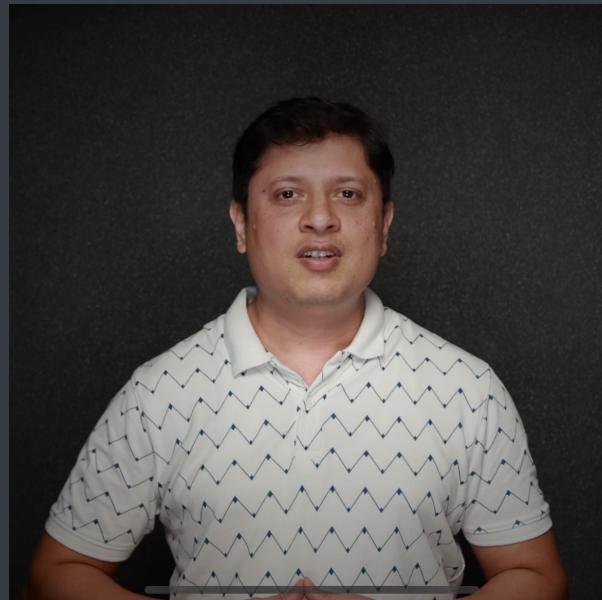


# C++ in depth

## Static



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# Agenda

- ① static Keyword
- ② static local variable
- ③ class variables or static member variables
- ④ static member functions

## Static

In C++, Static Keyword can be used in the following places :

- static local variables → C/C++
- static Member variables → C++
- static Member Functions → C++

## Static local variable

```
void f1()
```

```
{
```

```
    int x; ← local variable
```

```
    static int y; ← static local variable
```

```
}
```

Default value

local variable → Garbage

static local variable → 0

Life: Life of local variable is limited to the execution of function.

Life of static local variable is equal to the life of program.

Scope:

Scope of local variable and static local variable is limited to the function block

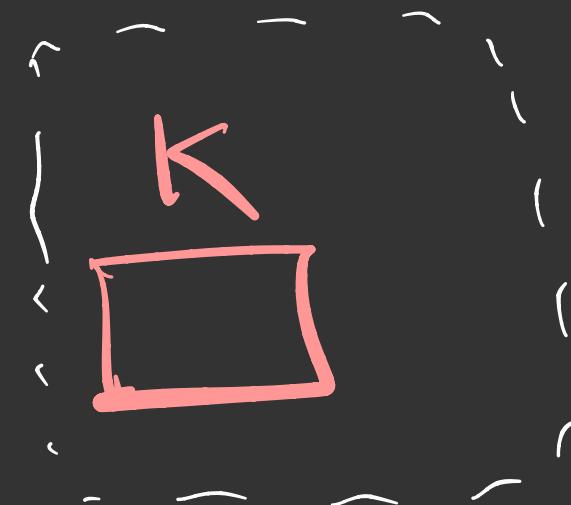
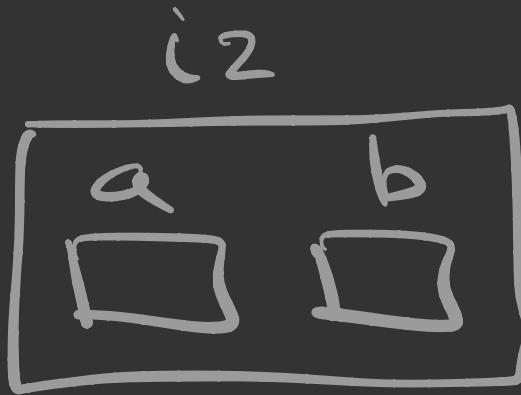
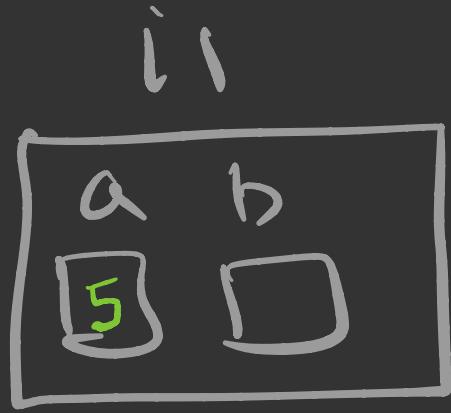
# Types of variables

C  
++

- ① Global variable
- ② Local variable
- ③ static Local variable

C++

- ① Global Variable
- ② Local variable
- ③ static local variable
- ④ Instance member variable
- ⑤ static member variable



i1.a = 5;  
cout << i2.a;

i2.K = 6;  
cout << i1.K;

## Static Member Variables

Class Item

{

public :

int a,b; // instance member variables

static int K; // static member variable

}

int Item:: K;

int main()

{

Item i1,i2;

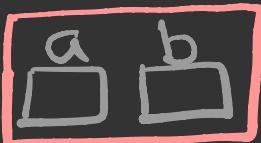
i2.a=4;

cout << i1.a;

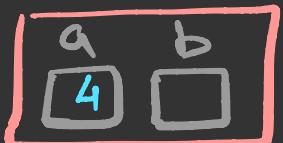
~~i2.K=5;~~

~~cout << i1.K;~~

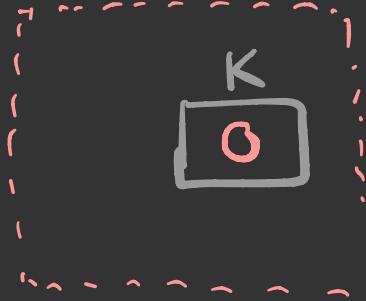
i1



i2



Item



Item :: K = 5;

cout << Item :: K;

Static member variable needs to define outside the class body

datatype className :: staticVariable ;

There is only one copy of static member variable in the memory for entire class

static member variable is not related to any specific object of class, but object can access static member variable using dot operator

static member variable == class variable

How to access public static  
member variables?

- ① `objectName. staticMemberVariable`
- \* ② `className :: staticMemberVariable`

How to access private static  
member variables?

by making member function

- ① `objectName. instanceMethod()`  
`objectName. staticMethod()`
- ② `className :: staticMethod()`

## Static Member Functions

static member function are qualified  
with the keyword static

non member function can never be static

static member function can only access  
static members of the class

member functions in class not  
performing object specific job, should  
be static member function

```
class Item
```

```
{
```

```
private:
```

```
    int a, b;
```

```
    static int K;
```

```
public:
```

```
IMF
```

```
    void set_a(int x) { a=x; }
```

```
    void set_b(int y) { b=y; }
```

~~```
    void set_K(int z) { K=z; }
```~~

```
SNF
```

```
    static void set_K(int z) { K=z; }
```

```
};
```

```
int Item::K;
```

```
{ Item ii;  
ii.set_a(5);  
ii.set_b(6);  
ii.set_K(7); ✓  
Item::set_K(7); ✓*
```

y

class → Account

IMV → accountNo

IMV → balance

IMF → showBalance()

SMV → ROI

SMF → showROI()

IMF → calculateInterest()