Functions & some Problem Statements

Special class

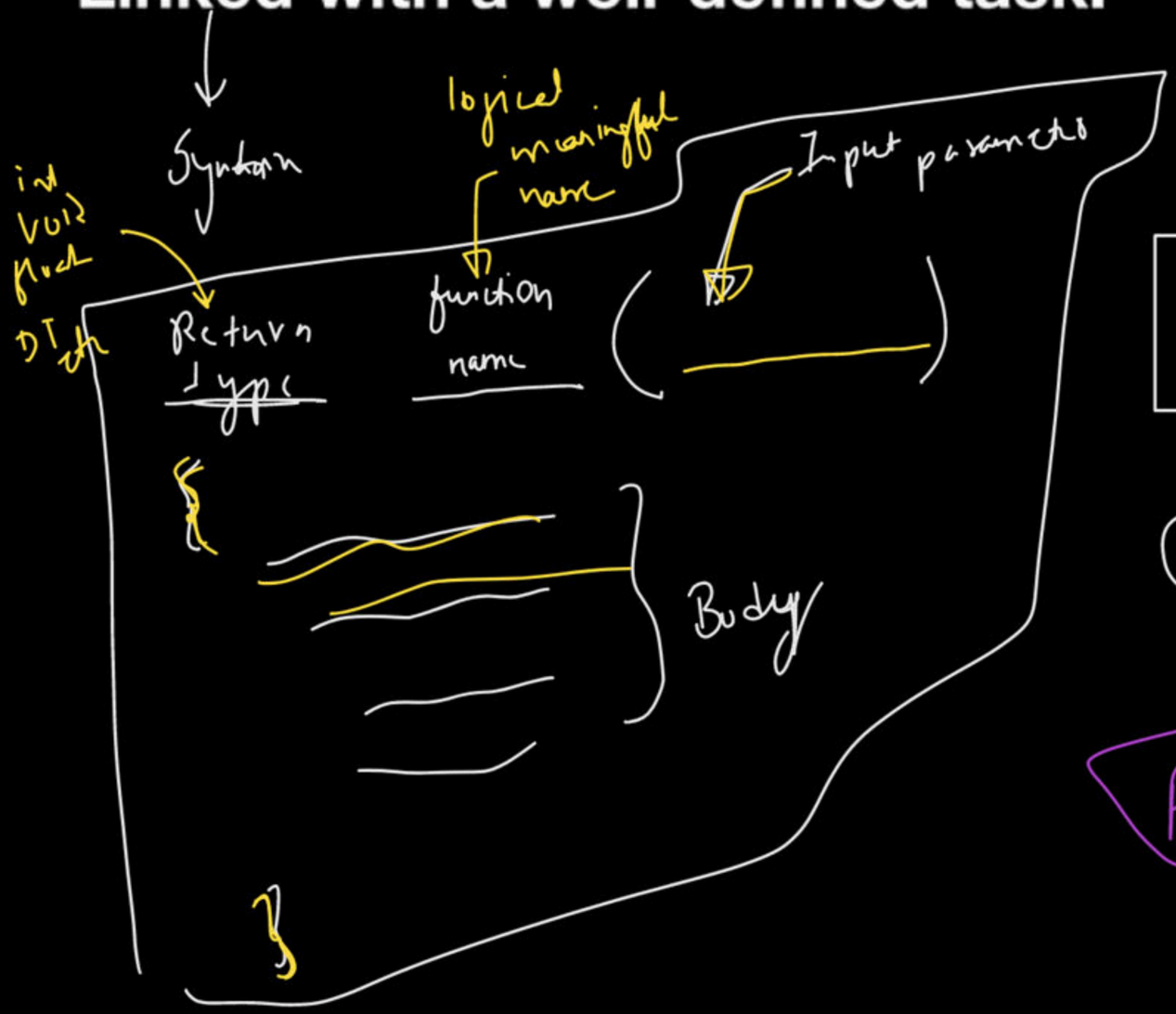
Love Babbar • Feb 5, 2023

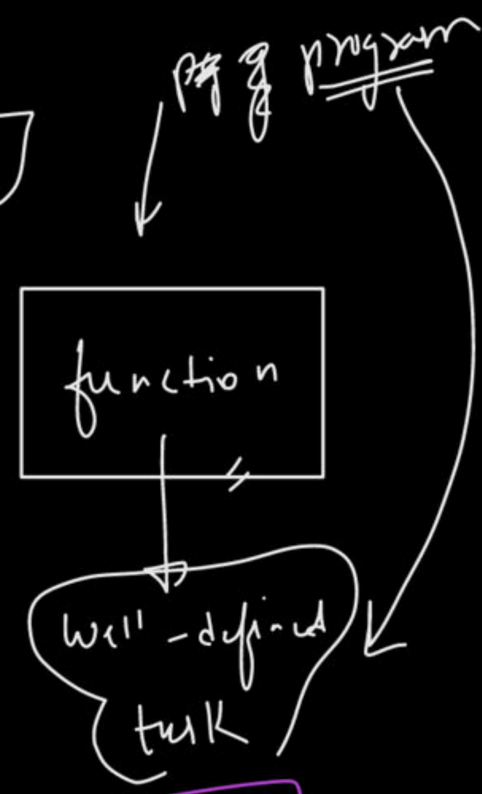
Functions & Problem Statements

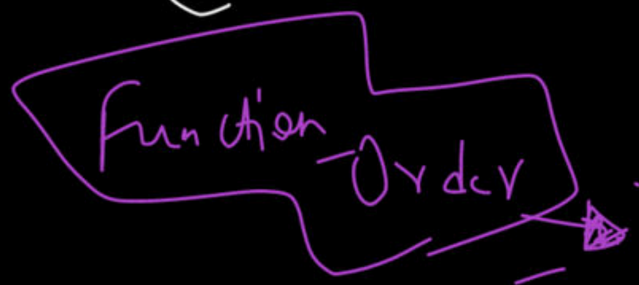
Instructor: Love Babbar

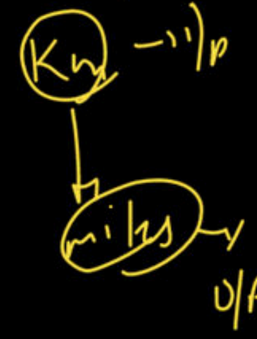
Functions:

Linked with a well-defined task.

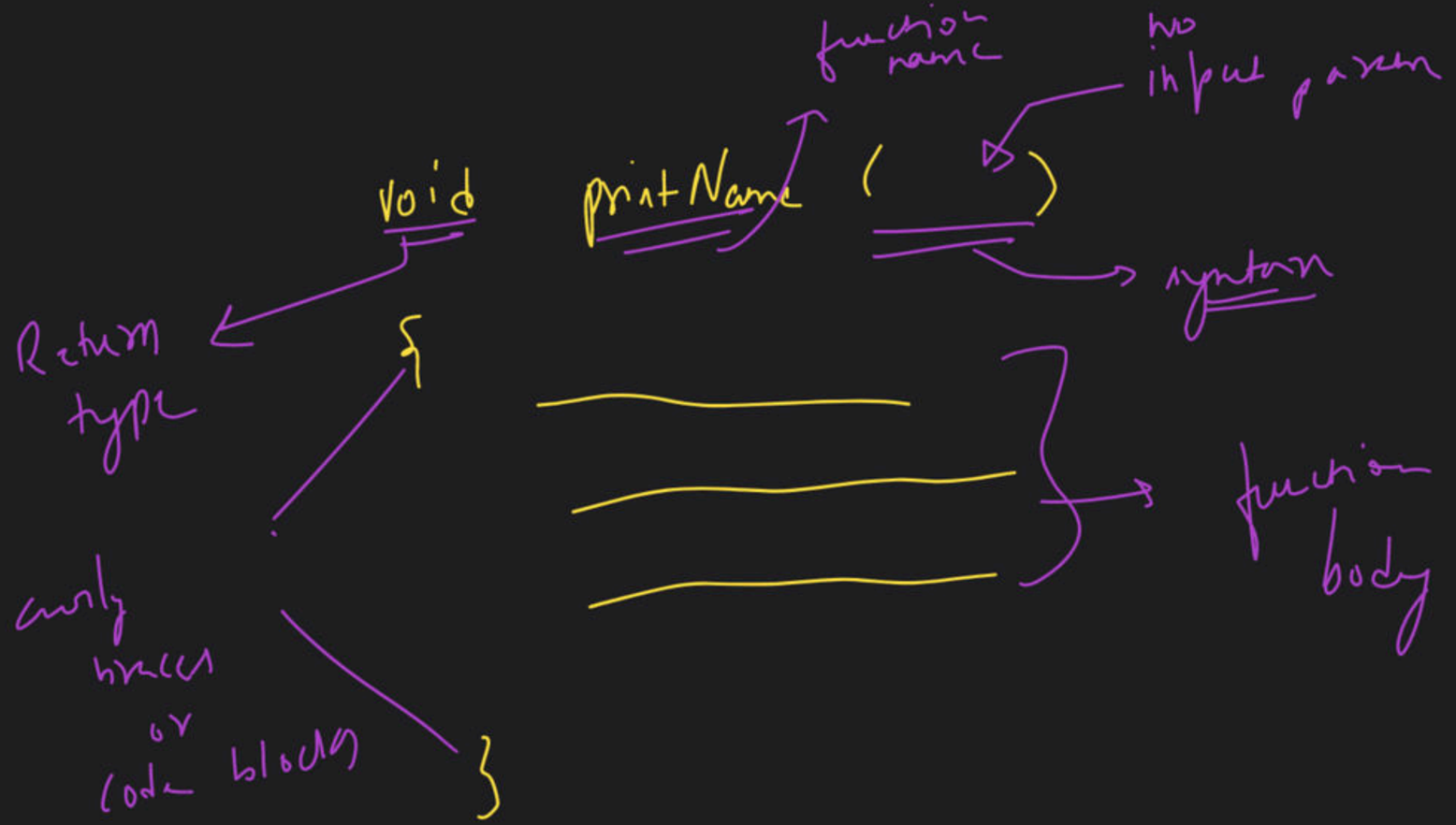


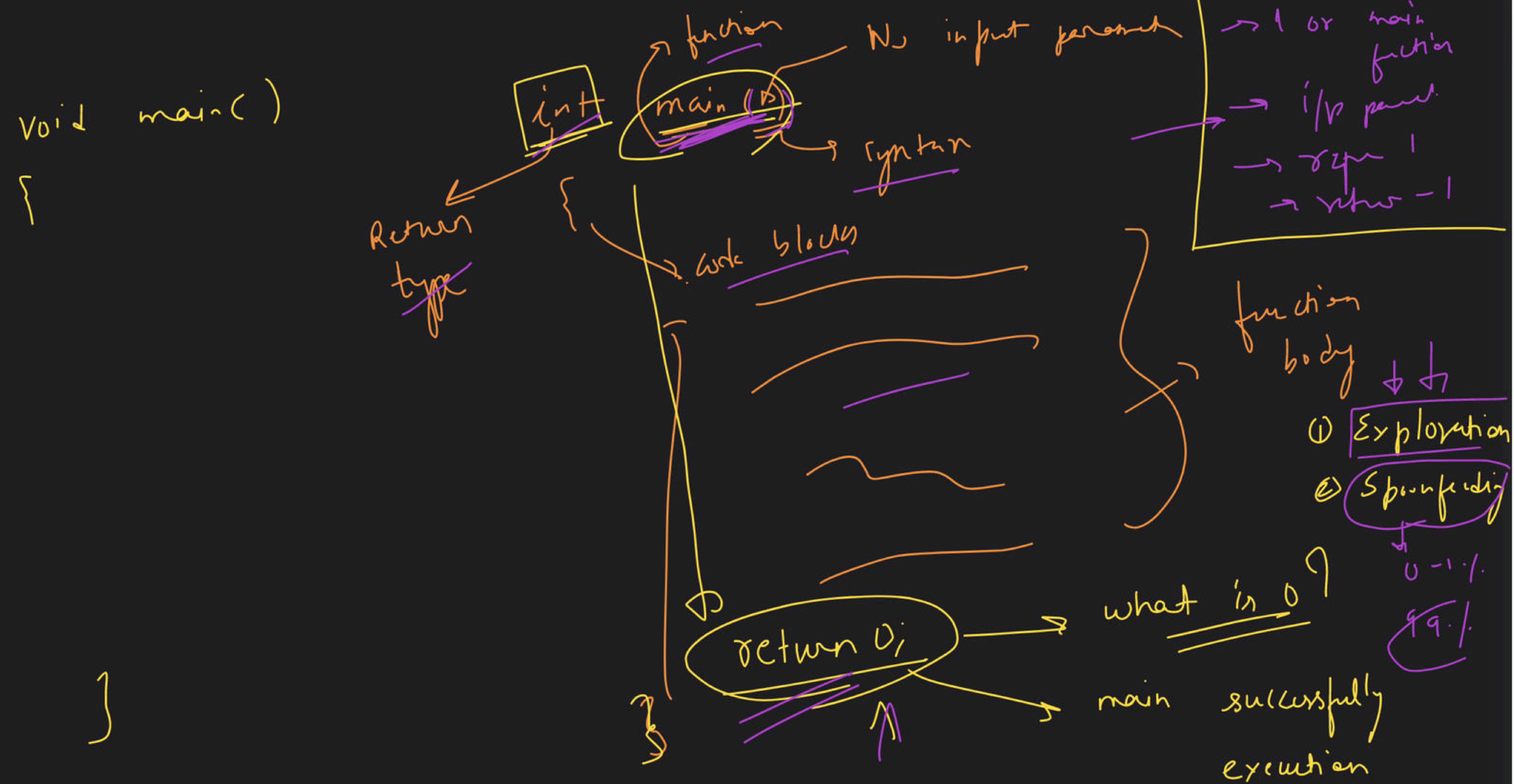


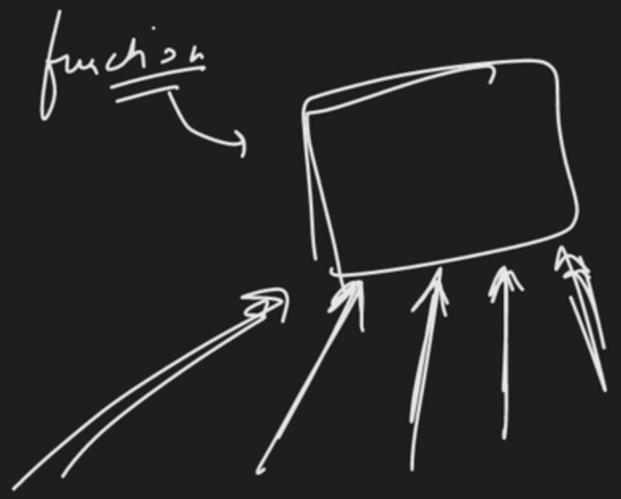




function
well-defined task
Re-use / refer
Readable


function name
no input params
void
printName
( )
syntax
Return type
{
curly braces or code blocks
}
function body


void main( )
{
}
int
main ()
function
No input parameter
syntax
Return type
code blocks
return 0;
function body
① Exploration
② Spoonfeeding
0-1%
99%
what is 0?
main successfully execution


funcion

Why Functions ?

lengthy or Bulky

Not Reusing

Buggy

Readability

Function Call Stack:

Stack ?

↑ ↳ Data Structure

data stored
in a specific way

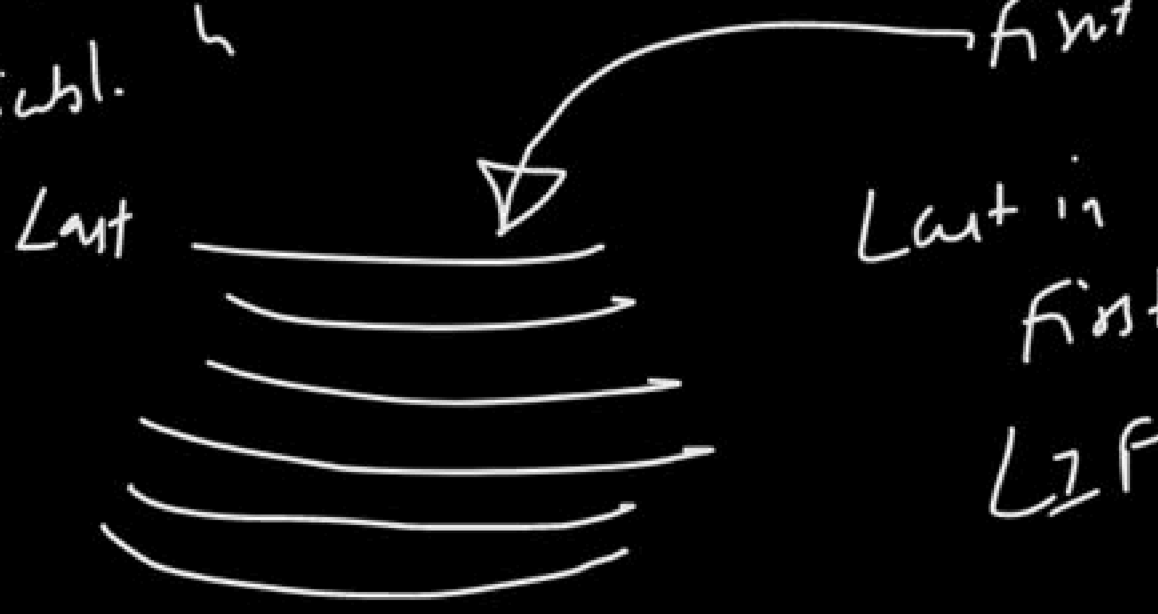
→ function call

→ Kis function ne
dusre function ko
call kia h

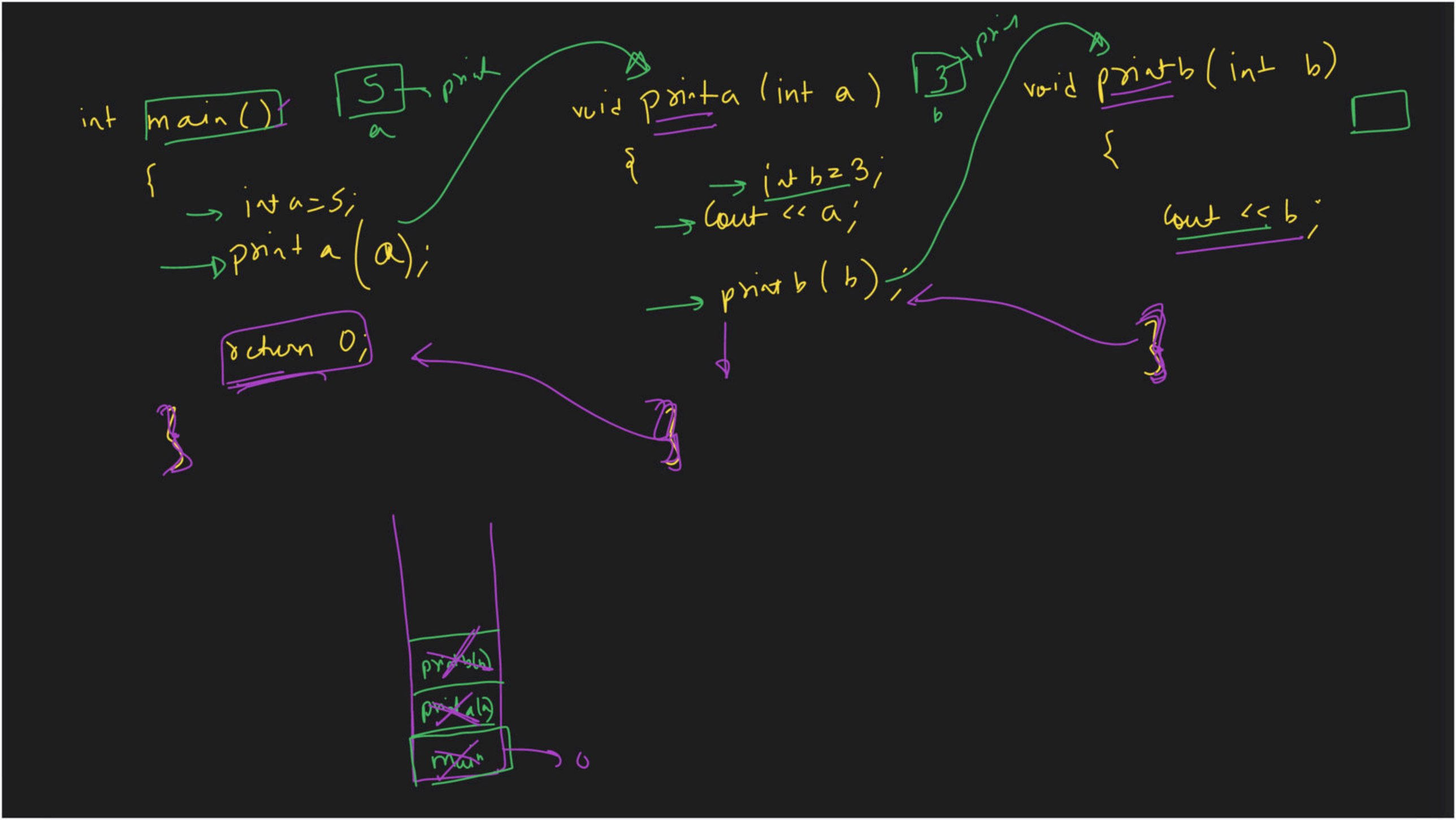
→ function k kon kon se
local variable h

→ function kya
return karra h

Shaadi



Last in
First Out
LIFO


int main()
{
int a=5;
print a (a);
return 0;
}
5
a
print
void print a (int a)
{
int b=3;
cout << a;
print b (b);
}
3
b
print
void print b (int b)
{
cout << b;
}
print b(b)
print a(a)
main
0

main()

{

int a = 1;

int b = 2;

cout << max(a, b);

return 0;

}

1

a

2

b

2

function call

1>2-NF

int max(int a, int b)

{

if(a > b)

return a;

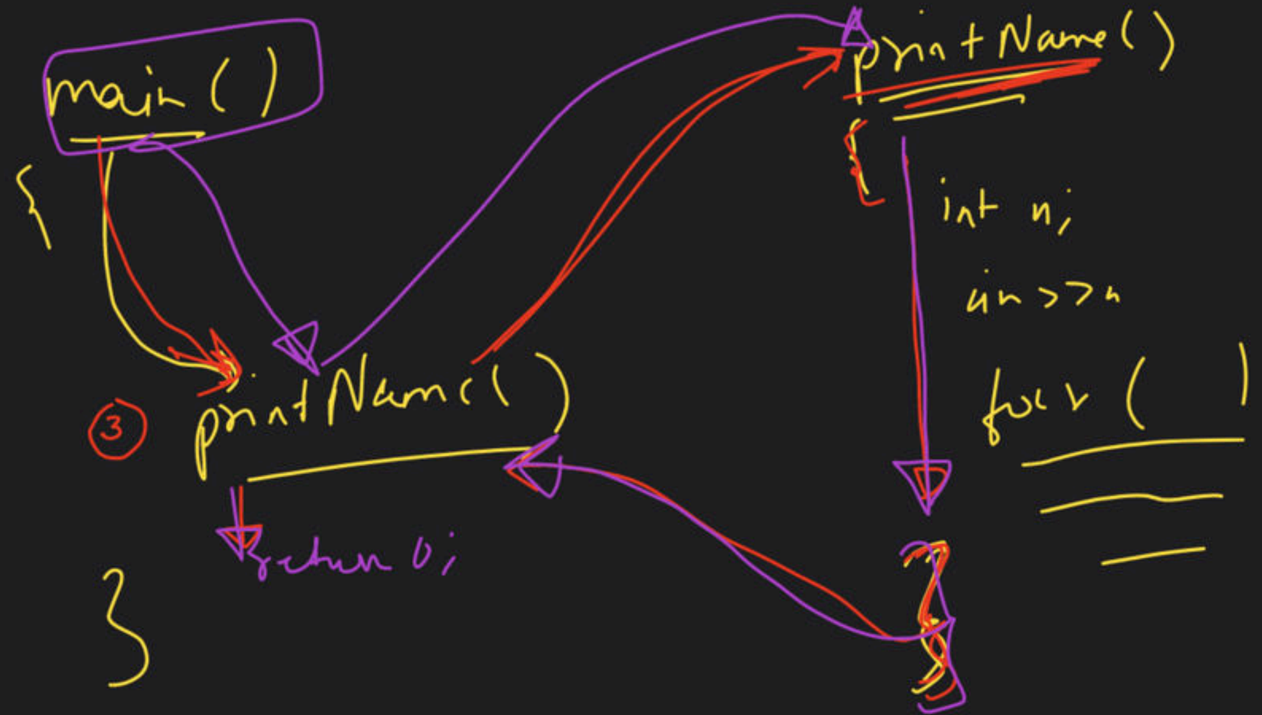
else

return b;

2

}

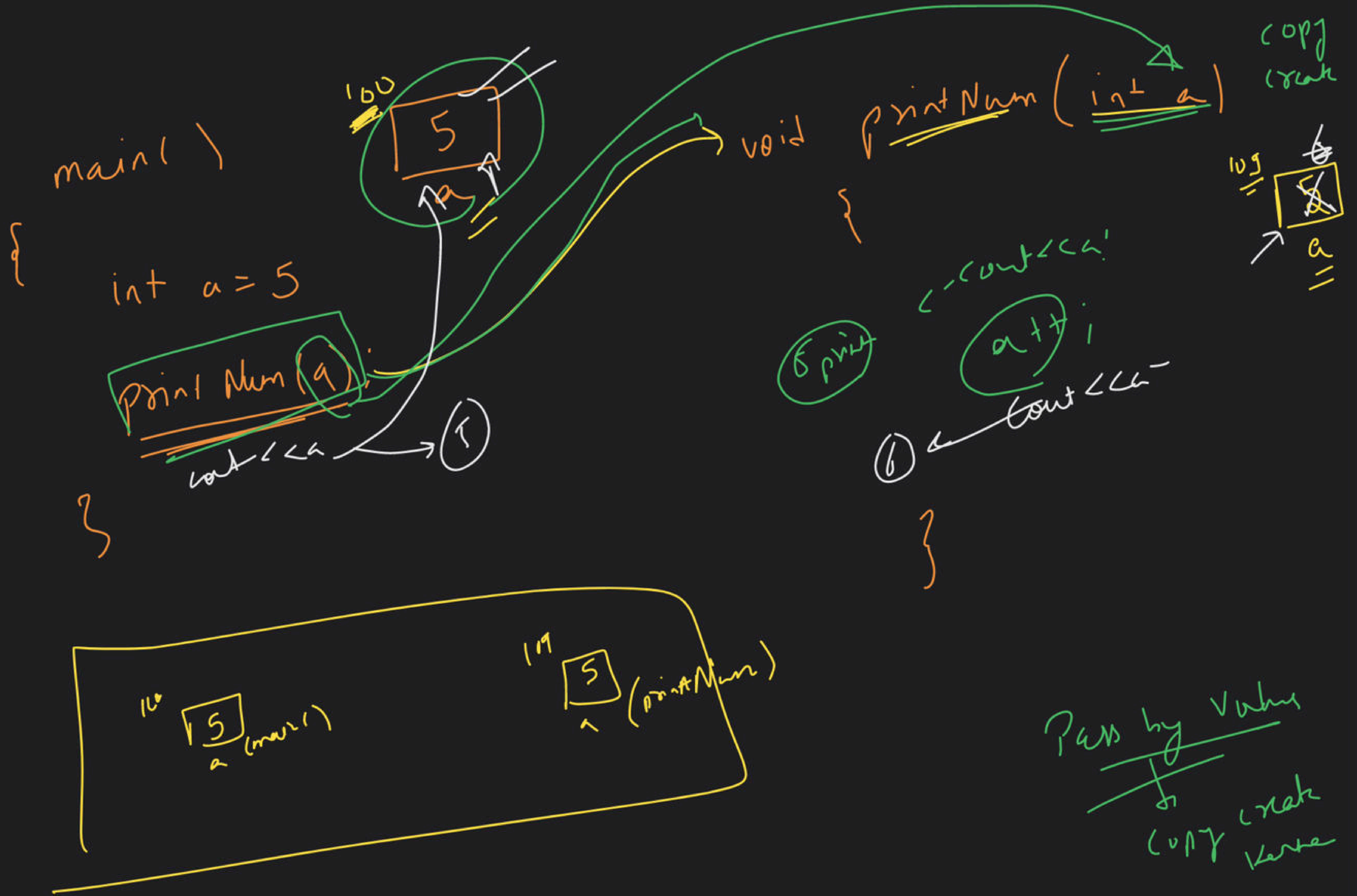
Operating System

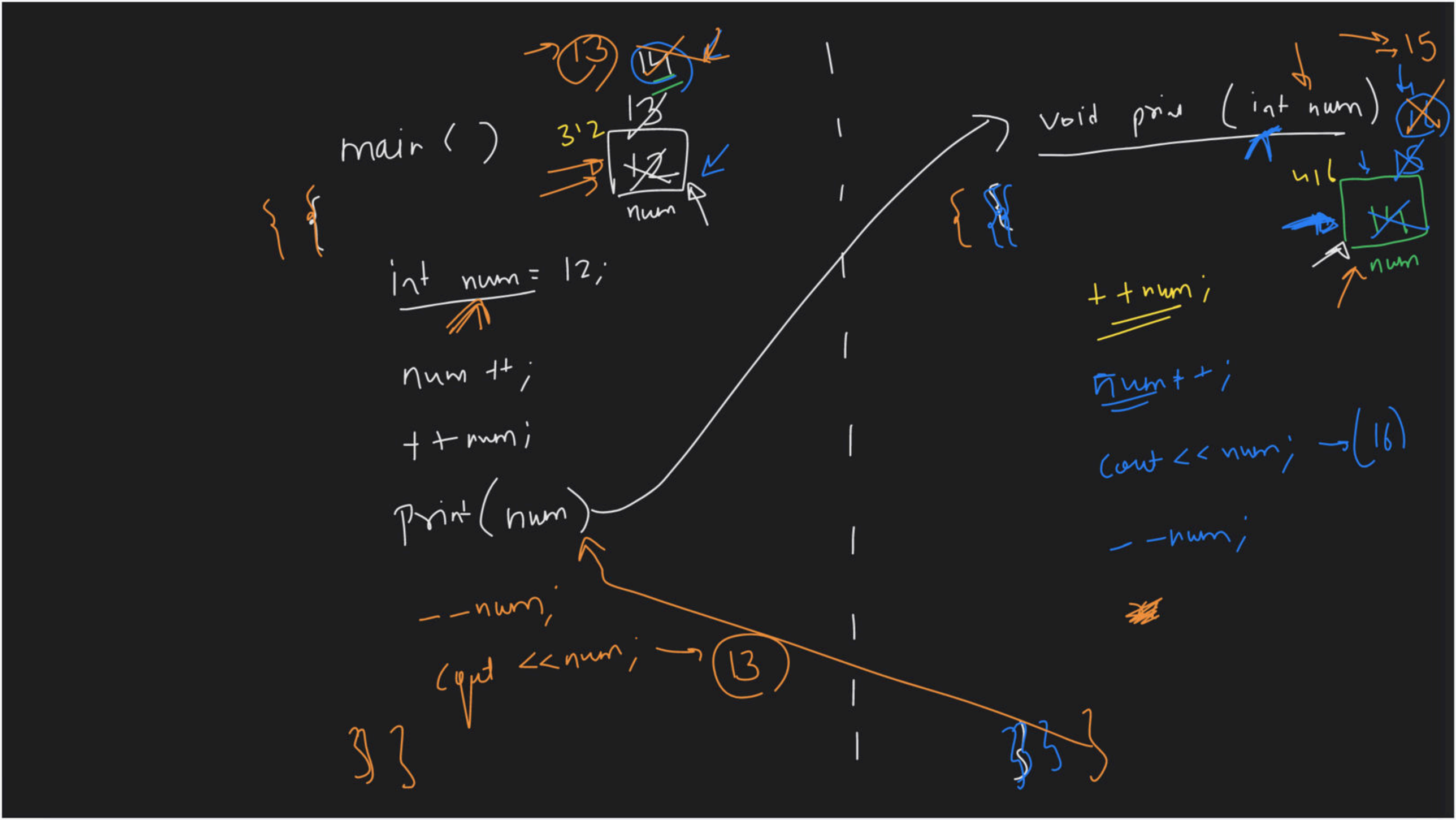

main ()
{
printName()
3
printName()
int n;
cin >> n
fact ( )
return 0;
3

Pass by Value Concept:

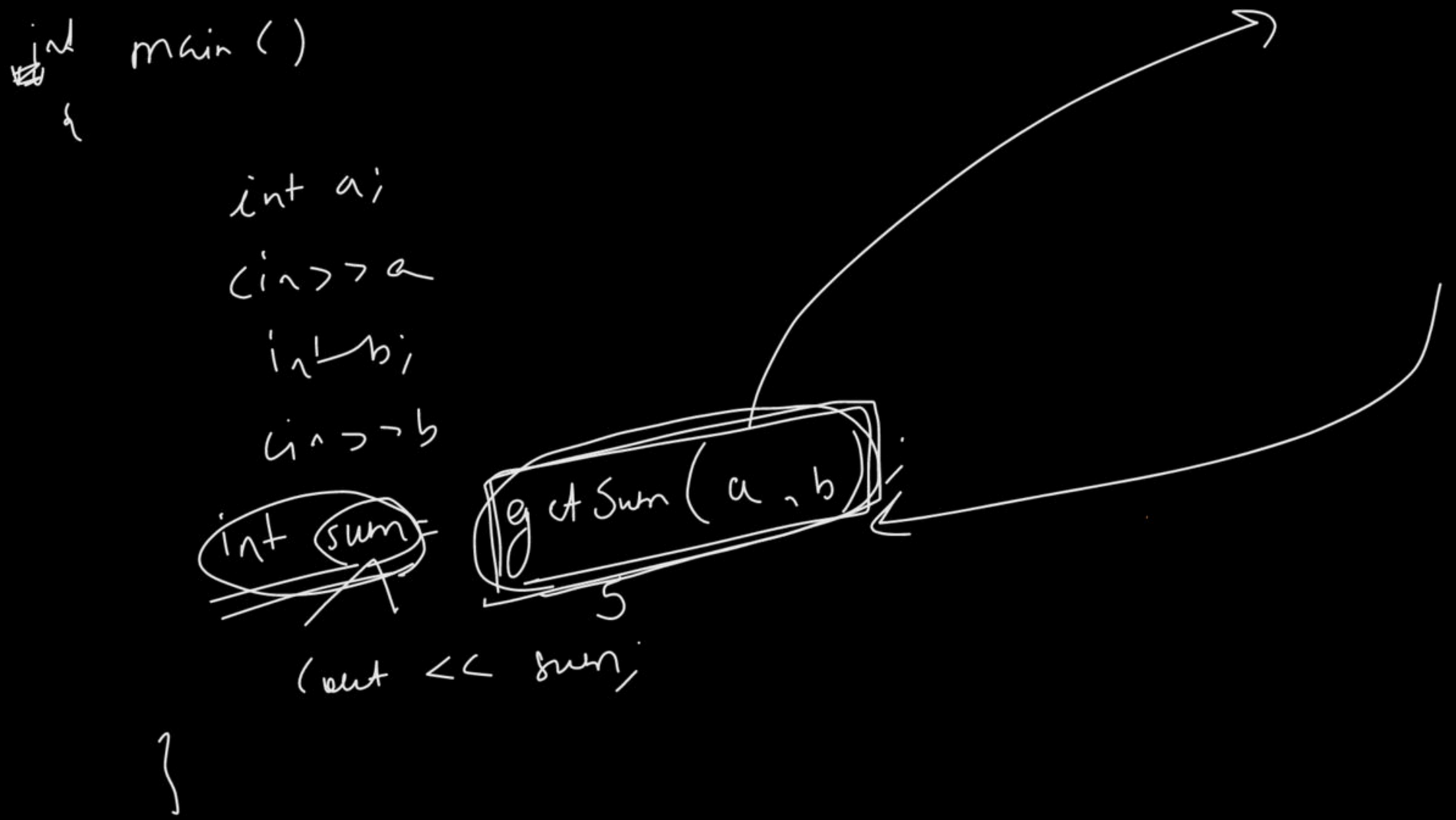
Bhai Copy Create hogi

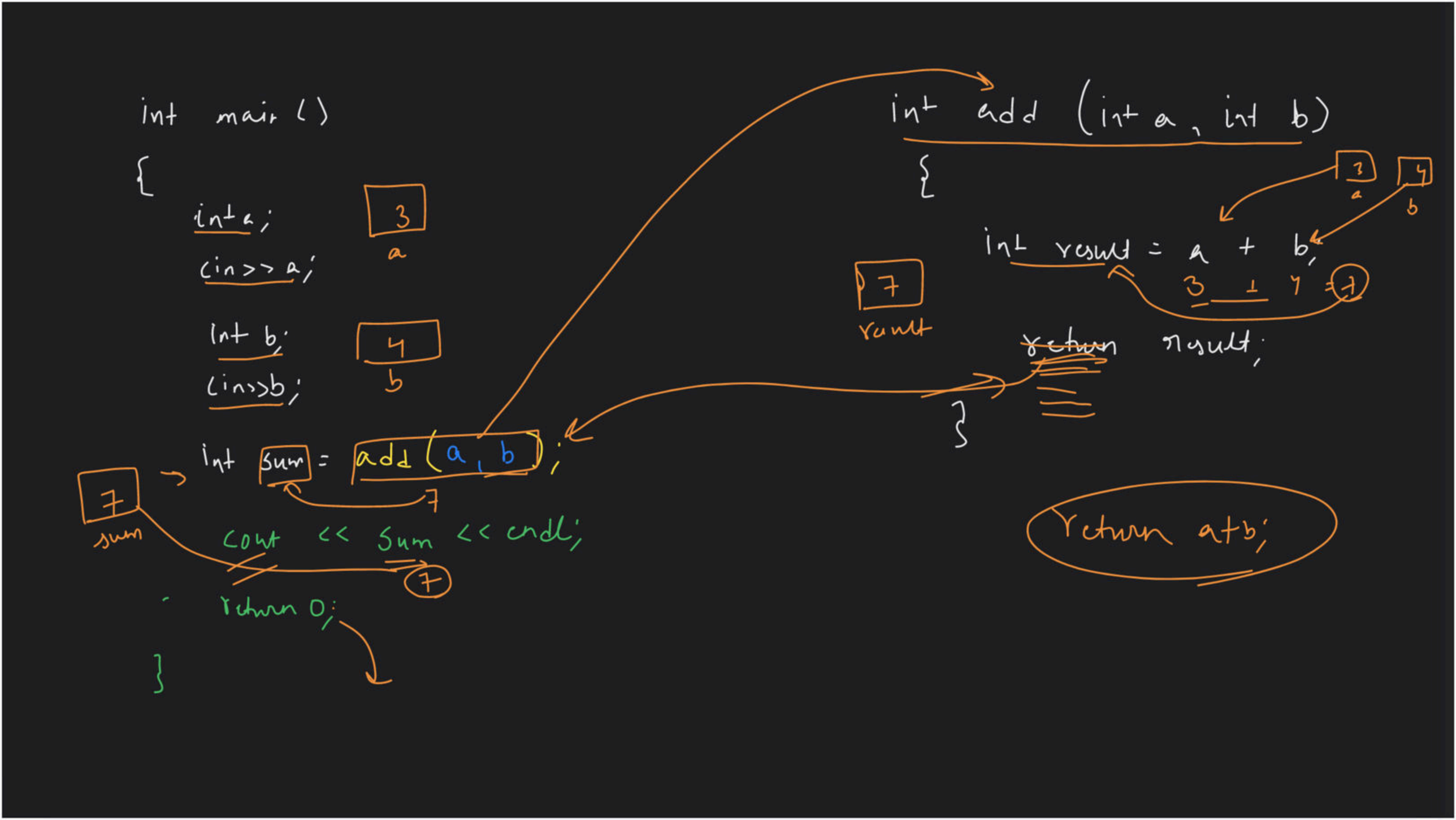
Actual value pass nahi hogi

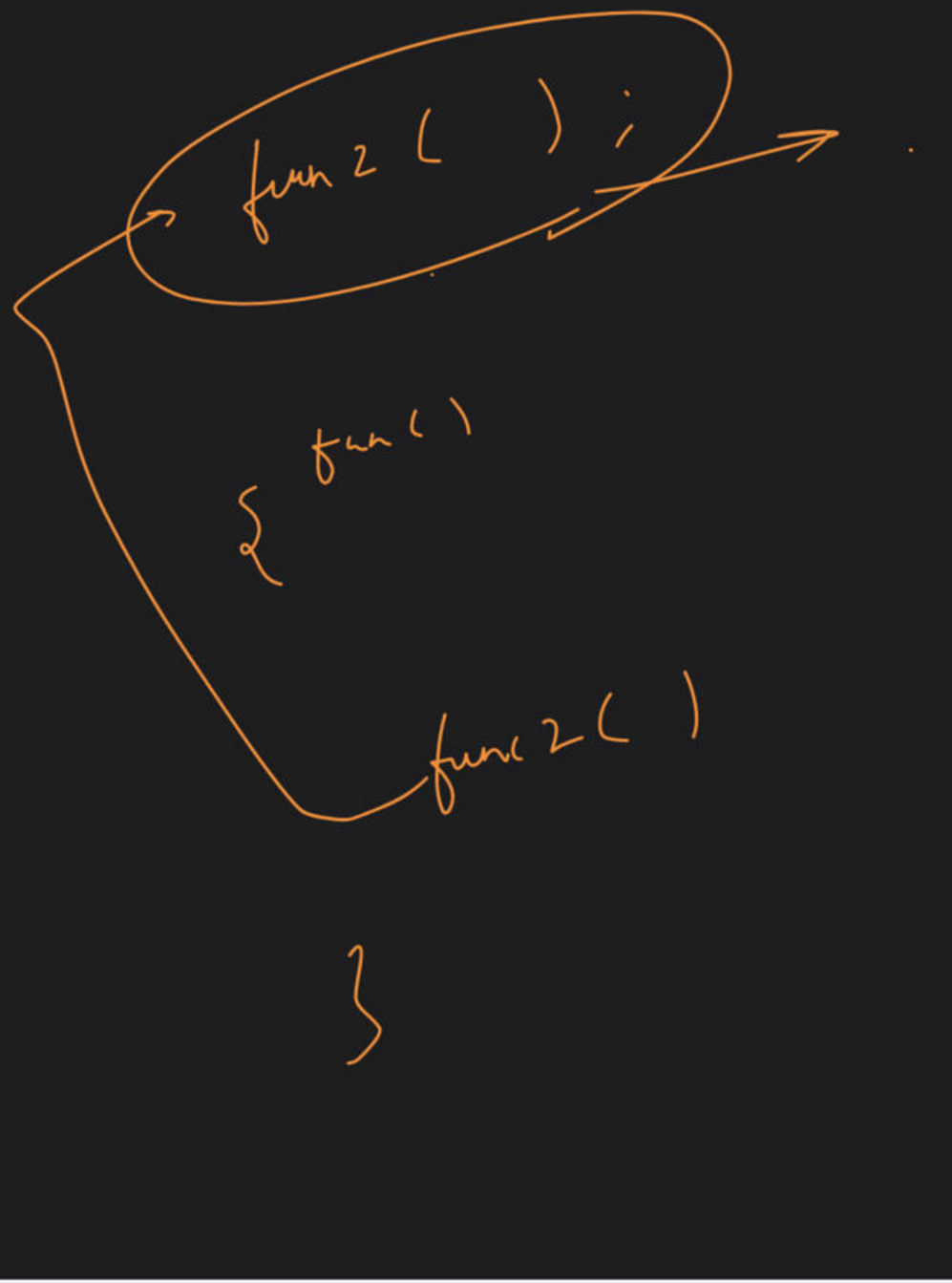

main( )
{
int a = 5
printNum(a);
cout << a
}
void printNum(int a)
{
a++;
cout << a
}
copy create
100
5
a
109
a (main)
(printNum)
Pass by value
copy create karta


main ( )
{
int num = 12;
num ++;
++num;
print (num)
--num;
Cout << num; → 13
}
num
3'2
13
14
12
13
Void print (int num)
{
++num;
num++;
Cout << num; → (16)
--num;
}
num
416
16
15

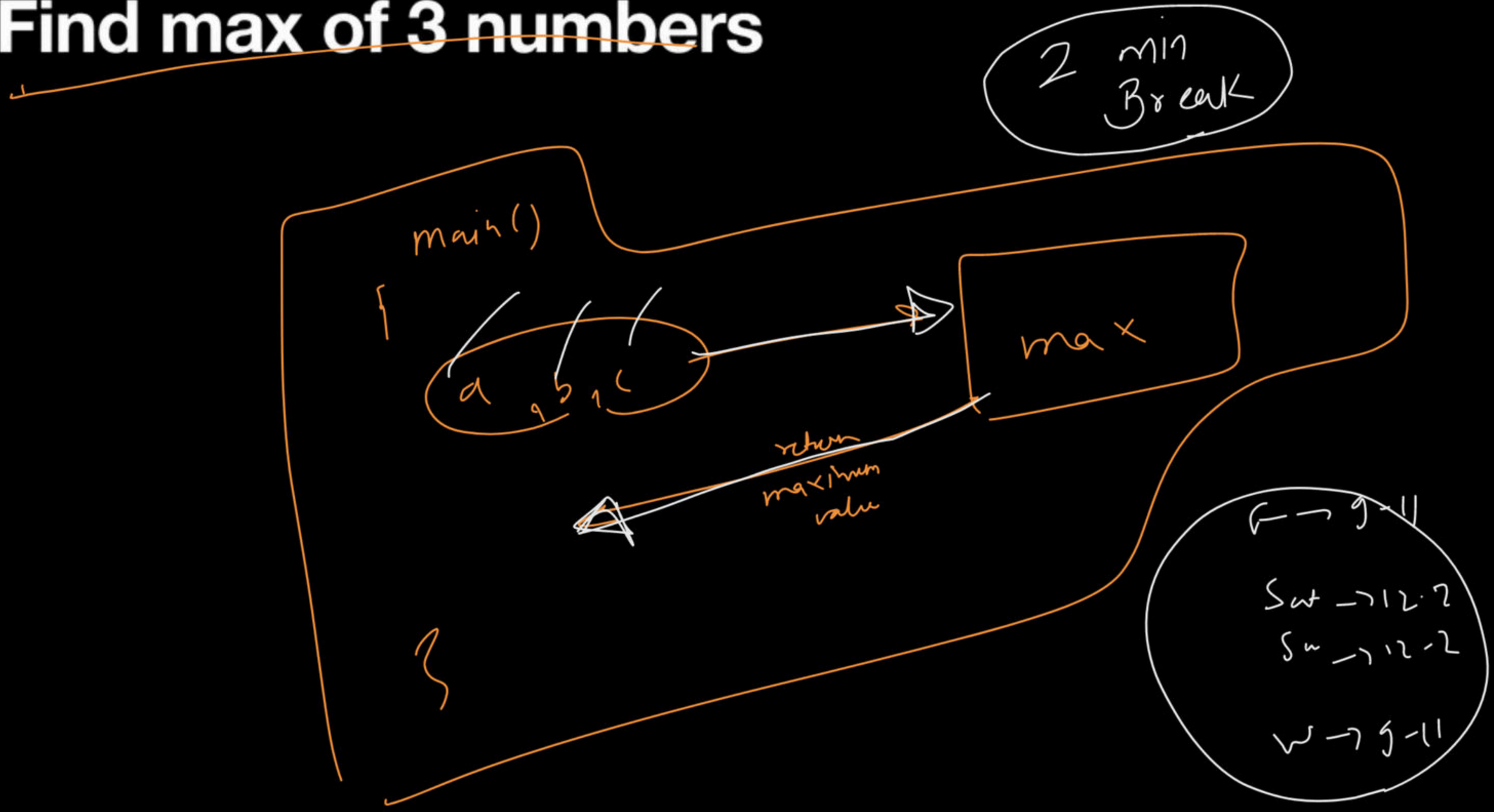
Write a Function to add 2 numbers.




int main ()
{
int a;
3
a
cin >> a;
int b;
4
b
cin >> b;
int sum = add (a, b);
7
sum
cout << sum << endl;
7
return 0;
}
int add (int a, int b)
{
3
a
4
b
int result = a + b;
3 + 4 = 7
7
result
return result;
}
return a+b;

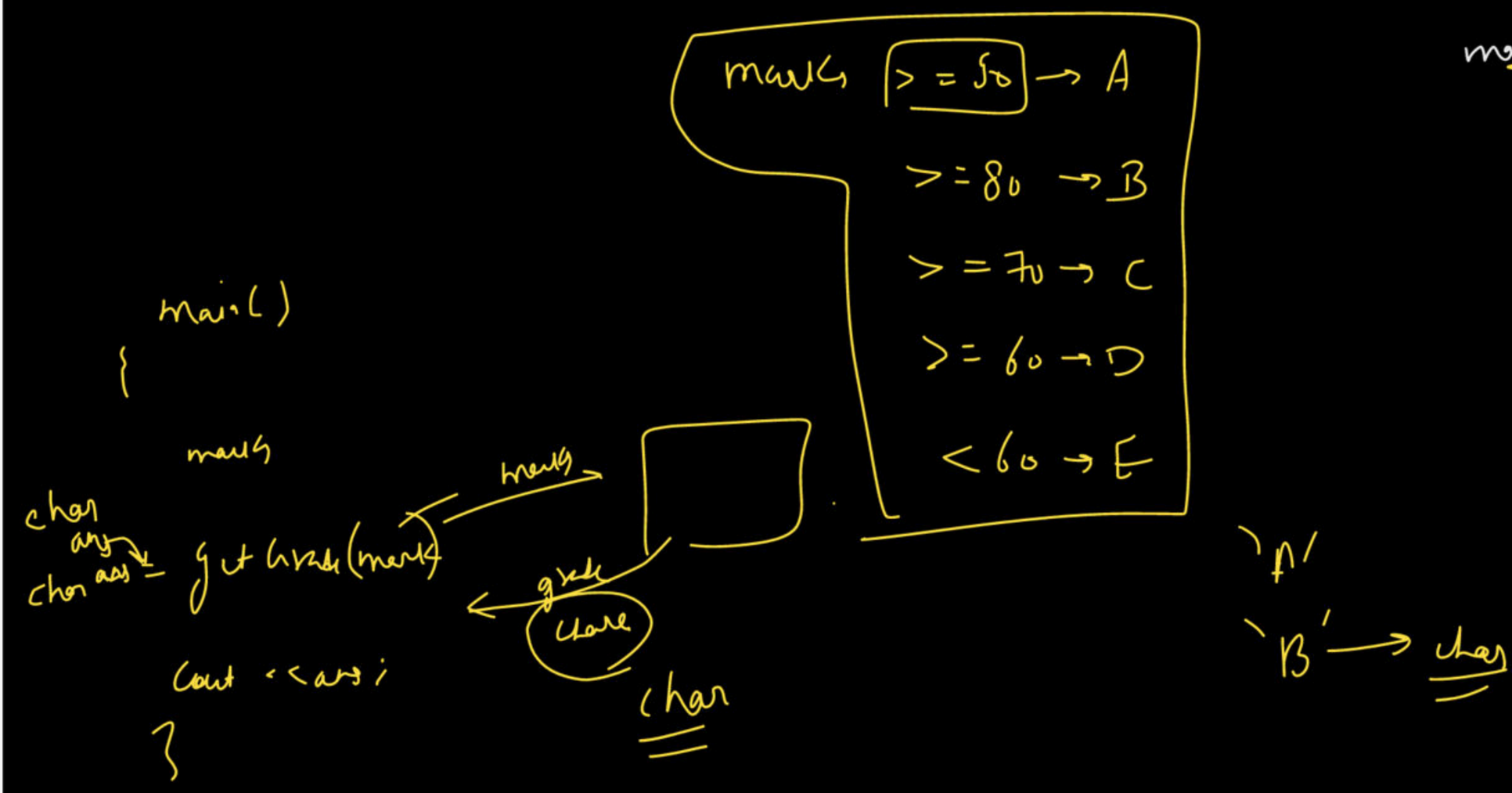

func2( );
{ func( )
func2( )
}

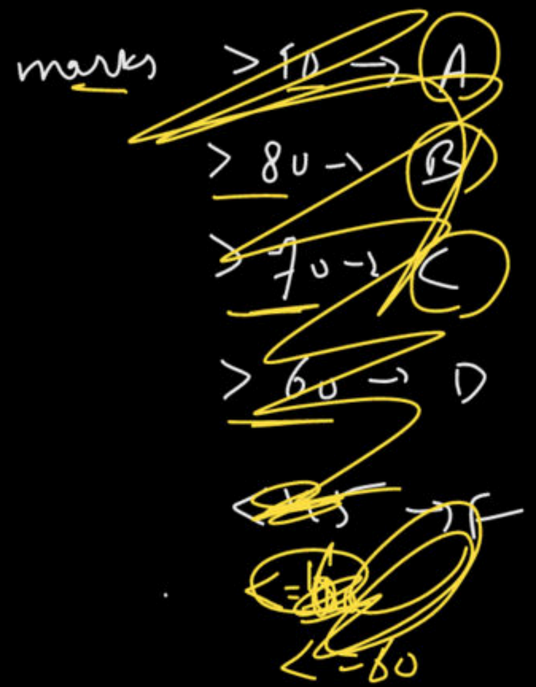
Find max of 3 numbers



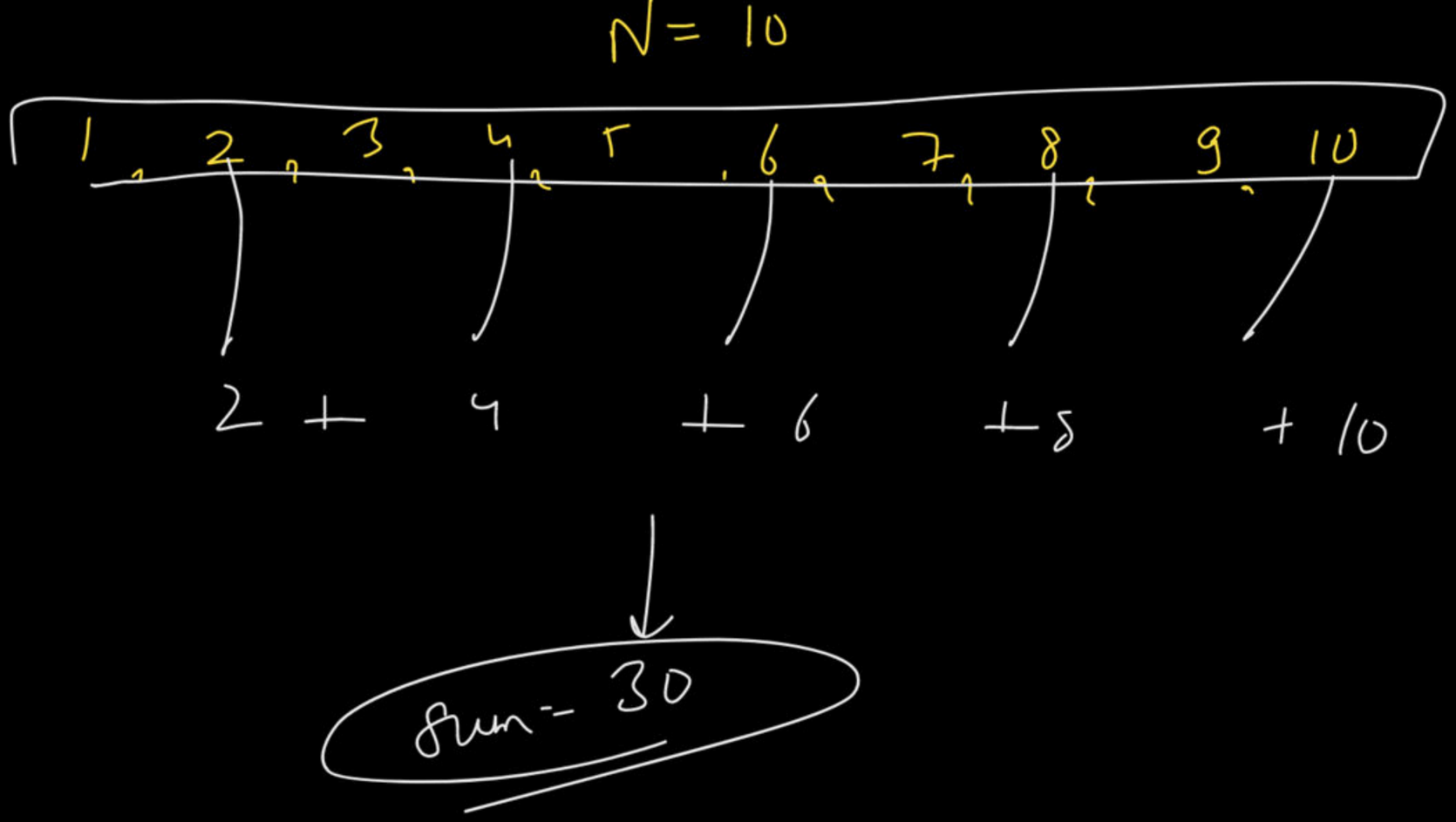
Counting from 1 to N

Write a Function of Students & Grade Problem





Sum of Even no. upto N



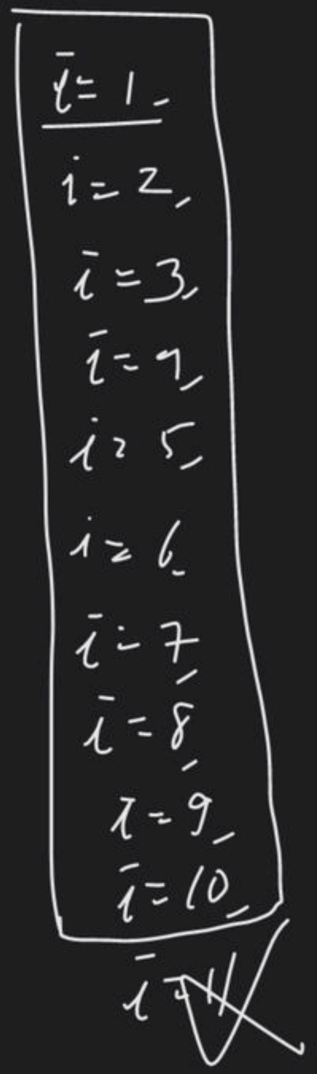
sum = 0

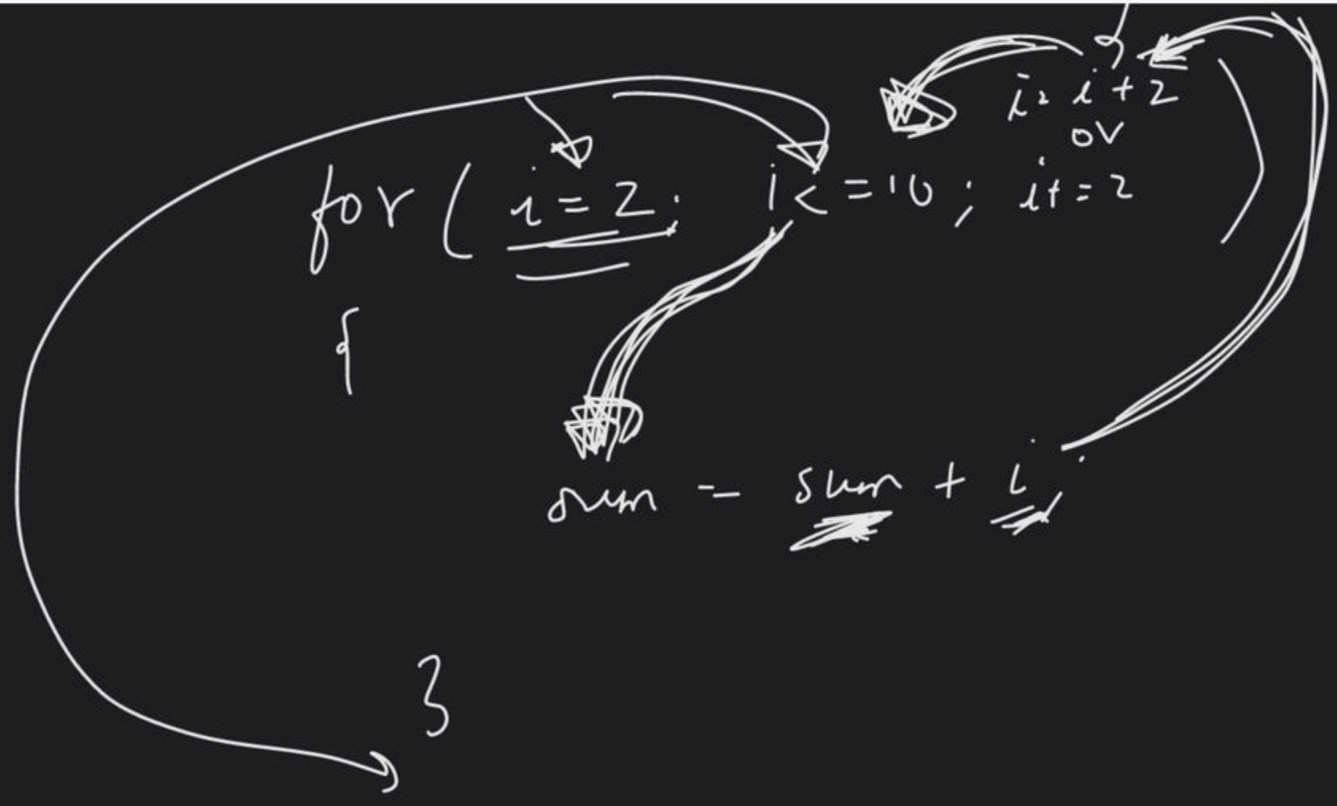
```
for (int i=1; i<=10; i++)
{

}
```

sum = 0 + 1 + 2 + 3 + 4 + ... + 10

= 55





sum = 0

i = 2

sum = 0 + 2 = (2)

i = 2+2 = (4)

4 <= 10 → T

sum = 2 + 4 = (6)

i = 4+2 = (6)

6 <= 10 → T

sum = 6 + 6 = (12)

i = i+2 = 6+2 = (8)

8 <= 10 → T

sum = sum + i

= 12 + 8 = (20)

i = i+2

= 8+2 = (10)

10 <= 10 → T

sum = sum + (i)

= 20 + 10

= 30

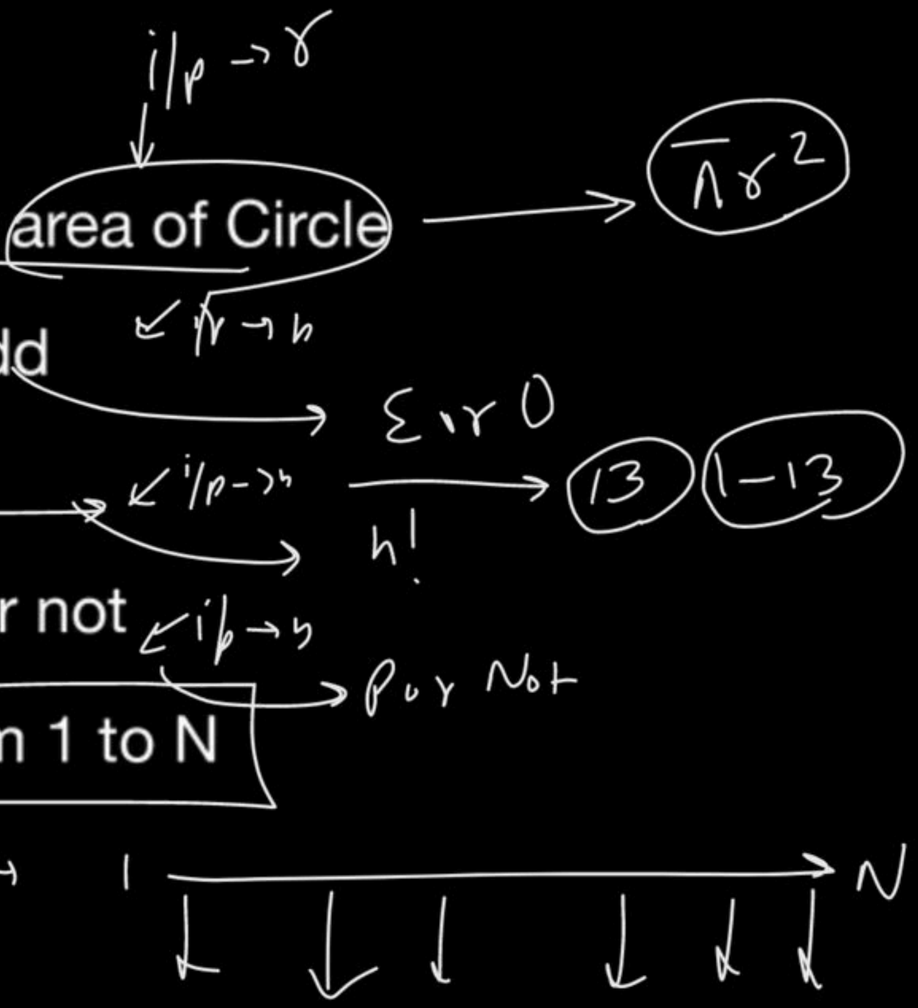
i = i+2

= 10+2 = 12

12 <= 10 → (F)

HomeWork:

- Write a function to display area of Circle
- Find number is Even or Odd
- Find factorial of a number
- Check. Number is prime or not
- Print all prime number from 1 to N



3! = 3 × 2 × 1
= 6

5! = 5 × 4 × 3 × 2 × 1
= 120

Problem Solving starts:

Class Work

- Print all digits in an Integer
- Create a number using digits.
- Print number of set bits.
- Print binary equivalent of a Decimal Number
- Convert distance in KM to MILES

Problem Solving HomeWork:

- Reverse an Integer
- Set ith bit
- Convert celsius to Fahrenheit