# C Language

## Structure

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# Agenda

1. Introduction to structure
2. Primitive and non-primitive data type
3. Defining structure
4. Declaring structure variable
5. Initializing structure variable during declaration
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7. Taking input from user
8. structure array
9. Function returning structure
10. Function call by passing structure
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# Introduction to Structure

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
Student
Customer
Employee

Custom data type
Secondary data type
user defined data type

# Defining Structure (Creating Data Type)

```
struct Book
{
        int bookid;
        char title[20];
        float price;

};
```

```
struct TypeName
{
        //Declare variables

};
```

- Global vs local definition

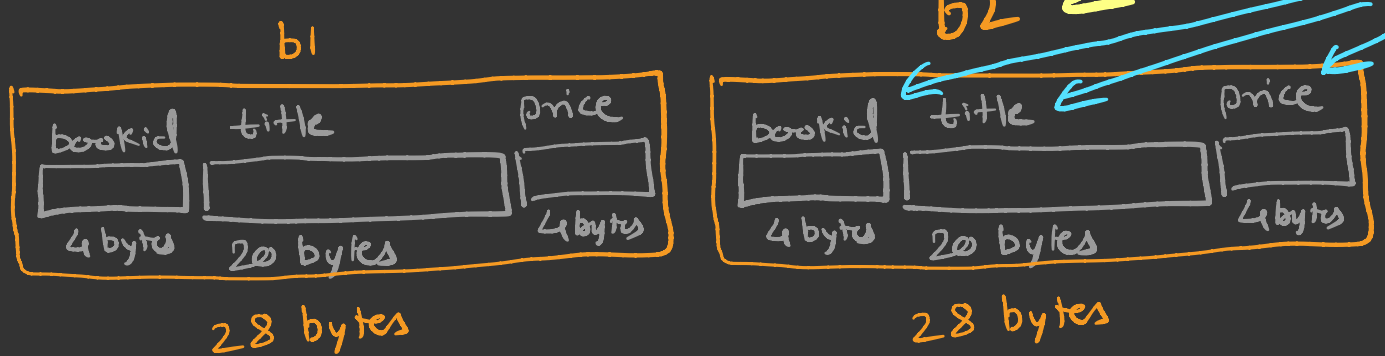
# Declaring Structure Variable

```
struct Book
{
    int bookid;
    char title[20];
    float price;
} b1, b2 ;
```

```
void f1()
{
    struct Book b1, b2;
}
```

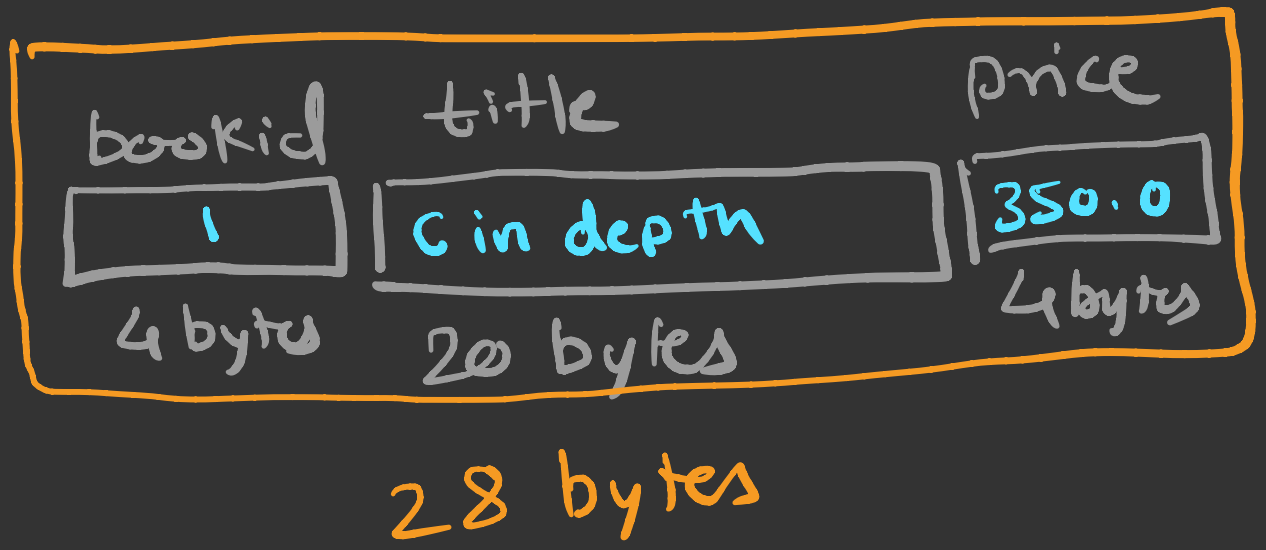
structure variable

member variable

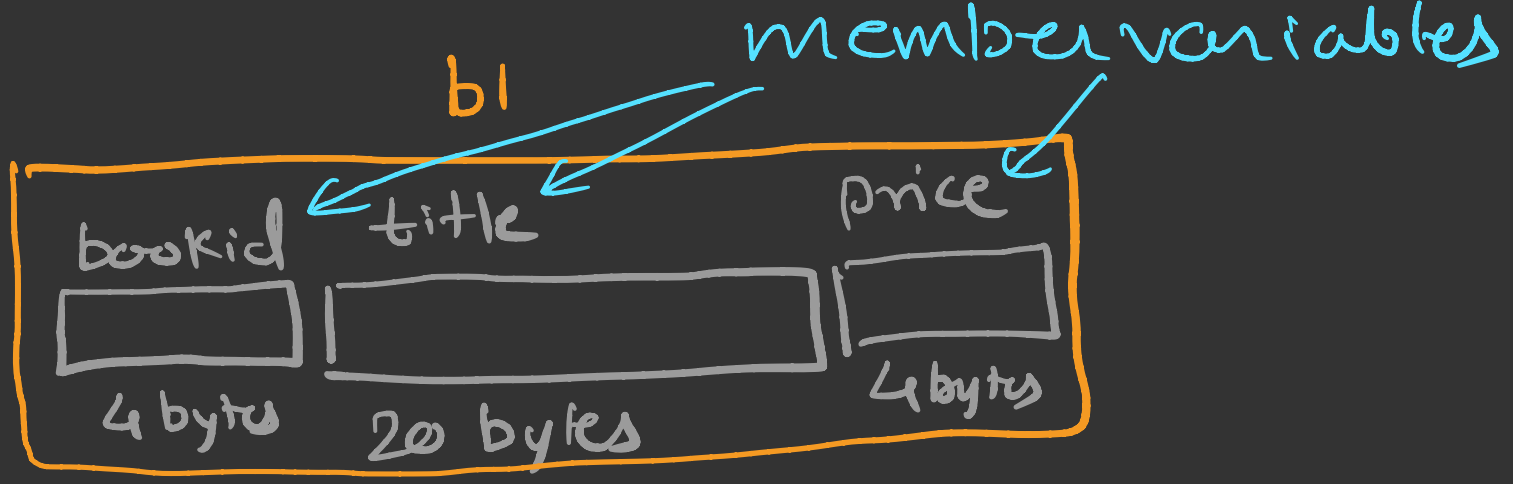


# Initializing structure variable during declaration

```
struct Book b1 = { 1, "C in depth", 350.0 };
```



# Initializing Structure member variables after declaration




28 bytes

You cannot access member variables directly.

bookid = 2; Error

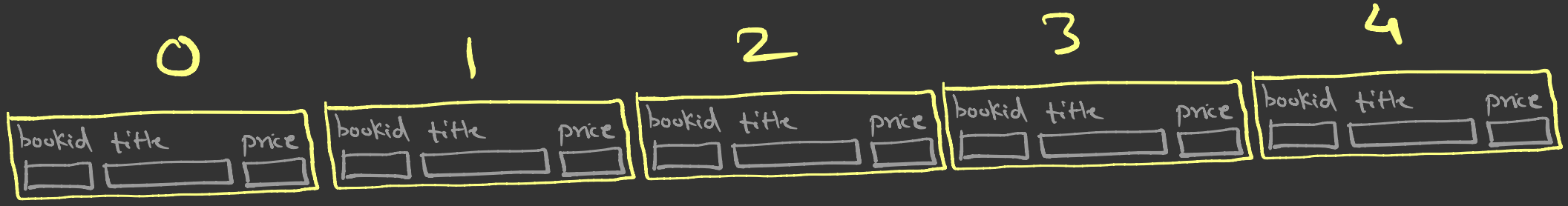
StructureVariable . memberVariable

# Taking Input from user

```
printf("Enter bookid, title and price");
scanf("%d", &b3.bookid);
fgets(b3.title, 20, stdin);
scanf("%f", &b3.price);
```

# Structure Array

```
struct Book b[5];
```



# Function Returning Structure

```
struct Book functionName( )
{
    struct Book b;

    =
    =
    =

    return b;
}
```

# Function call by passing Structure

- function ( b1 )

- function ( struct Book b )

{

=

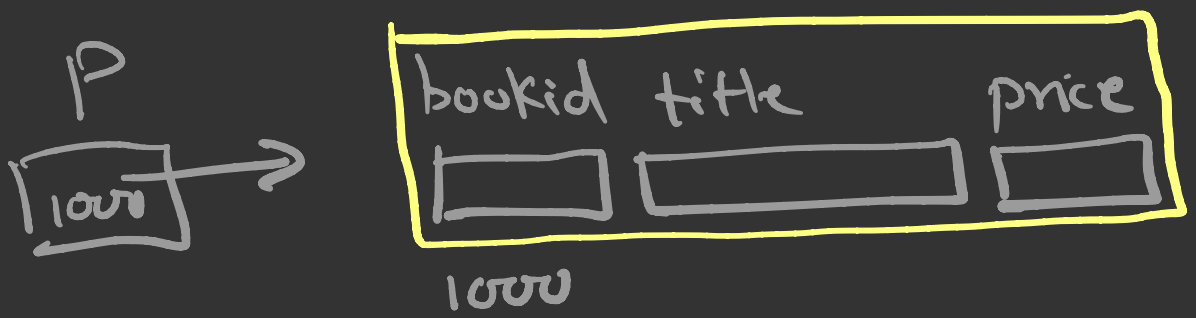
}

# Structure Pointer

```
struct Book b1;
struct Book *p;
```

structure Pointer

```
p = &b1;
```




*p ≒ b1

b1.bookid

structureVariable . memberVariable

(*p). bookid

structurePointer -> memberVariable

p -> bookid