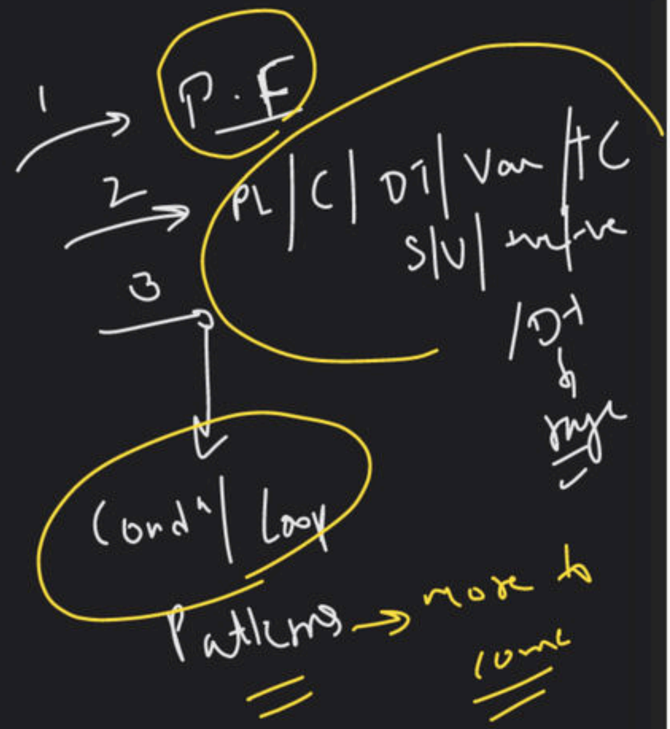
Week-1 [Connect]

Special class



Love Babbar • Feb 1, 2023

→ Discord → 1 week

1 week

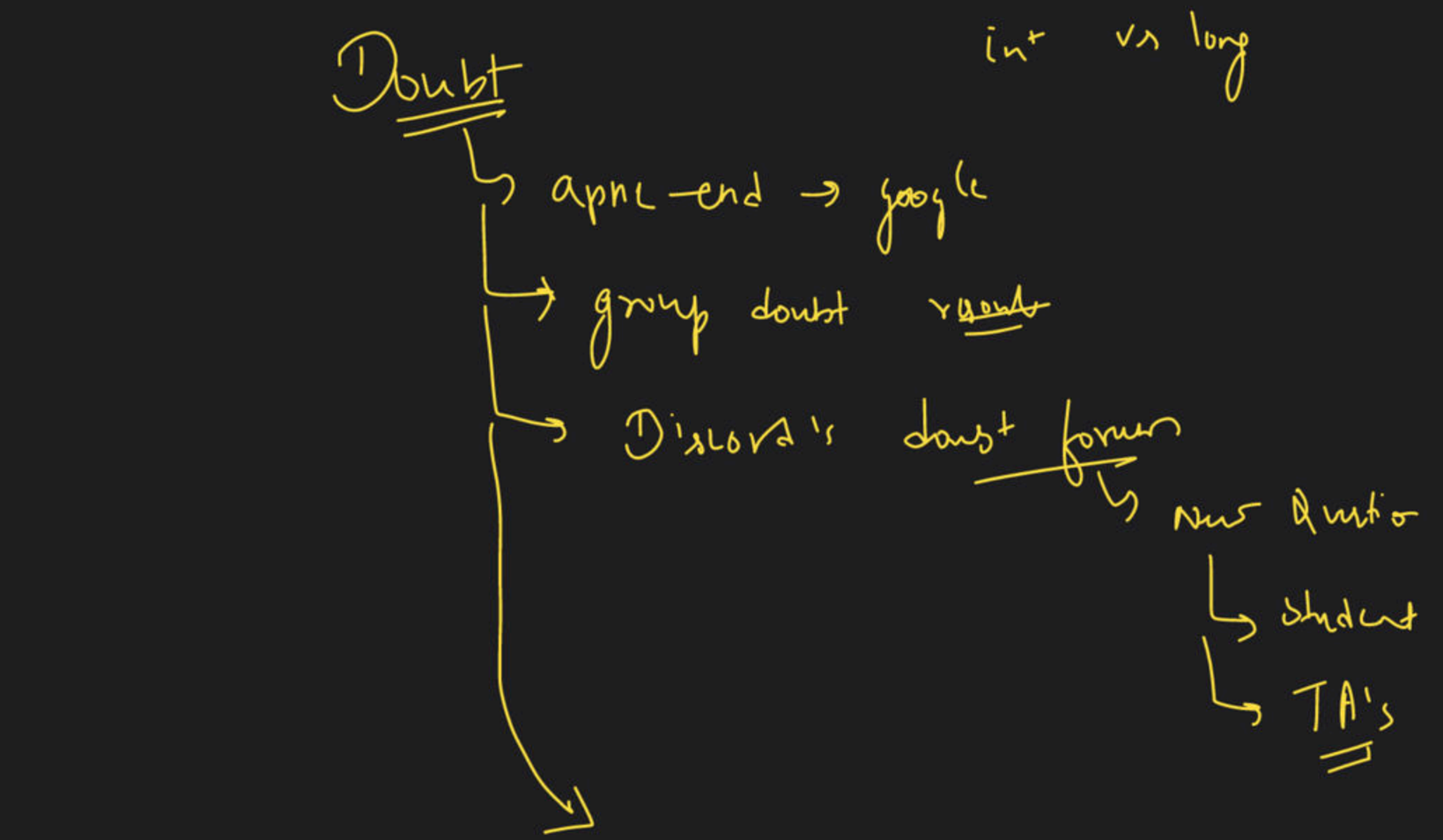
To Google form

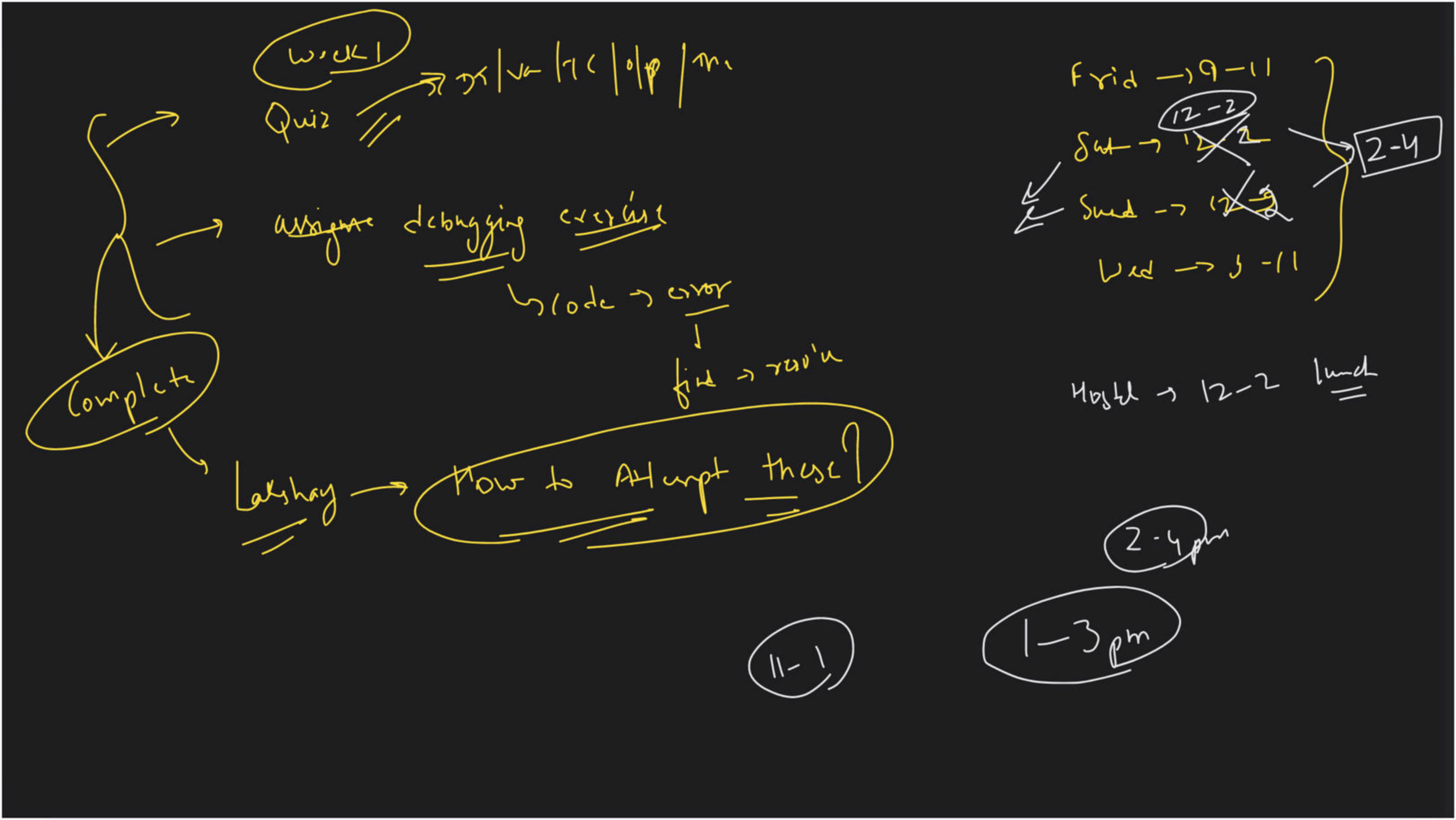
Discord Server

Manually

H/w

→ Recorded Solution

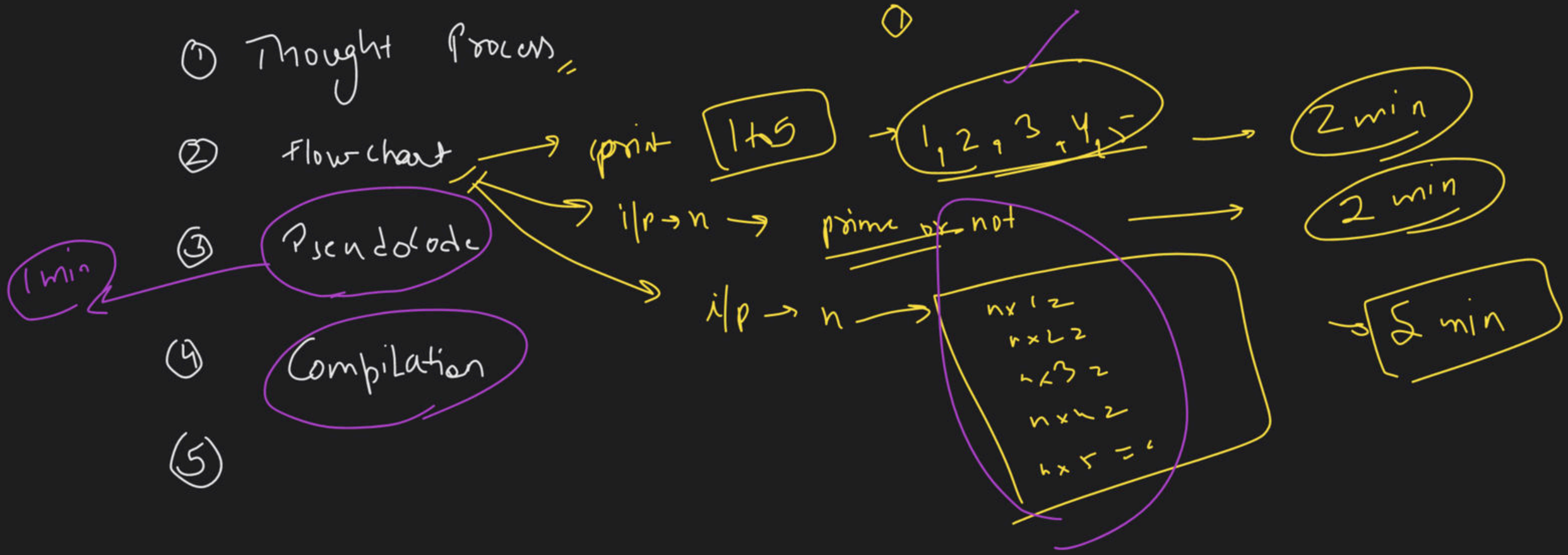

Doubt
int vs long
apne-end → google
group doubt
Discord's doubt forum
New Questio
student
TA's


Week 1
Quiz
assignment debugging exercise
Complete
Lakshay → How to Attempt these?
byCode → error
find → reason
Fri → 9-11
Sat → 12-2
Sun → 12-2
Wed → 9-11
2-4
Night → 12-2 lunch
11-1
1-3 pm
2-4 pm

Moodle = GiveAway

Lecture-1

1. Thought Process
2. Flowchart
3. Pseudocode
4. Compilation
5.



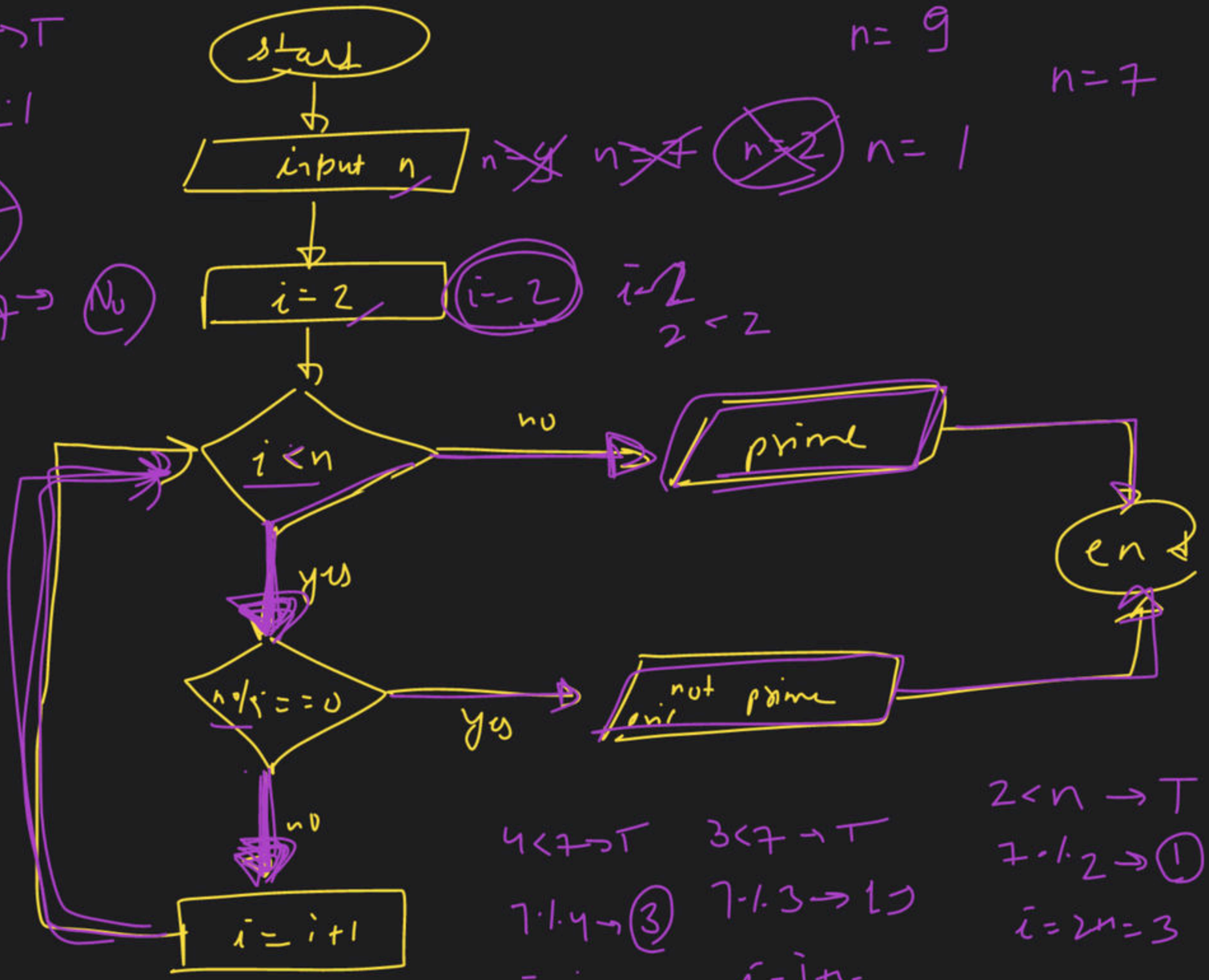
```
for (int i=1; i<=5; i=i+1)
{
    cout << i;
}
```

counting 1 to n

prime → 1 — perfectly divide
2
n-1
n
apna
aap →
rem = 0

```
int n;
cin>>n;
for(int i=2; i<n; i=i+1)
{
    if (n%i==0)
    {
        cout << "not prime";
        return 0;
    }
}
cout << "prime";
```

1, [2, 3, 4 — — n-1] n



dry run

2 < n

9 % 2 → ①

i = 2+1 = 3

3 < n → T

9 % 3 = 0

5 < 4 → F

7 % 5 → ②

n = i+1 = 6

6 < 7 → T

7 % 6 = 1

i = 7

7 < 7 → No

n = 9

n = 7

input n

n = 1

i = 2

i = 2

2 < 2

4 < 7 → T

7 % 4 → ③

i = i+1

3 < 7 → T

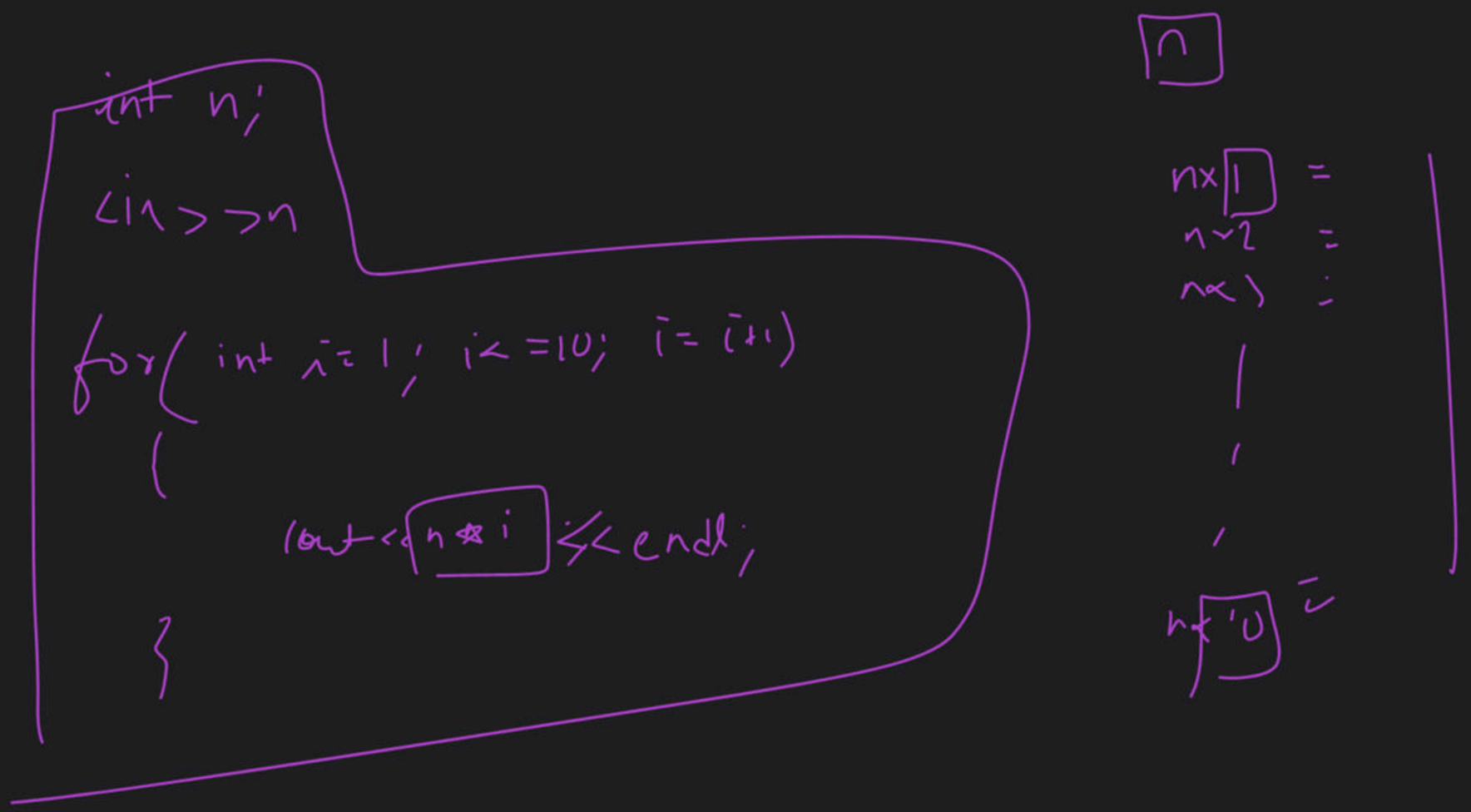
7 % 3 → 1

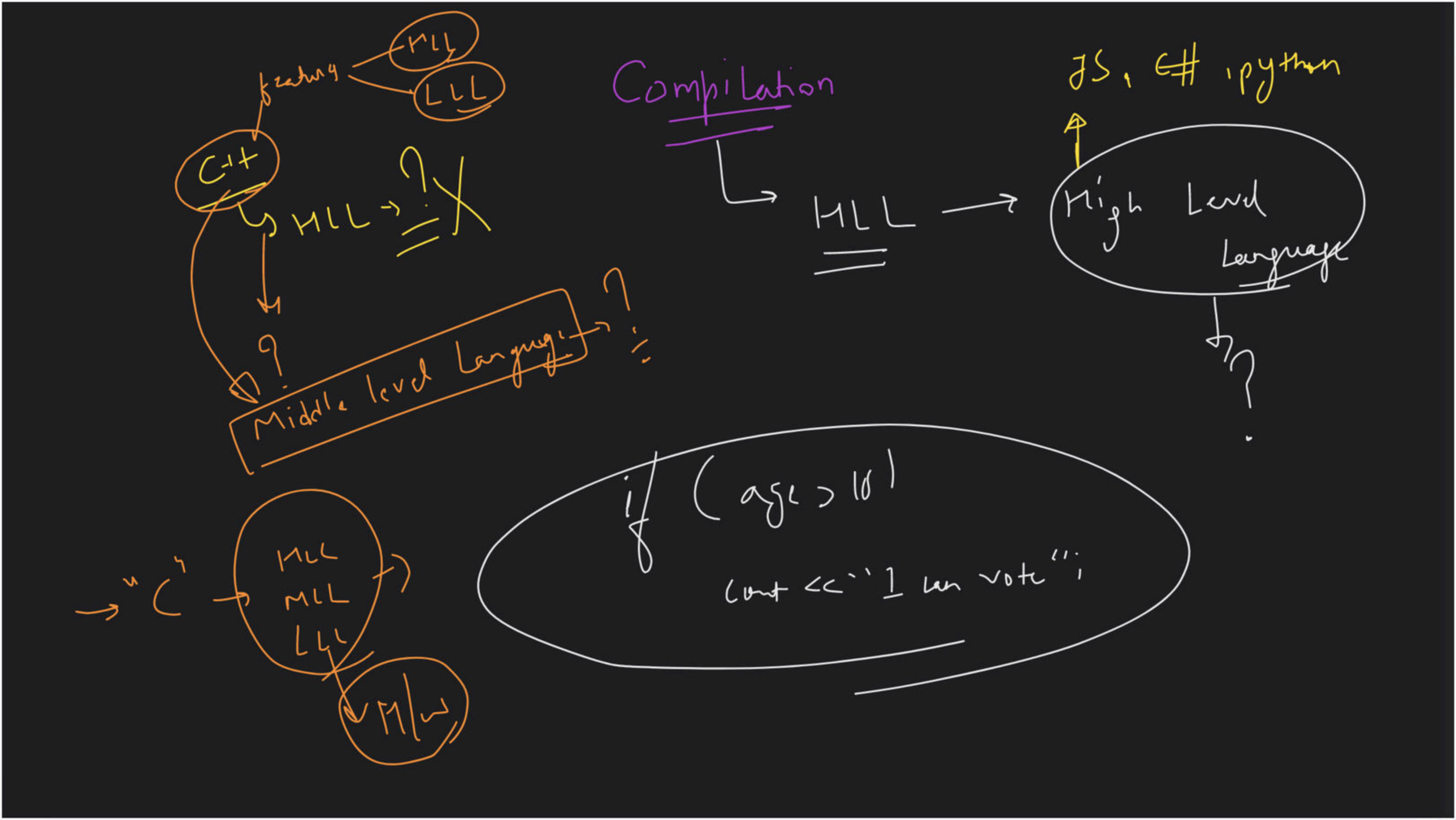
i = i+1

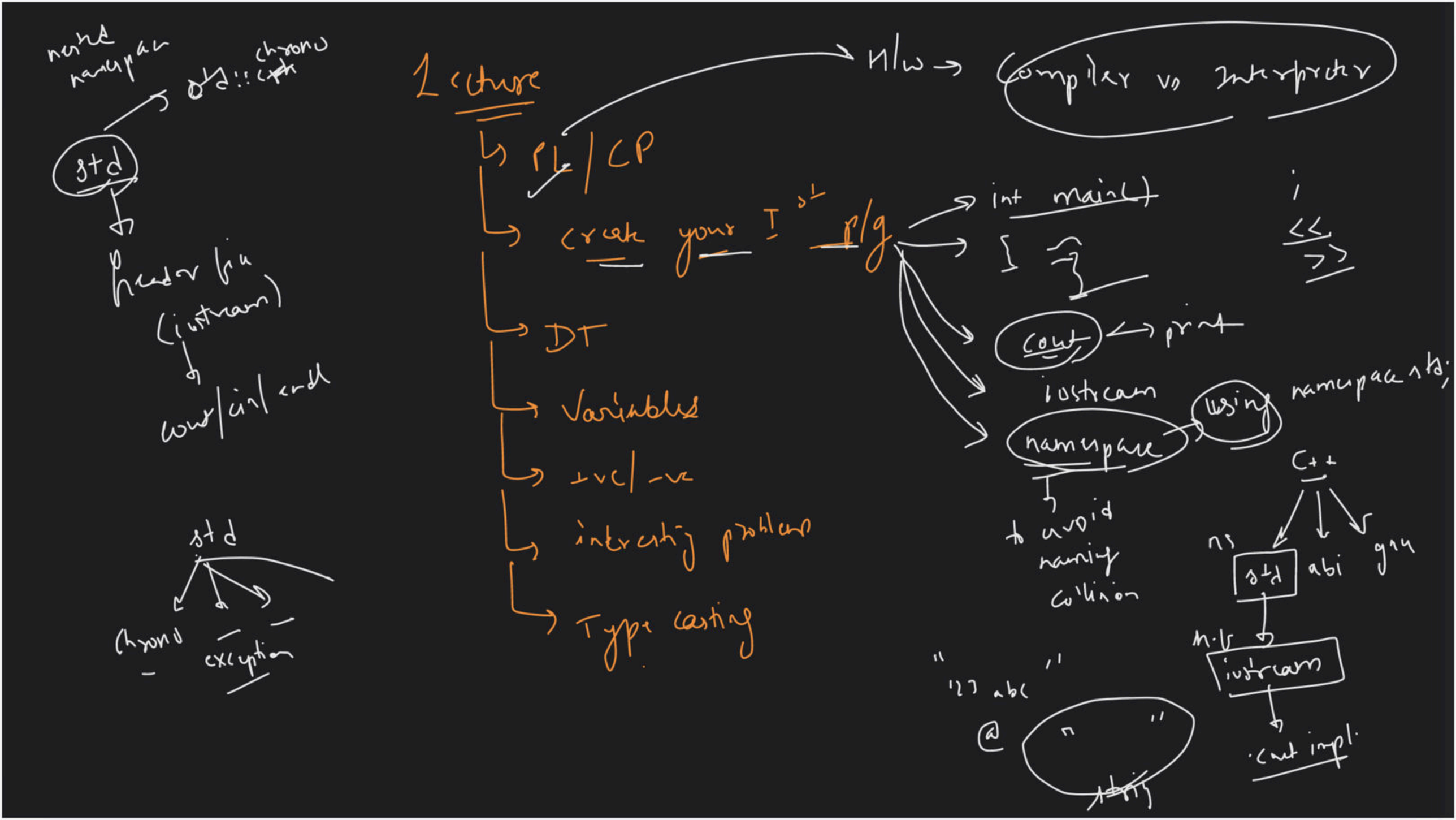
2 < n → T

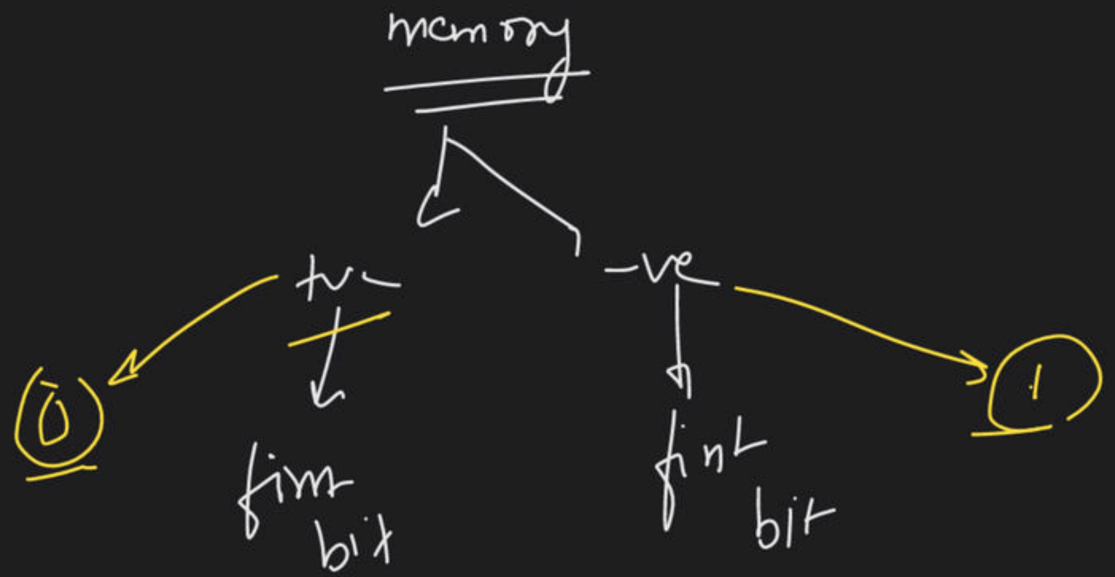
7 % 2 → ①

i = 2+1 = 3


int n;
cin>>n
for(int i=1; i<=10; i=(i+1)
{
cout<<n*i<<endl;
}
n
n*1 =
n*2 =
n*3 =
n*10 =


MLL
LLL
features
C++
HLL → ?
Middle level Language
?
Compilation
HLL
JS, C# ,python
High Level Language
?
if (age > 18)
cout << "I can vote";
"C"
MLL
MLL
LLL
MLL


nested namespace
std::chrono
std
header file (iostream)
cout/cin/endl
std
chrono
exception
1 lecture
H/w
compiler vs interpreter
PL/CP
create your I st P/g
DT
Variables
+ve/-ve
interesting problems
Type casting
int main()
{ }
i
<<
>>
cout
print
iostream
using
namespace std;
namespace
to avoid naming collision
C++
ns
std
abi
gnu
n.f.s
iostream
cout impl.
"123 abc"
@
"
"



-ve no → store in memory

↓

steps → ignore -ve

① Binary eq

② 2's complim → store

-ve no

↓

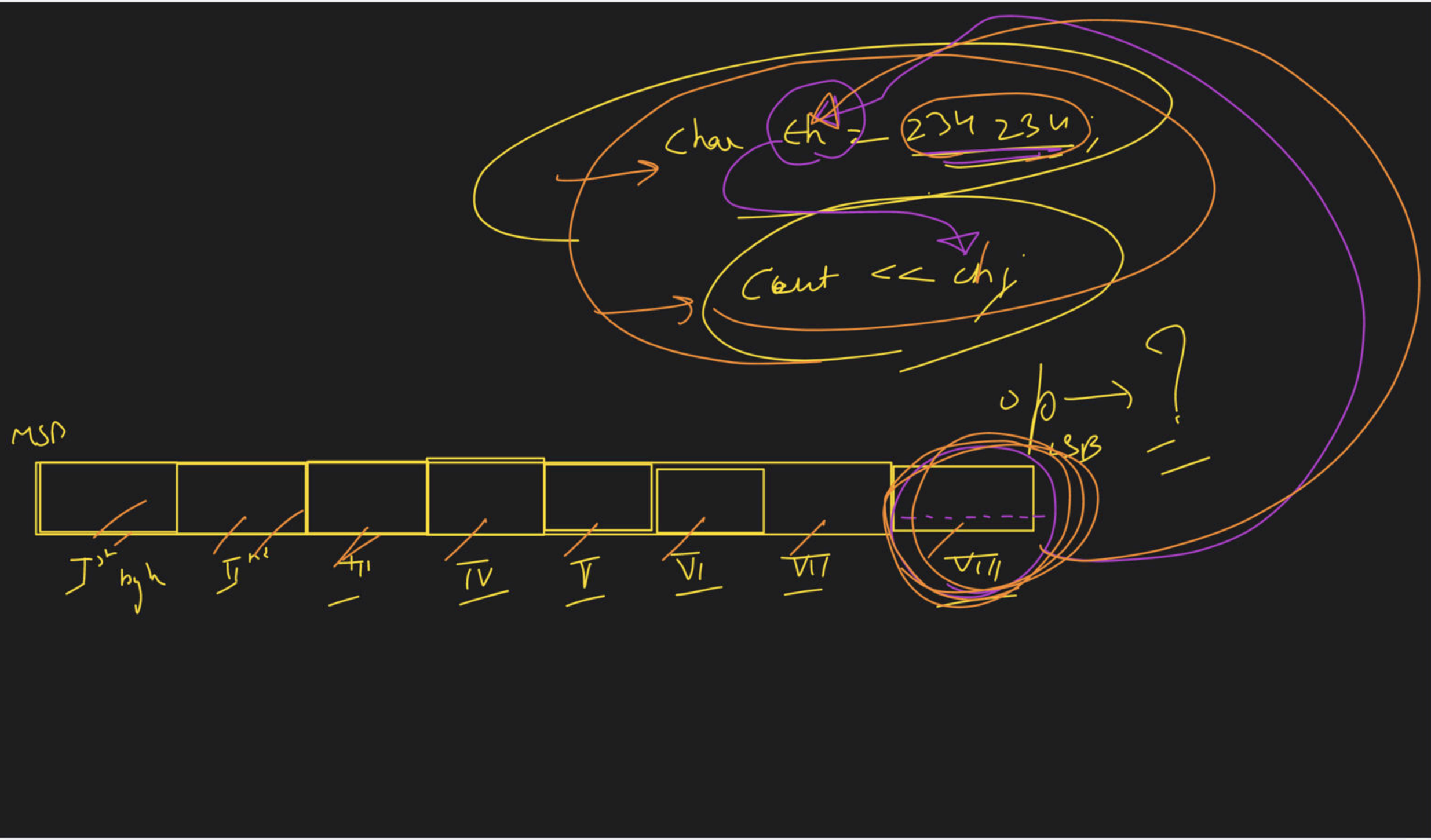
read

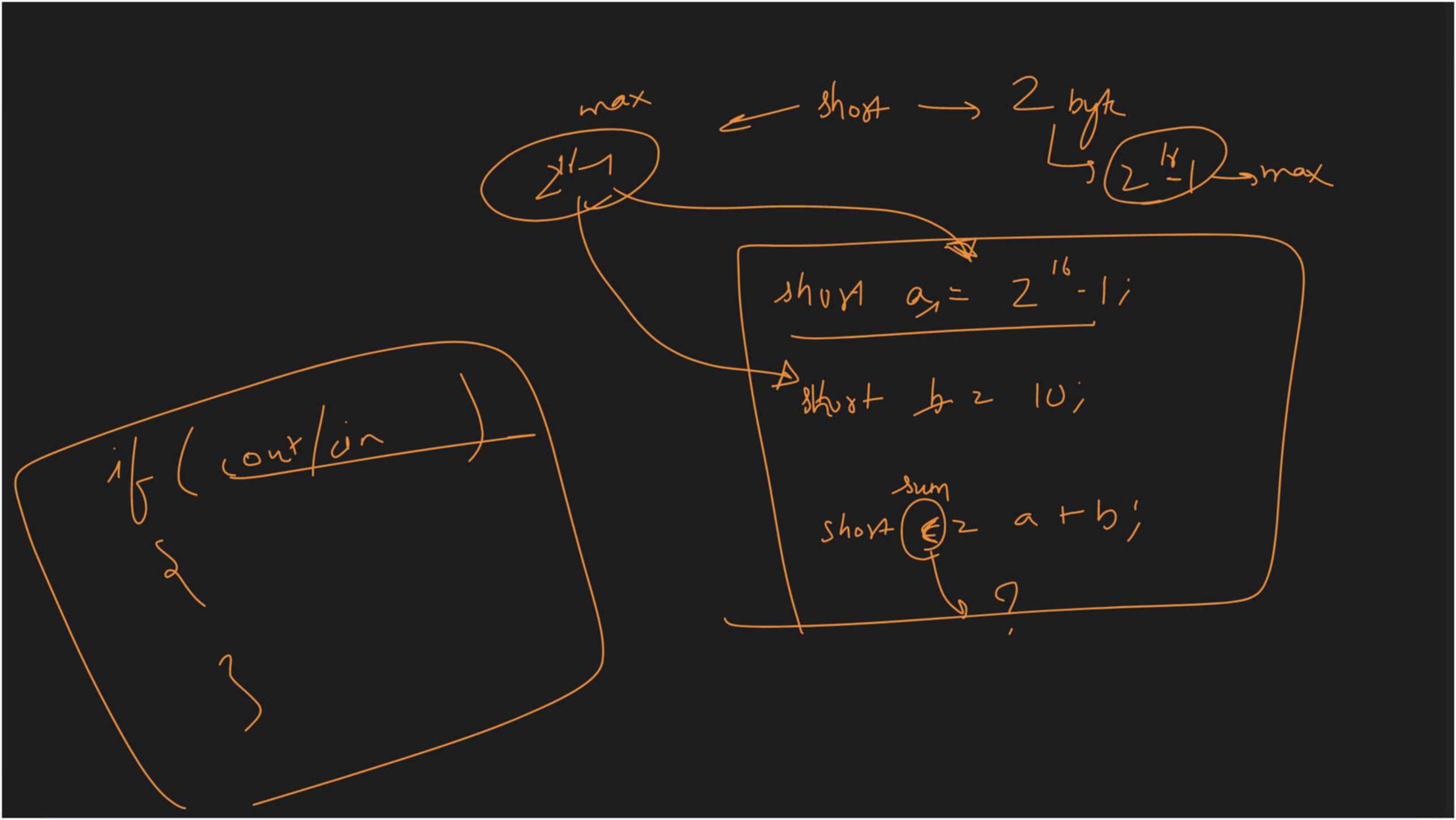
↓

pick no

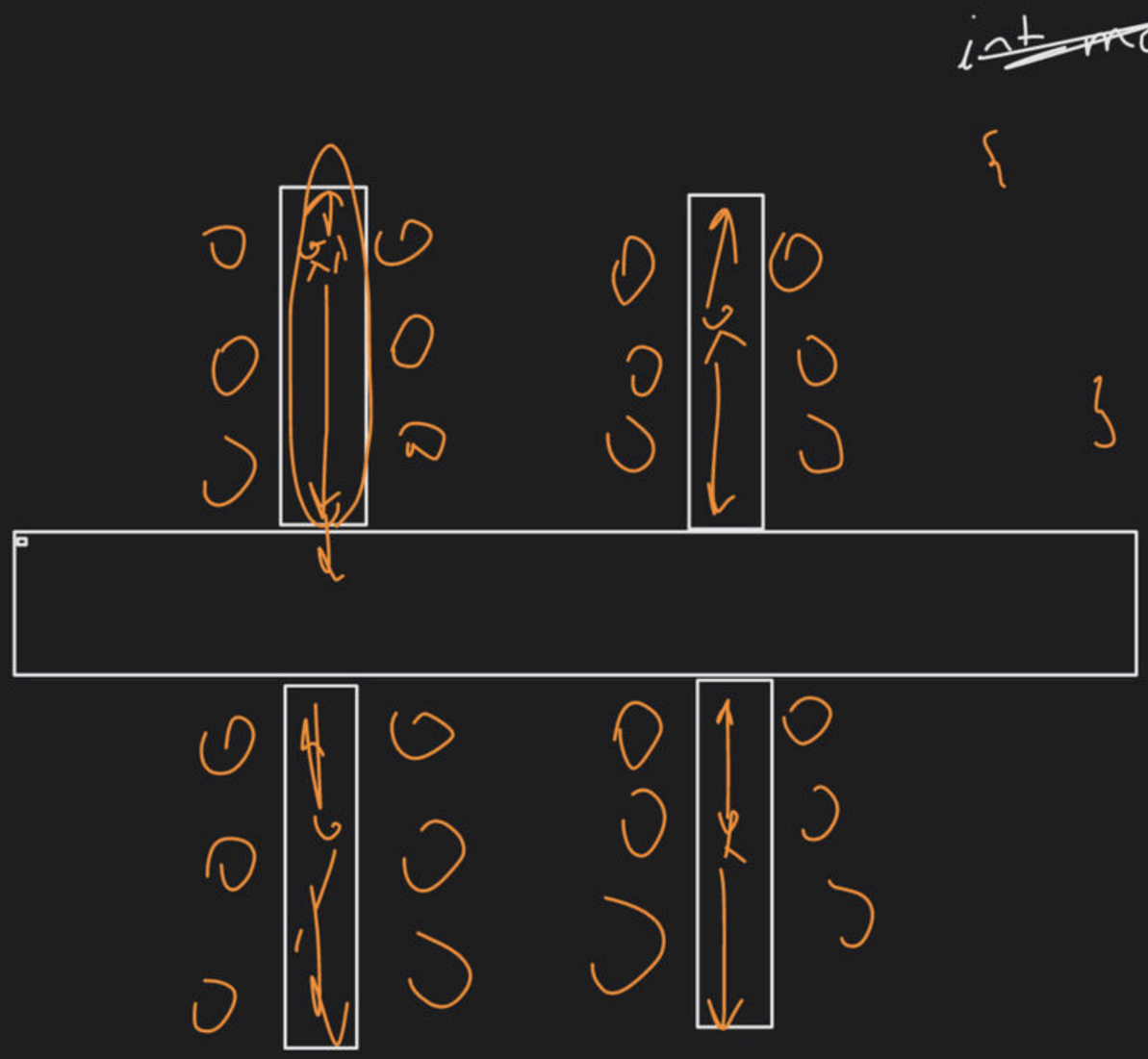
↓

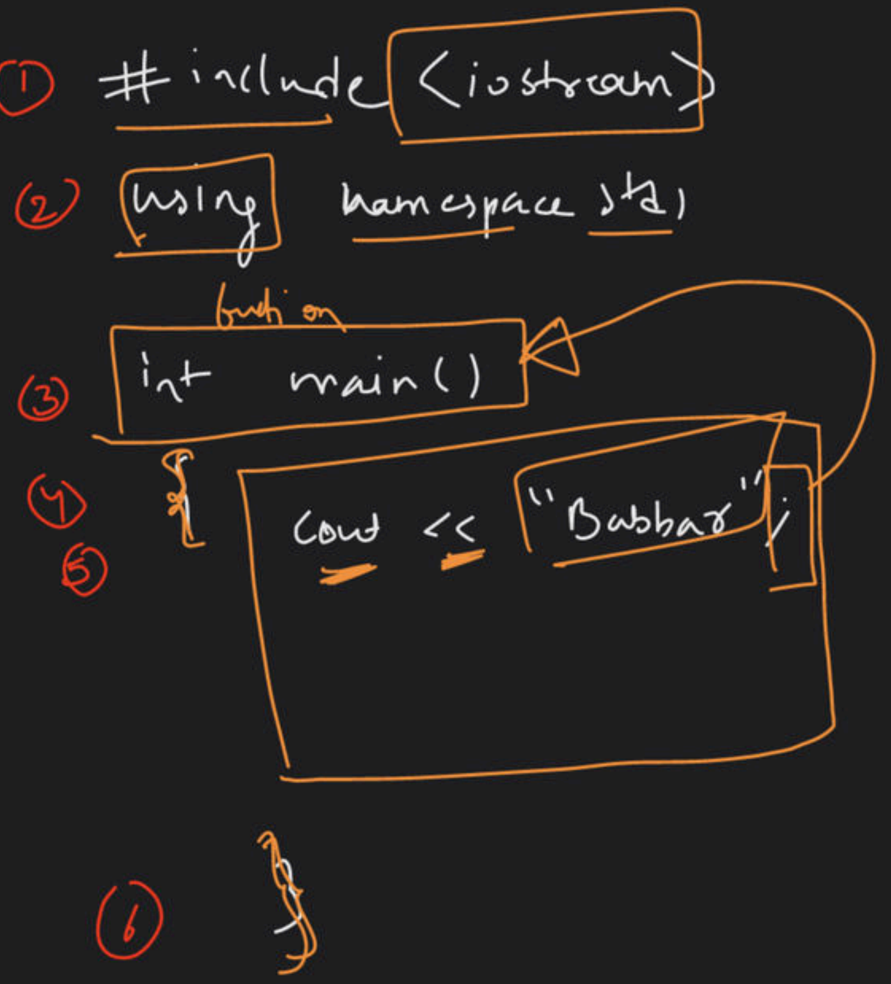
2's compliment

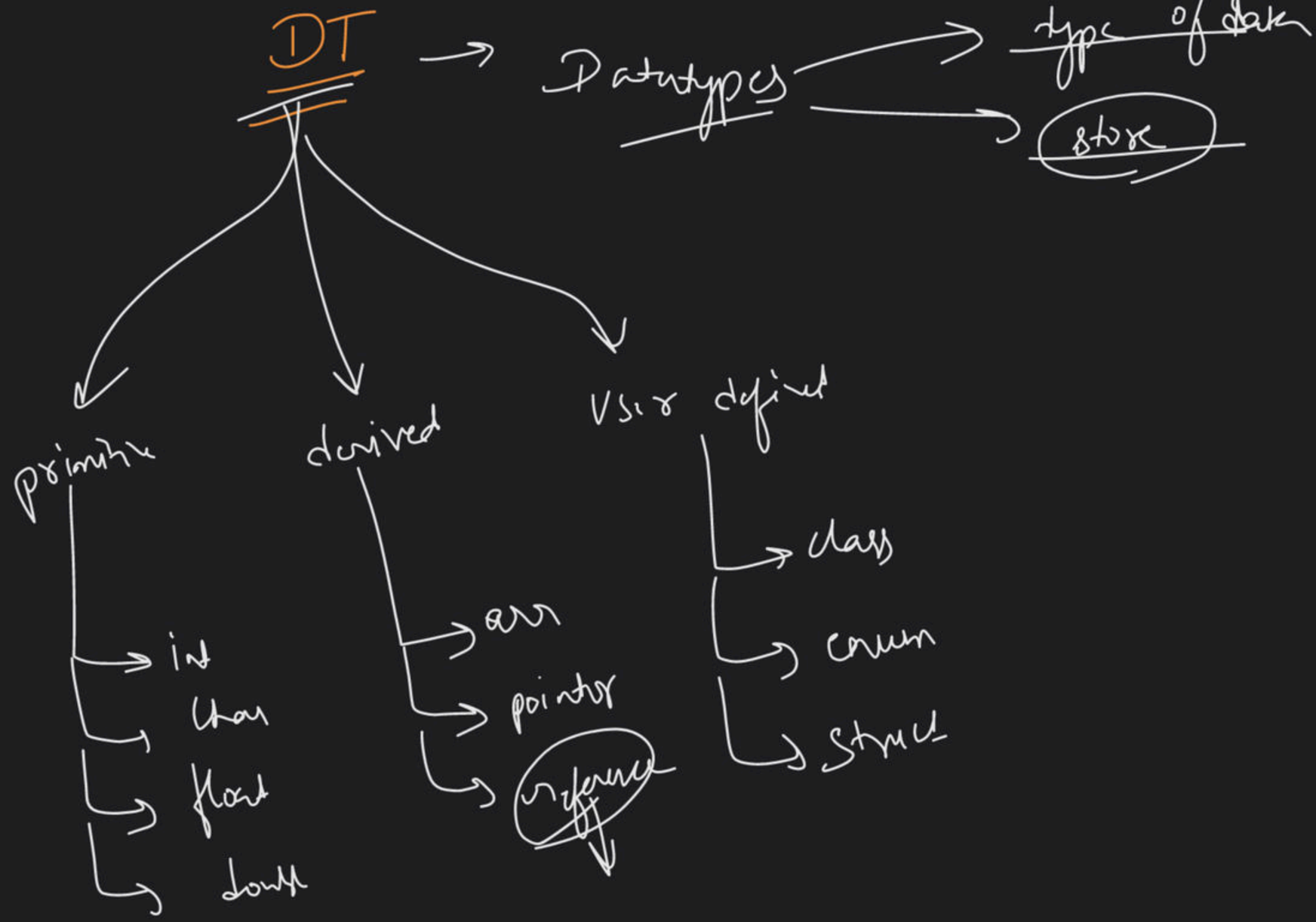

char ch = 234 234;
cout << ch;
o/p → ?
MSB
MSB
I
II
III
IV
V
VI
VII
VIII

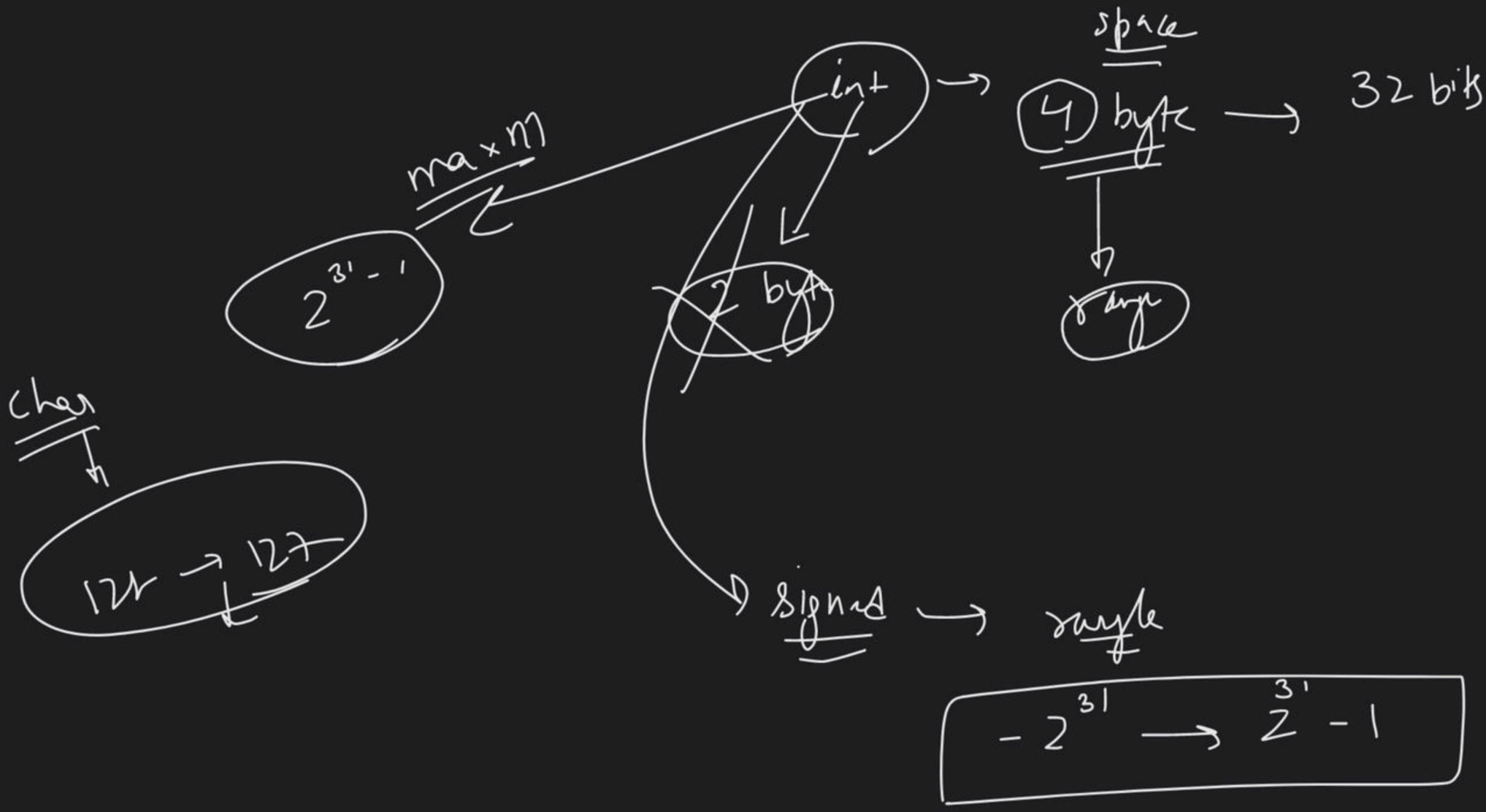

max
short
2 byte
$2^{16}-1$
max
short a = $2^{16}-1$;
short b = 10;
sum
short c = a+b;
?
if (out/in)
{
}

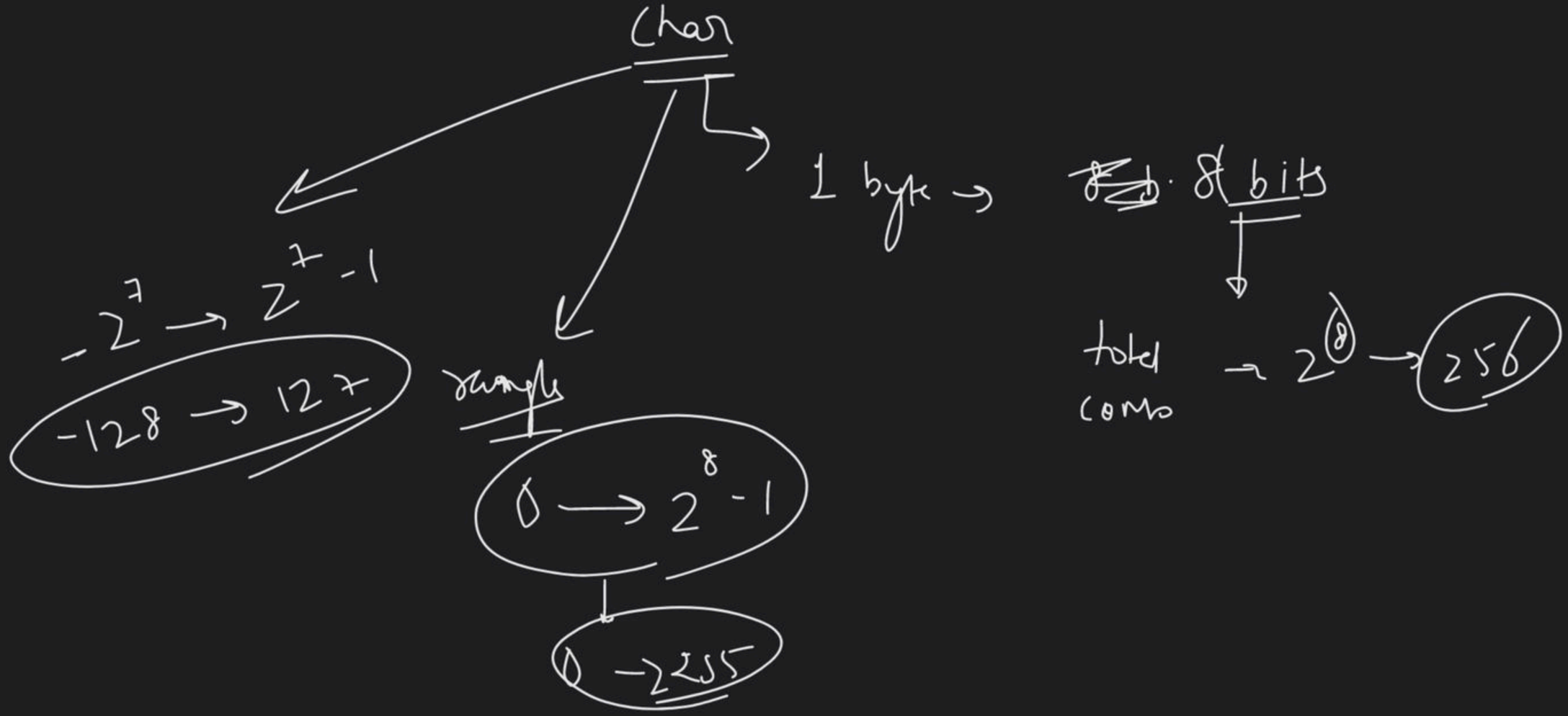
if ( )
{
else ( )
{
if ( )
{
}
}
}


int main
{
}


1
#include <iostream>
2
using namespace std;
function
3
int main()
4
5
cout << "Babbar";
6
}


DT
Datatypes
type of data
store
primitive
derived
User defined
int
char
float
double
array
pointer
reference
class
enum
struct


space
int
4 byte
32 bits
range
max
$2^{31}-1$
2 byte
char
127 → 127
signed → range
$-2^{31} \longrightarrow 2^{31}-1$


char
1 byte → 8 bits
total combo → 2^8 → 256
$-2^7 \rightarrow 2^7 - 1$
-128 → 127
example
0 → $2^8 - 1$
0 → 255

char → 1 byte → 8 bit

signed

$-2^{n-1} \to 2^{n-1} - 1$

$-2^{8-1} \to 2^{8-1} - 1$

$-2^{2} \to 2^{2} - 1$

$-128 \to 127$

signed long

$-2^{n-1} \to 2^{n-1} - 1$

xyz

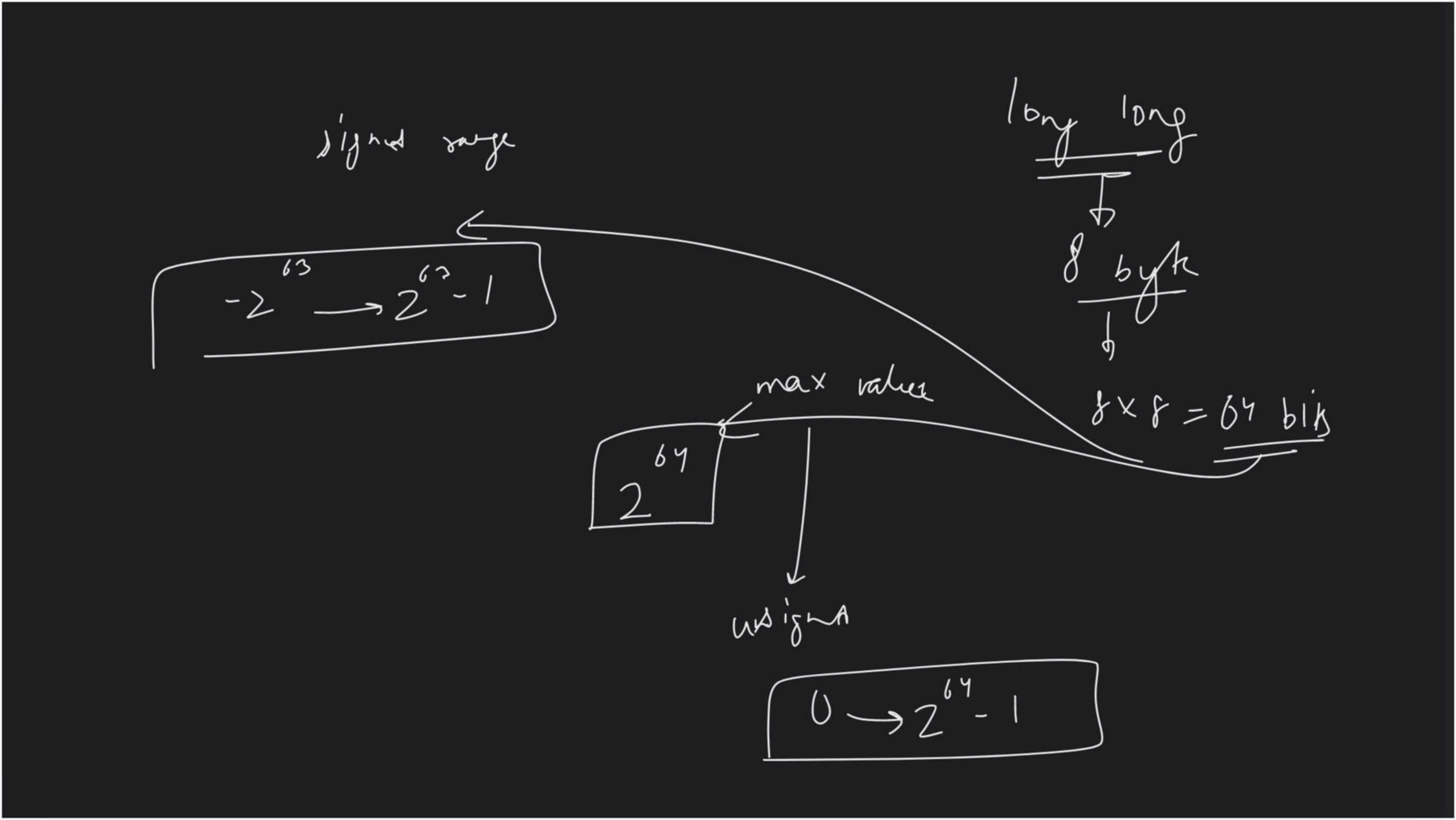
n ~~byte~~

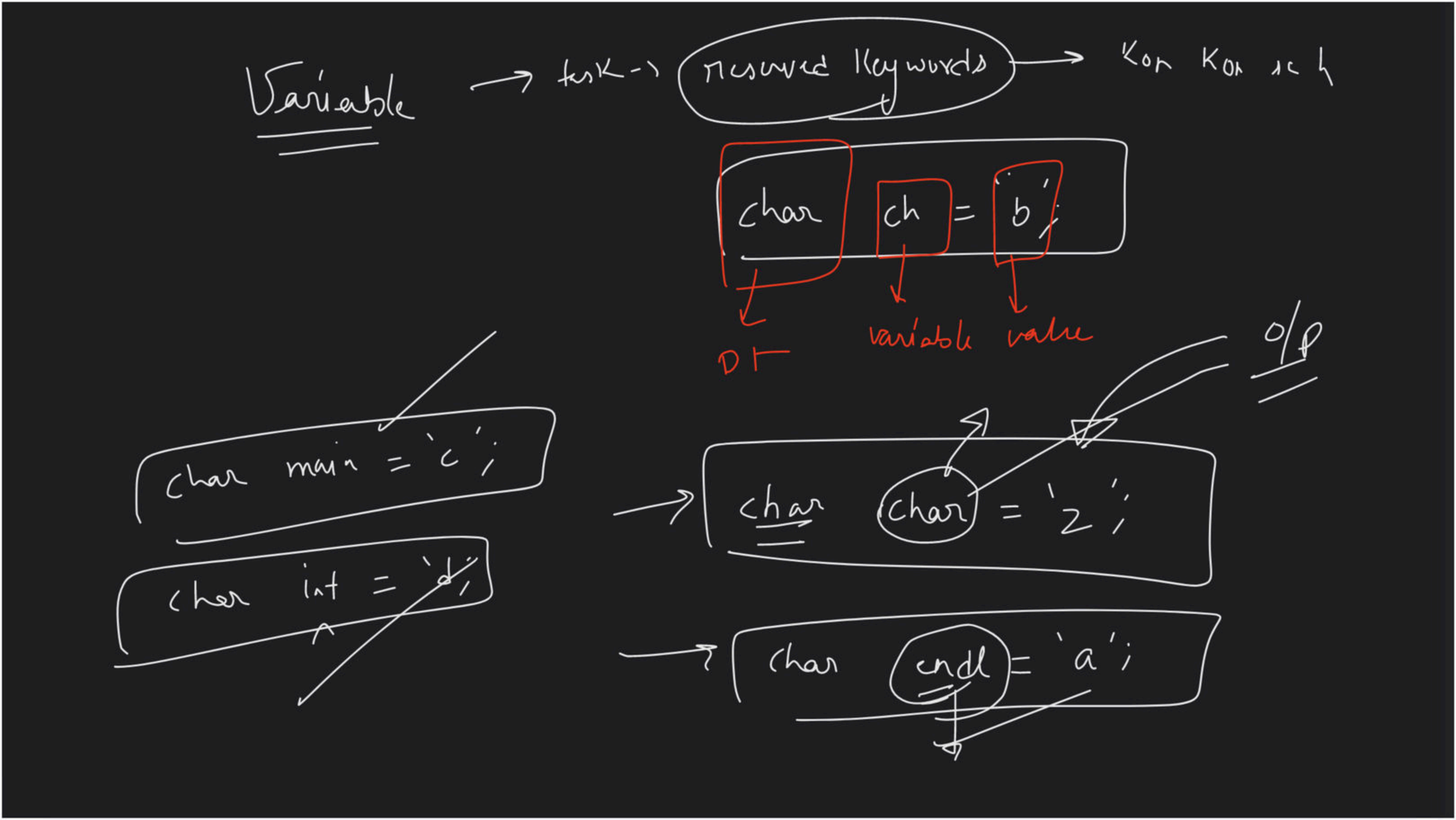
n bits

total → 2^n combo

unsigned short

$0 \to 2^{n} - 1$


long long
8 byte
8 x 8 = 64 bits
signed range
$-2^{63} \rightarrow 2^{63}-1$
max value
2^{64}
unsigned
$0 \rightarrow 2^{64}-1$


Variable
task
reserved keywords
Kon Kon sa h
char ch = 'b';
DT
variable
value
o/p
char main = 'c';
char int = 'd';
char char = '2';
char endl = 'a';

Variable naming convention -> H/W

num of student

numOfStudent → meaningful name

num_of_student → no space

@student → don't start with digit

@number → CamelCase

→ start with lowerCase letter

→ special symbol

→ underscore

→ int count$11;

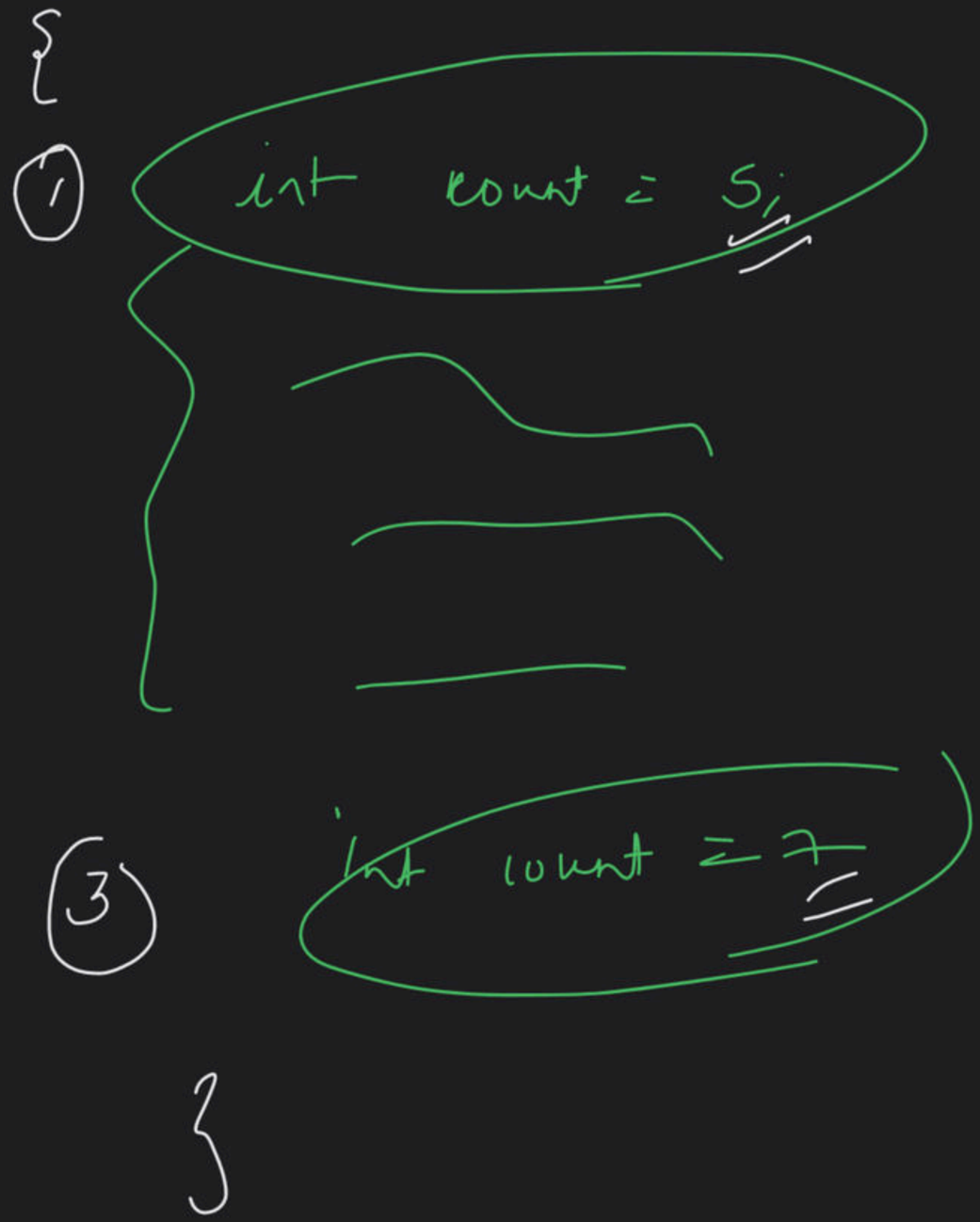
noun
verb

int a=5

int count = 5

int studentName

int 420Rahul


{
1
int count = 5;
3
int count = 7;
}

Typecasting

a → 97
b → 98
c → 99
d → 100

int a = 5

char b = 'd';

int sum1 = a + b;

implicit typecasting

cout << sum1; → ?

105

float f = 2.1 + sum1;

101

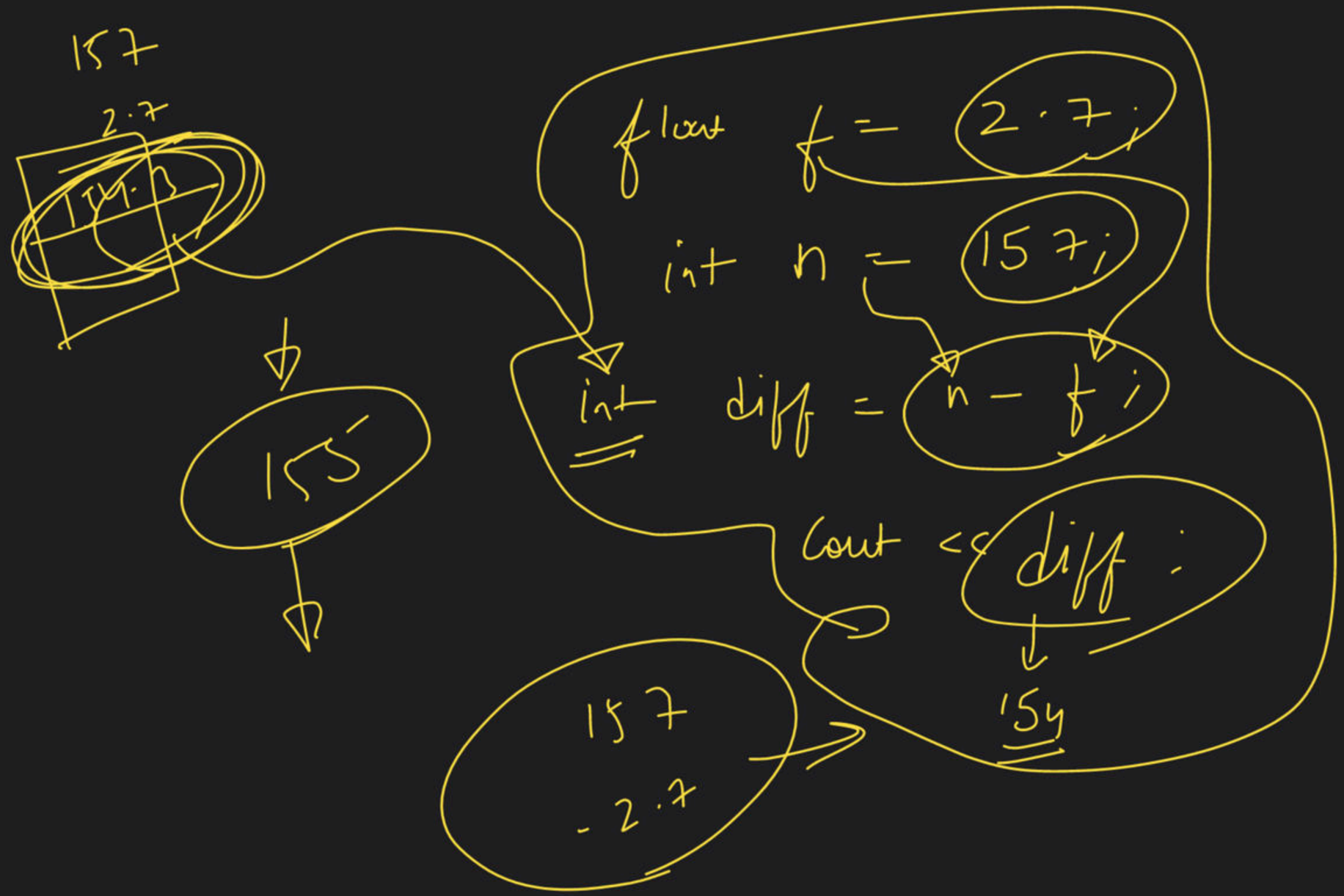
107.1

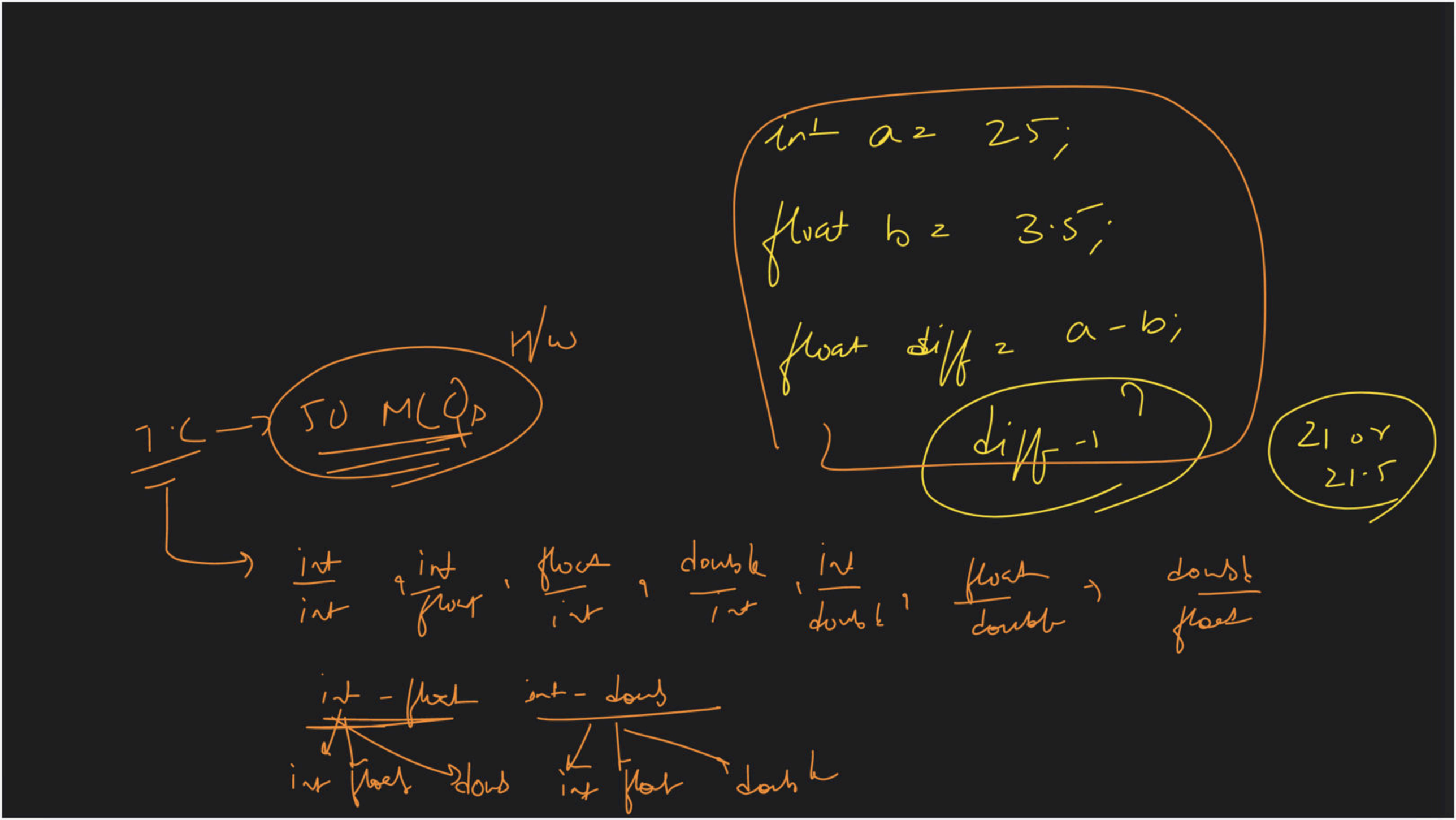
cout << f;

107.0

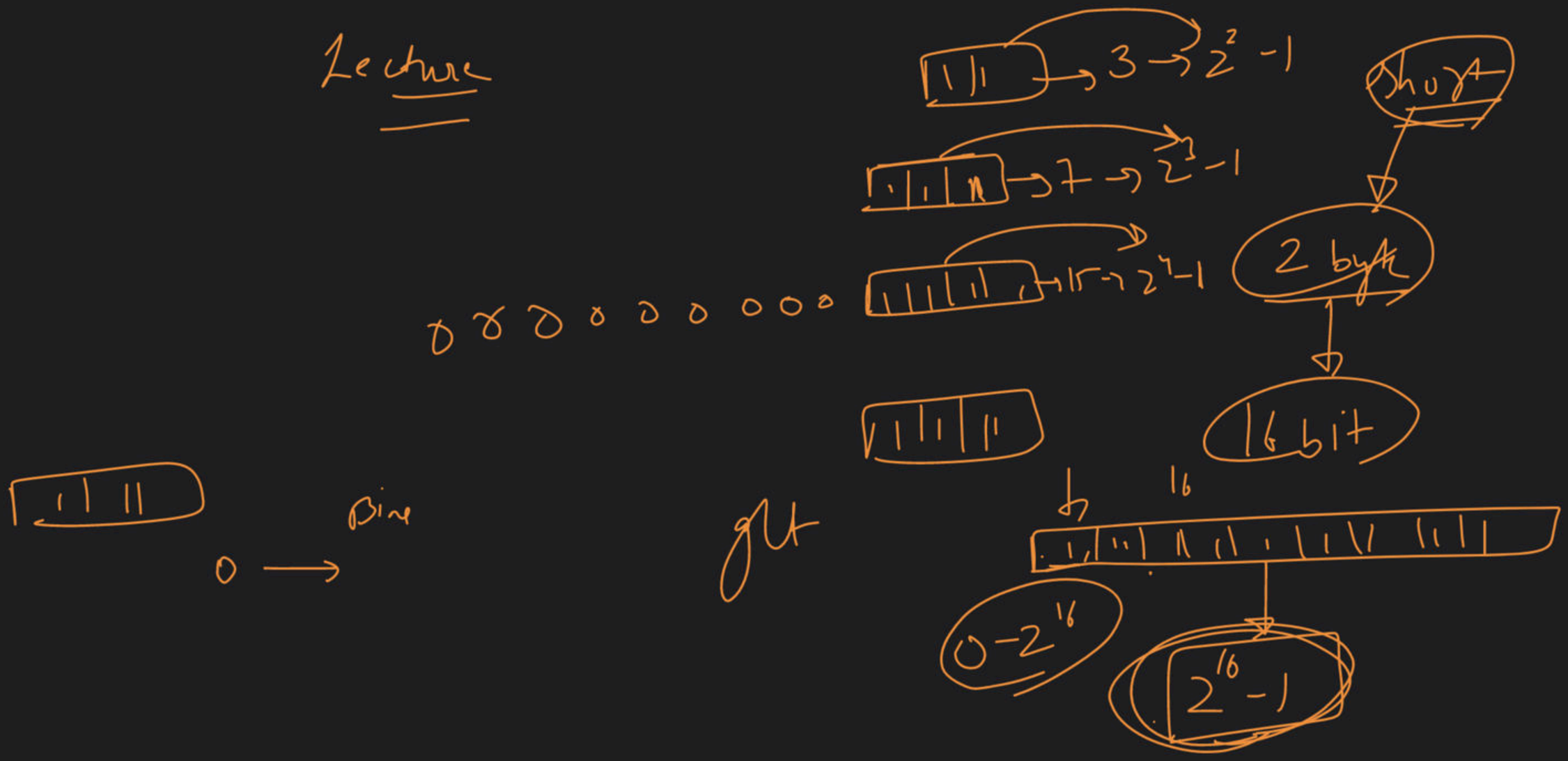
107.0

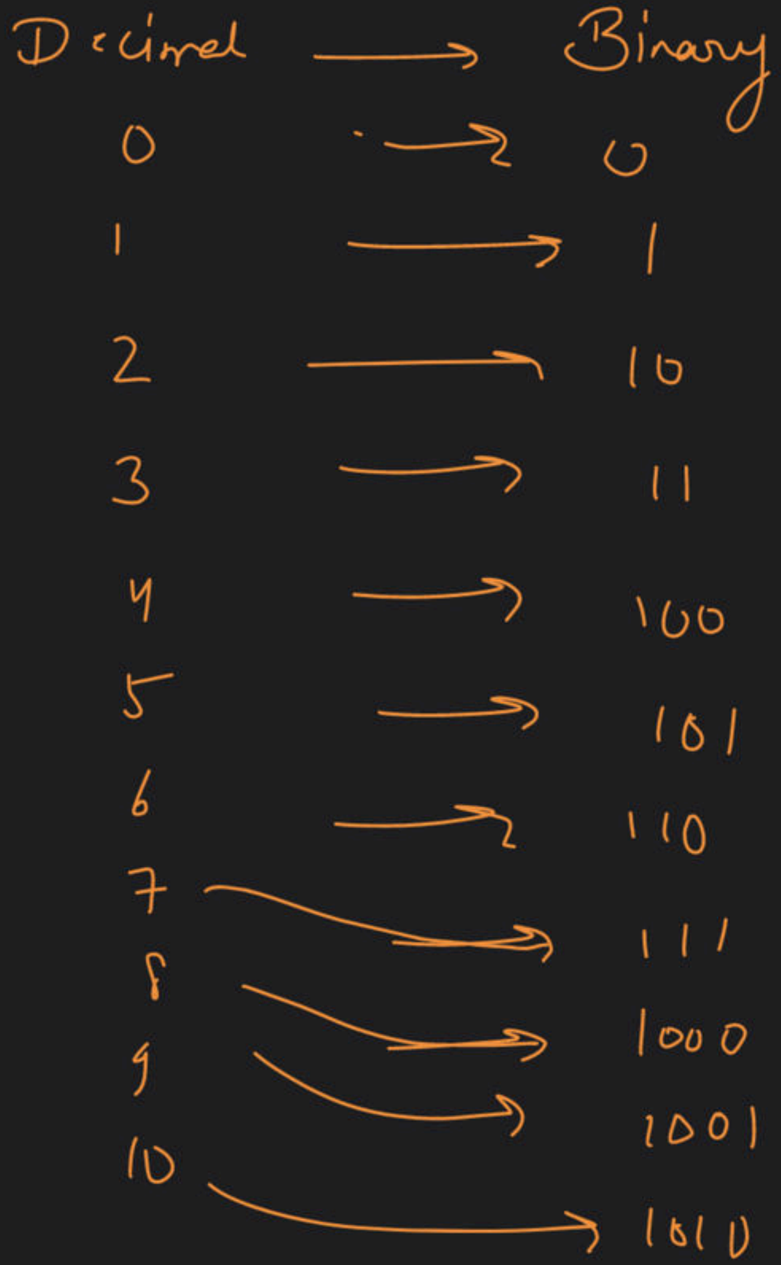
107


157
2.7
float f = 2.7;
int n = 157;
int diff = n - f;
157
cout << diff :
157
-2.7
'5y


int a = 25;
float b = 3.5;
float diff = a - b;
diff = ?
21 or 21.5
T.C → 50 MCQs
H/w
int / int
int / float
float / int
double / int
int / double
float / double
double / float
int - float
int - double
int
float
double
int
float
double

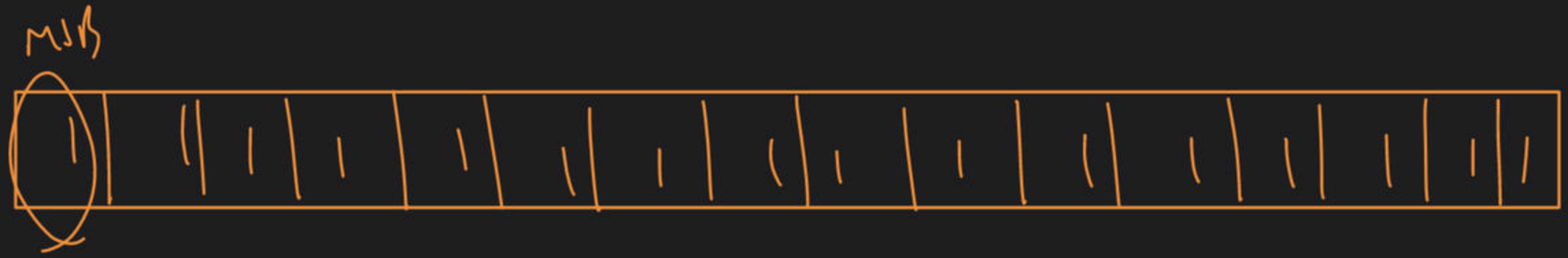
Lecture




Decimal
Binary
0
0
1
1
2
10
3
11
4
100
5
101
6
110
7
111
8
1000
9
1001
10
1010

short → 2 byte → 16 bit

$2^{16}-1$



signed

$-2^{15} \rightarrow 2^{15}-1$

unsigned

$0 \rightarrow 2^{16}-1$

Arithmetic

+ - * / %

% → remainder

i.e

Rel

> < >= <= != ==

Assignment

int a = 5;

Logical

&& || !

→ multiple conditions

Bitwise

Lecture-3

condition

```
if ( )
{
}
else
{
}
```

```
if ( )
{
}
```

OR

```
if ( )
    cout << "Barbar";
```

```
if ( )
    line1
line2
```

if - else if

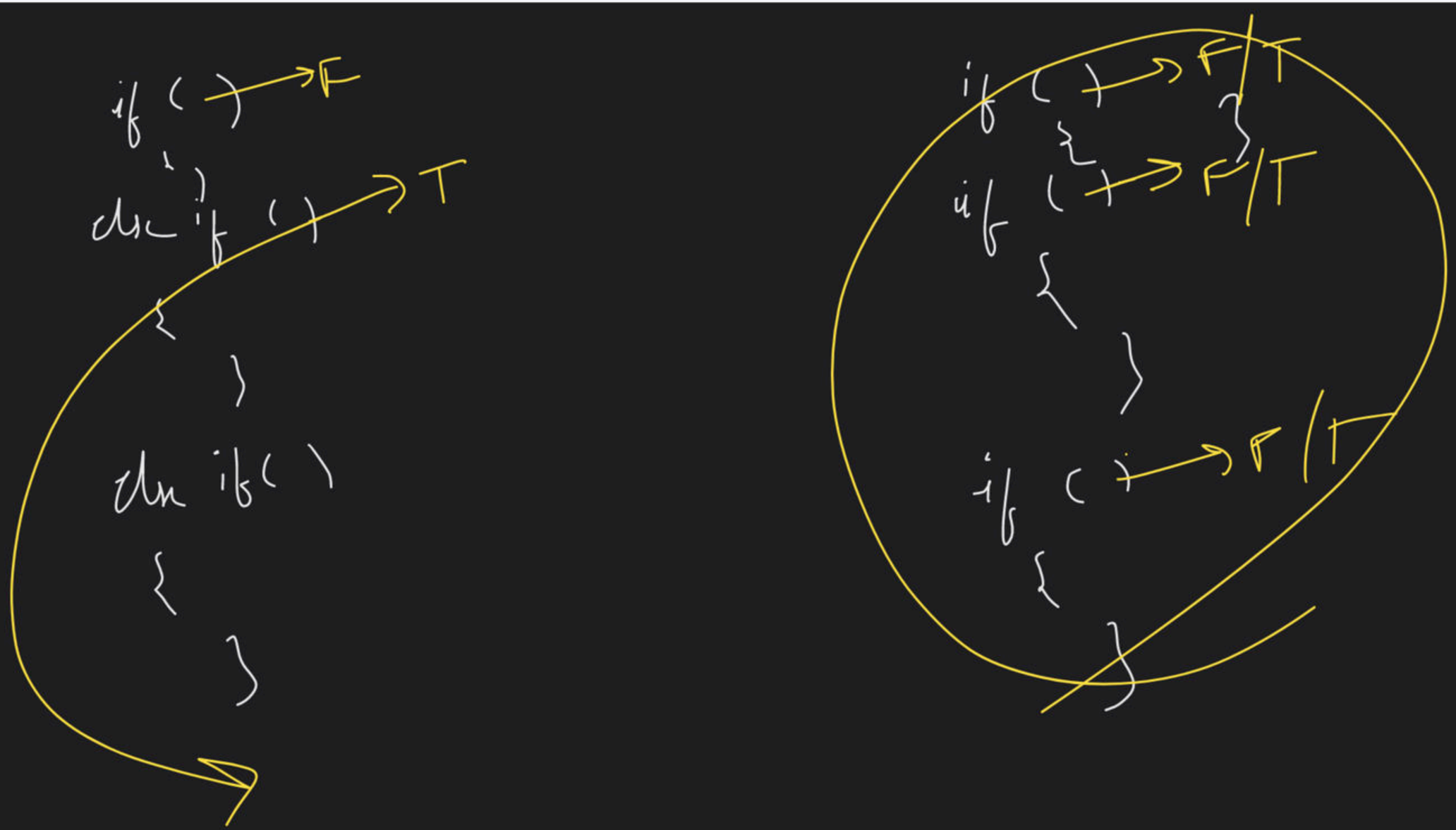
```
if ( )
{
}
else if ( )
{
}
else if ( )
{
}
```

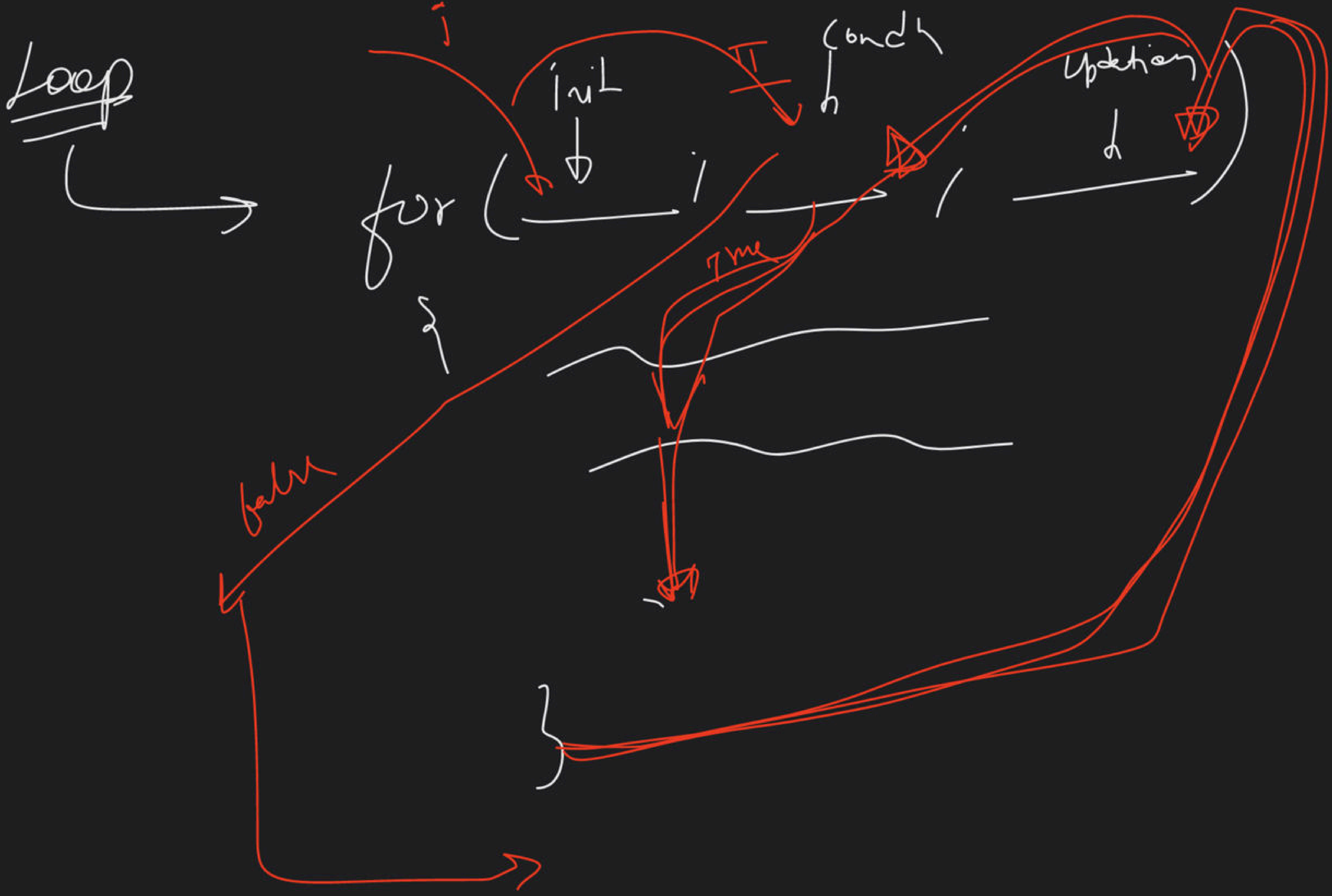
```
if ( )
{
  if ( )
  {
  }
}
else
{
  if ( )
  {
  }
  else
  {
  }
}
```

if - else if - else

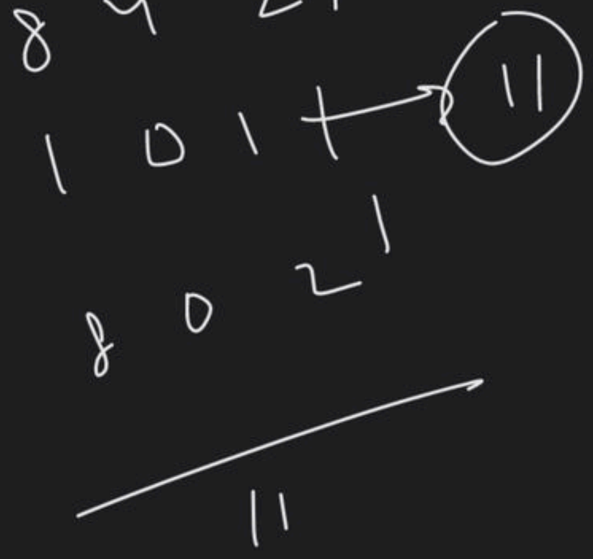

```
if ( )
{
}
else if ( )
{
}
:
:
else if ( )
{
}
else
{
}
```

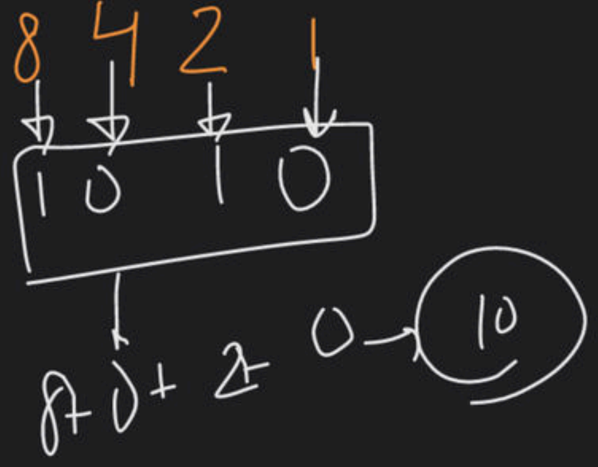
default

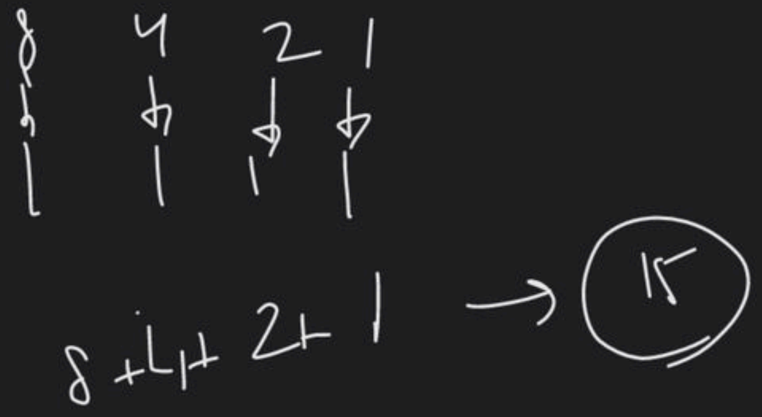

if ( ) → F
else if ( ) → T
{
}
else if( )
{
}
if ( ) → F/T
{
}
if ( ) → F/T
{
}
if ( ) → F/T
{
}

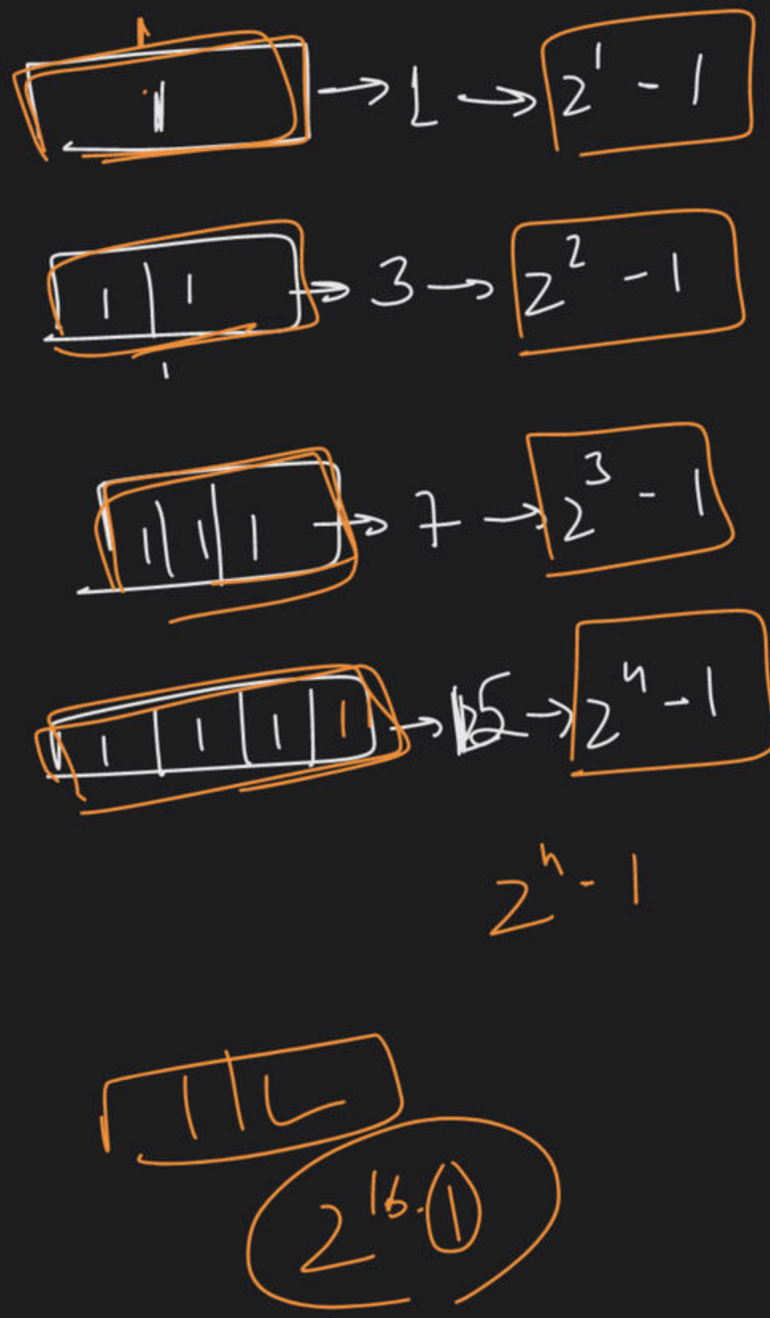


Loop
for (; ;)
init
cond^n
updation
True
false


8 4 2 1
1 0 1 1
11
8 0 2 1
11


8 4 2 1
1 0 1 0
8+0+2+0
10


8 4 2 1
8+4+2+1
15


1
1
2^1 - 1
1 1
3
2^2 - 1
1 1 1
7
2^3 - 1
1 1 1 1
15
2^4 - 1
2^4 - 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
2^16 - 1

Patterns