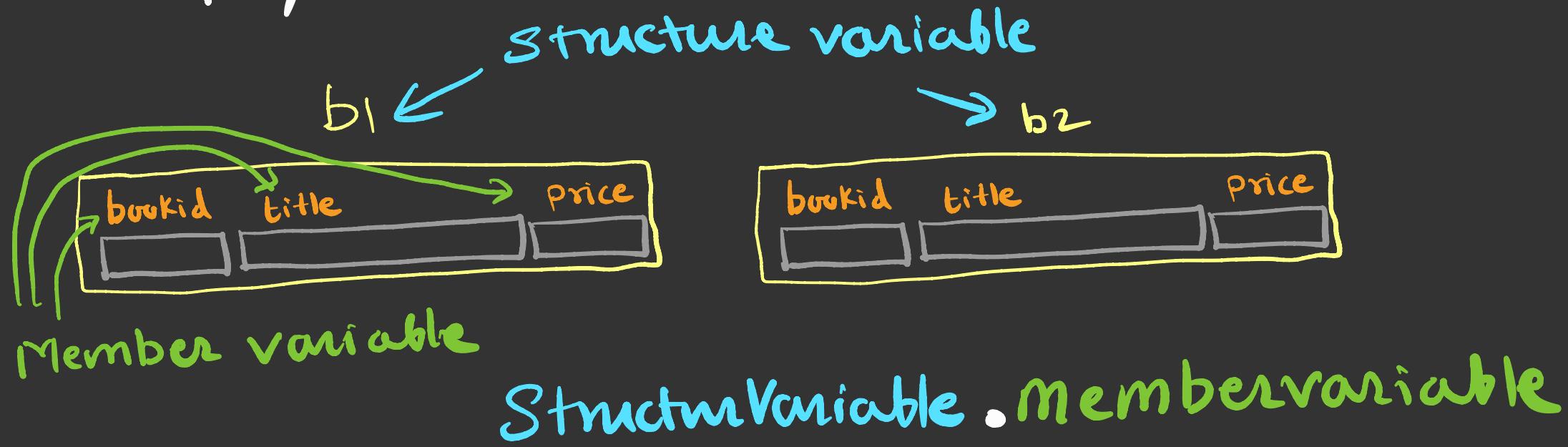
Defining Structure (Creating Data Type)

Struct Book

```
{  
    int bookId;  
    char title[20];  
    float price;  
};
```

- Global vs local definition

Write a C++ program to define a structure to handle book record (bookid, title, price). also define function inputBook and displayBook to take input book data from user and display book data on the screen.



What is new in C++ Structure?

- ① use of struct keyword is optional on every use of non primitive type
- ② structure can have functions too as members
- ③ use of access specifiers for the members of structure.

Encapsulation

An act of combining properties and methods related to the same entity is known as Encapsulation

property = fields = Data member = attribute = ^{variable} variable

methods = functions = procedure = Service = function

Data Hiding

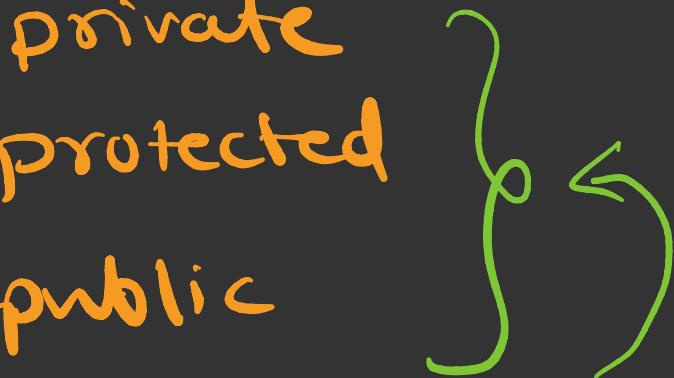
Data Security



$f_1() \{ \dots \}$
 $f_2() \{ \dots \}$
 $f_3() \{ \dots \}$
 $f_4() \{ \dots \}$
 $f_5() \{ \dots \}$

Access Specifiers

- private
- protected
- public



Can be applied
only on members

Abstraction

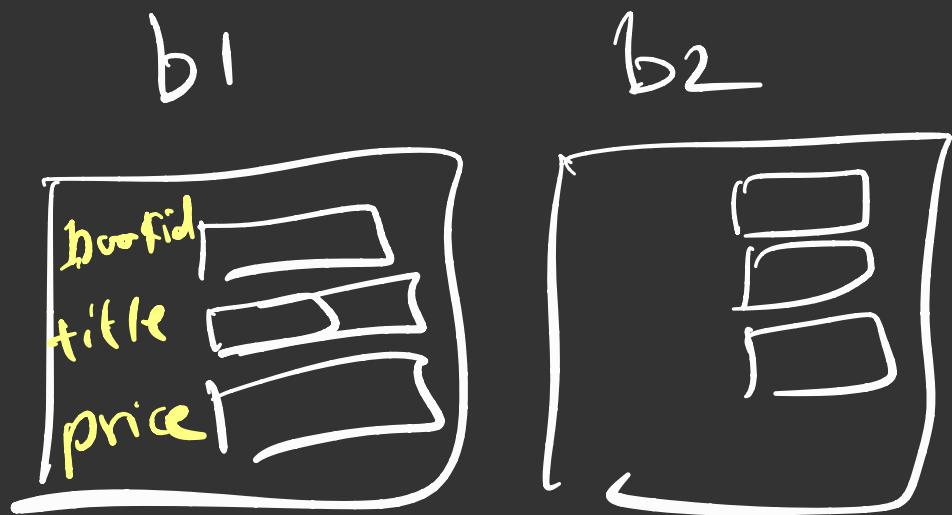
Hiding implementation details.

By defining methods in structure and making them public, is allowing users of the structure to call them but they can't see the implementation details of the function, this is abstraction.

```
cout << "Hello";
```

Book
→
Structure b1 of object

State of an object should only be changed via methods of that object



Set of property values in an object is called its state.