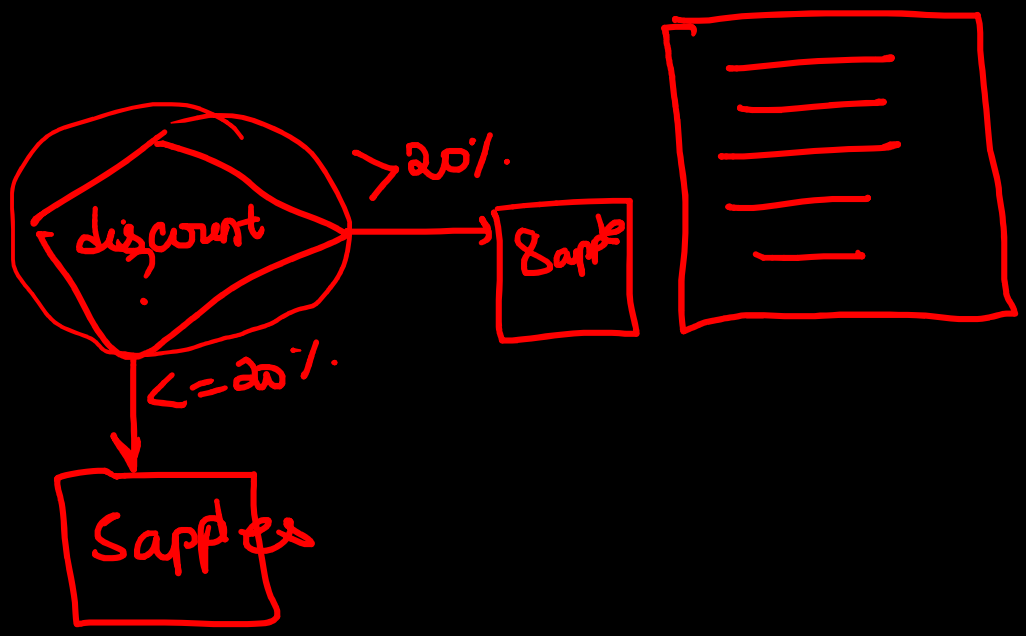
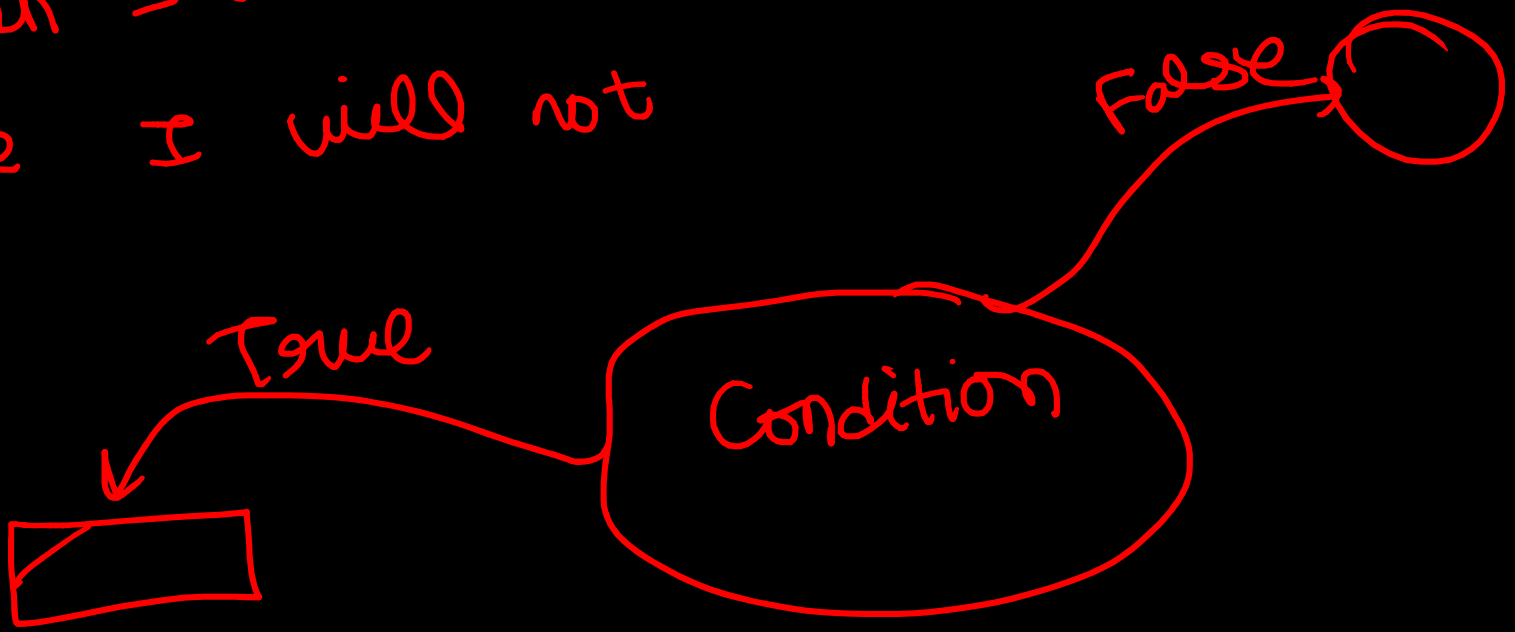
Conditionals



if (weather > 90%)
{ then I will take umbrella
else I will not



if

if (condition) → evaluate to a boolean

{

}

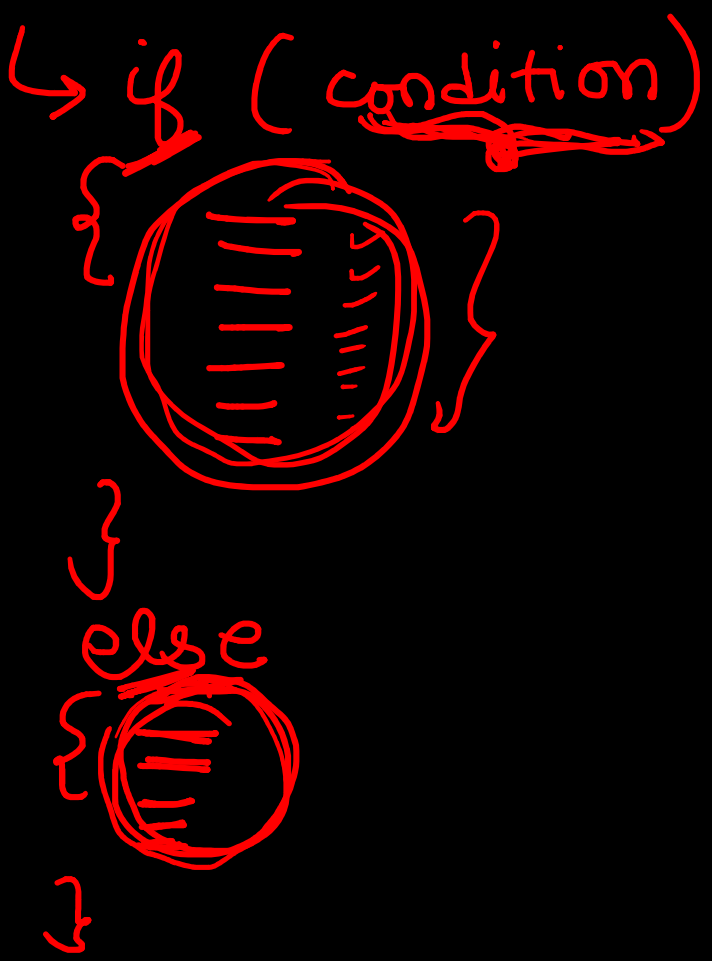
int age

20 >= 18

17 >= 18

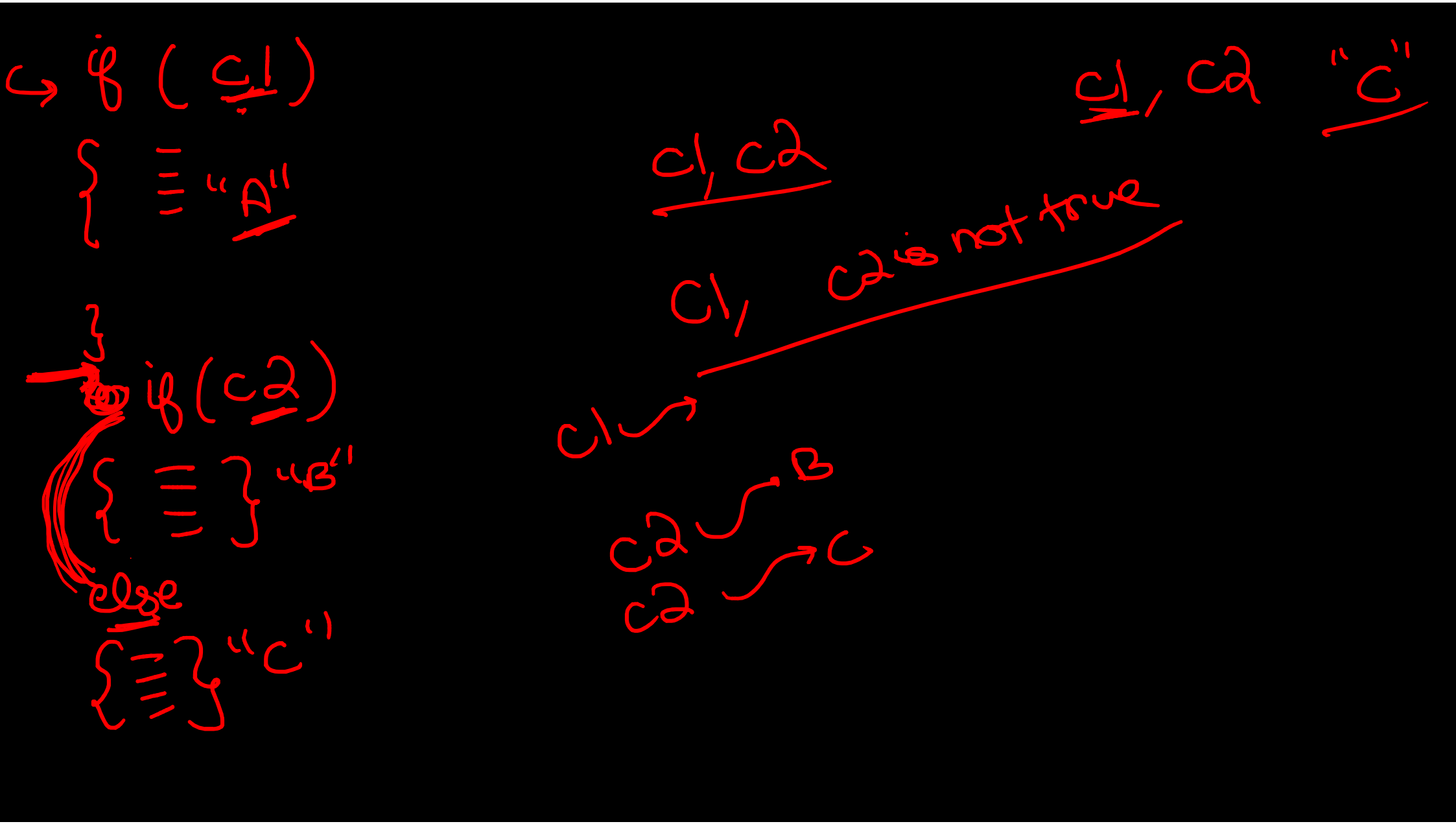
if (age >= 18)
{ Sop("Adult"); }

if-else



else

```
if (age >= 18)
{ SOP("Adult"); }
else
{
  SOP("Not an adult");
}
```


if (c1)
{ = "A"
if(c2)
{ = } "B"
else
{ = } "C"
c1, c2
c1, c2 is not true
c1
c2
B
c2
C
c2
c1, c2
"C"

$\phi(c_1)$

$\{ \equiv \}$ ✓

$\phi(c_2)$

$\{ \equiv \}$ ✗

$\phi(c_3)$

$\{ \equiv \}$ ✓

c_1, c_2, c_3

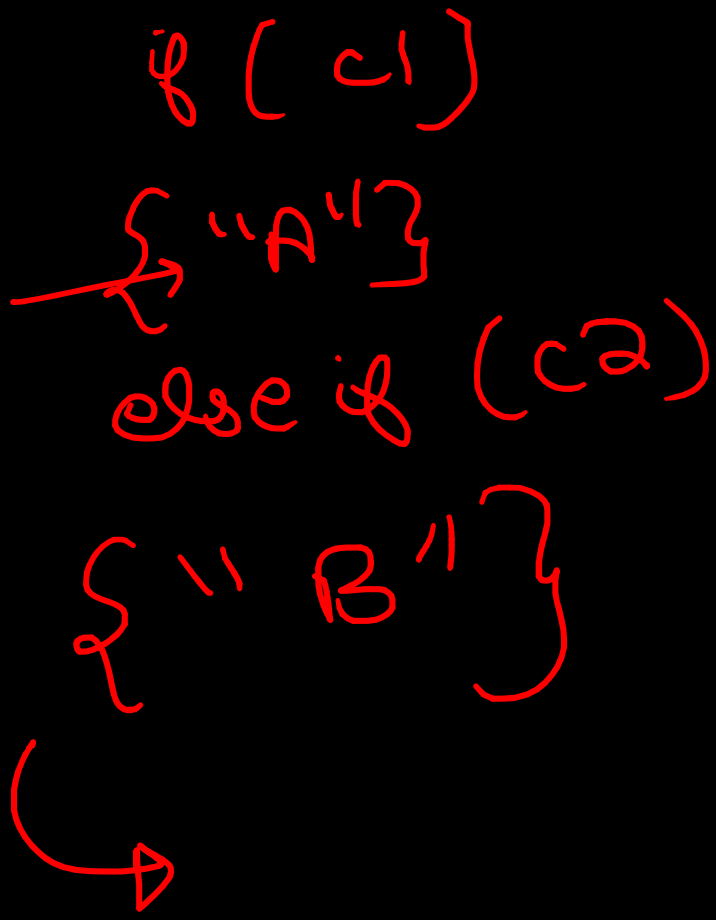
if - else if - else if - else ladder

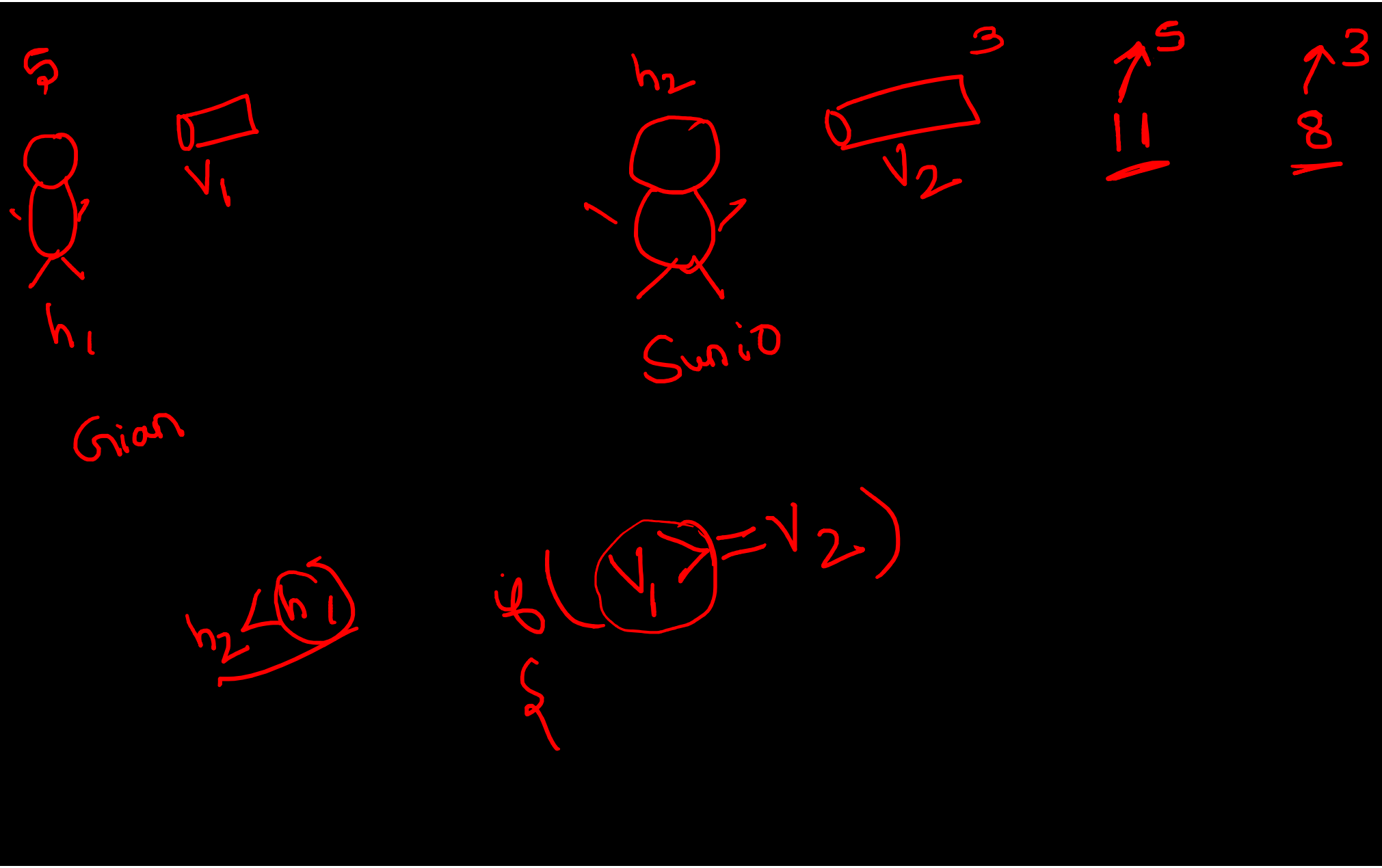
```
if (c1)
{ "A" }
else if (c2)
{ "B" }
else if (c3)
{ "C" }
else if (c4)
{ "D" }
else { "E" }
```

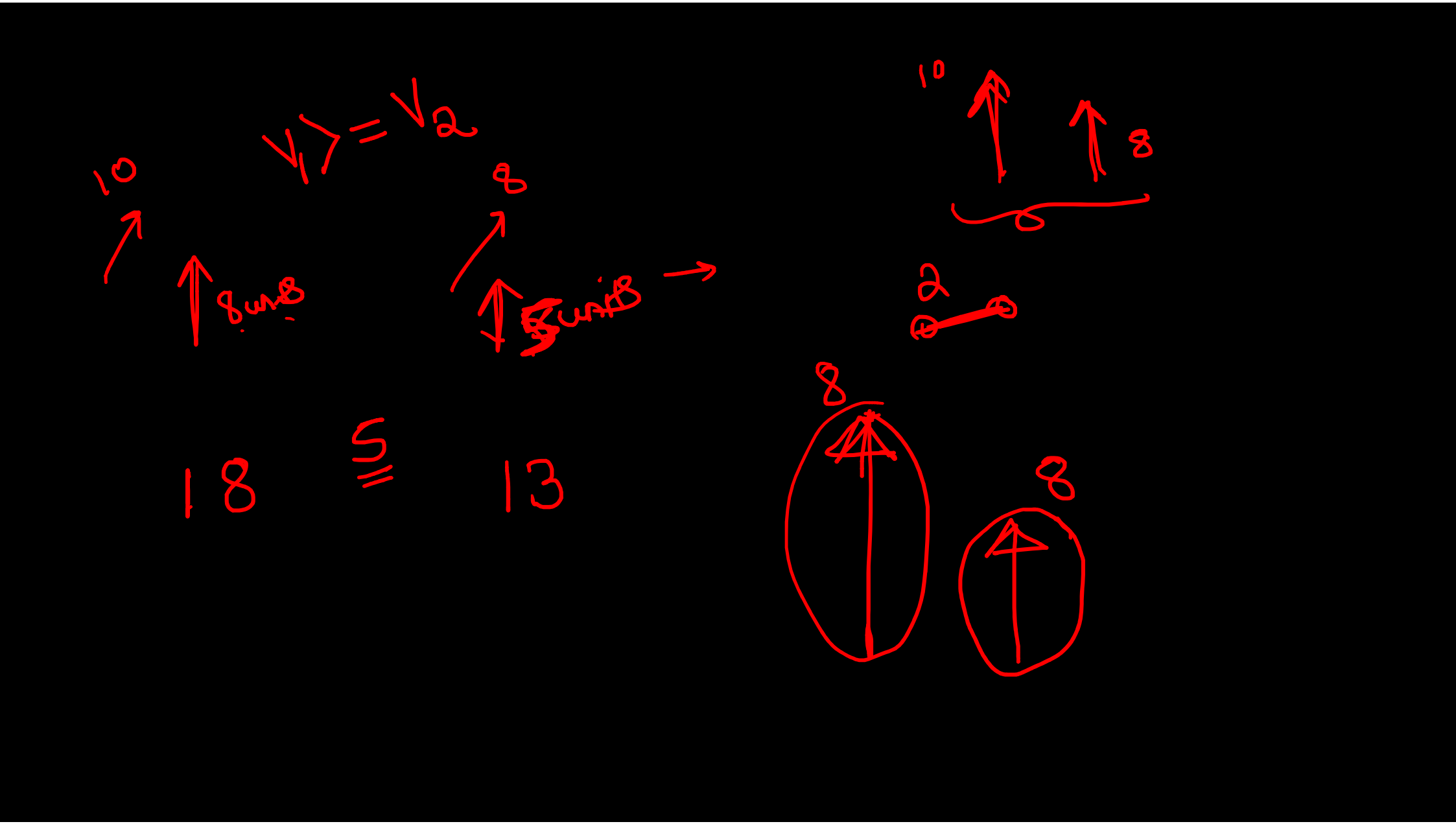
c1 → false
c2 is true
c3 → true

c1 → F
c2 → T
c3 → T
c4 → F

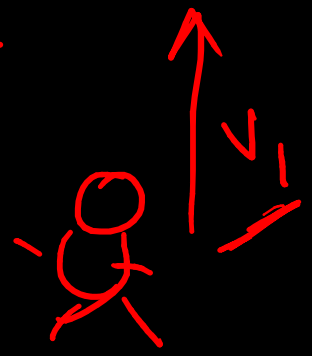
else if

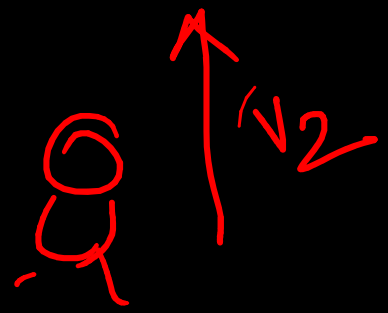

if (c1)
{"A"}
else if (c2)
{"B"}


5
h_1
v_1
Gian
h_2
Sunio
v_2
3
5
8
3
$h_2 < h_1$
if ($v_1 = v_2$)


10
8
8 units
5 units
18 ≡ 13
10
8
2
8
8

$v_1 < v_2$





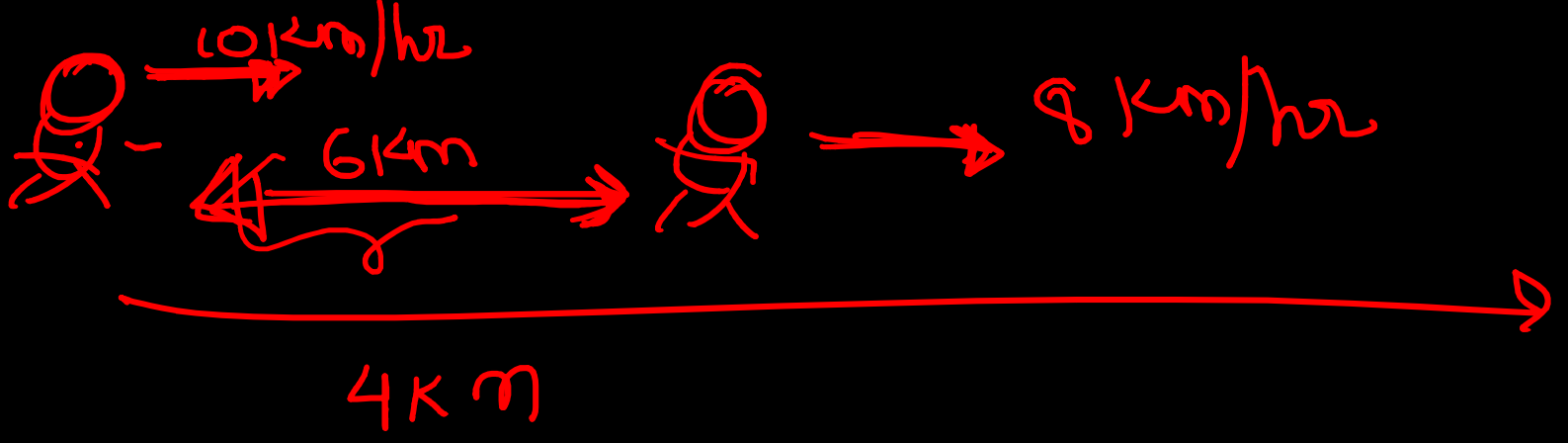
$v_2 - v_1$

8 giờ

10

0 5 4 1

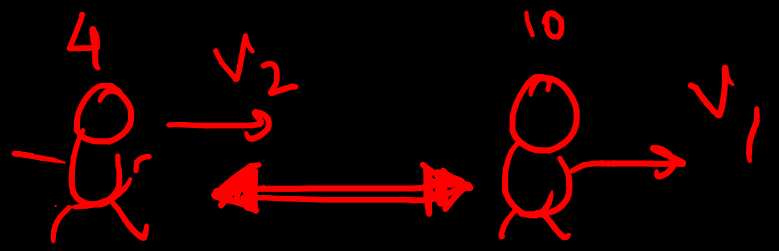
13 2 11



$2 * (3) = 6$

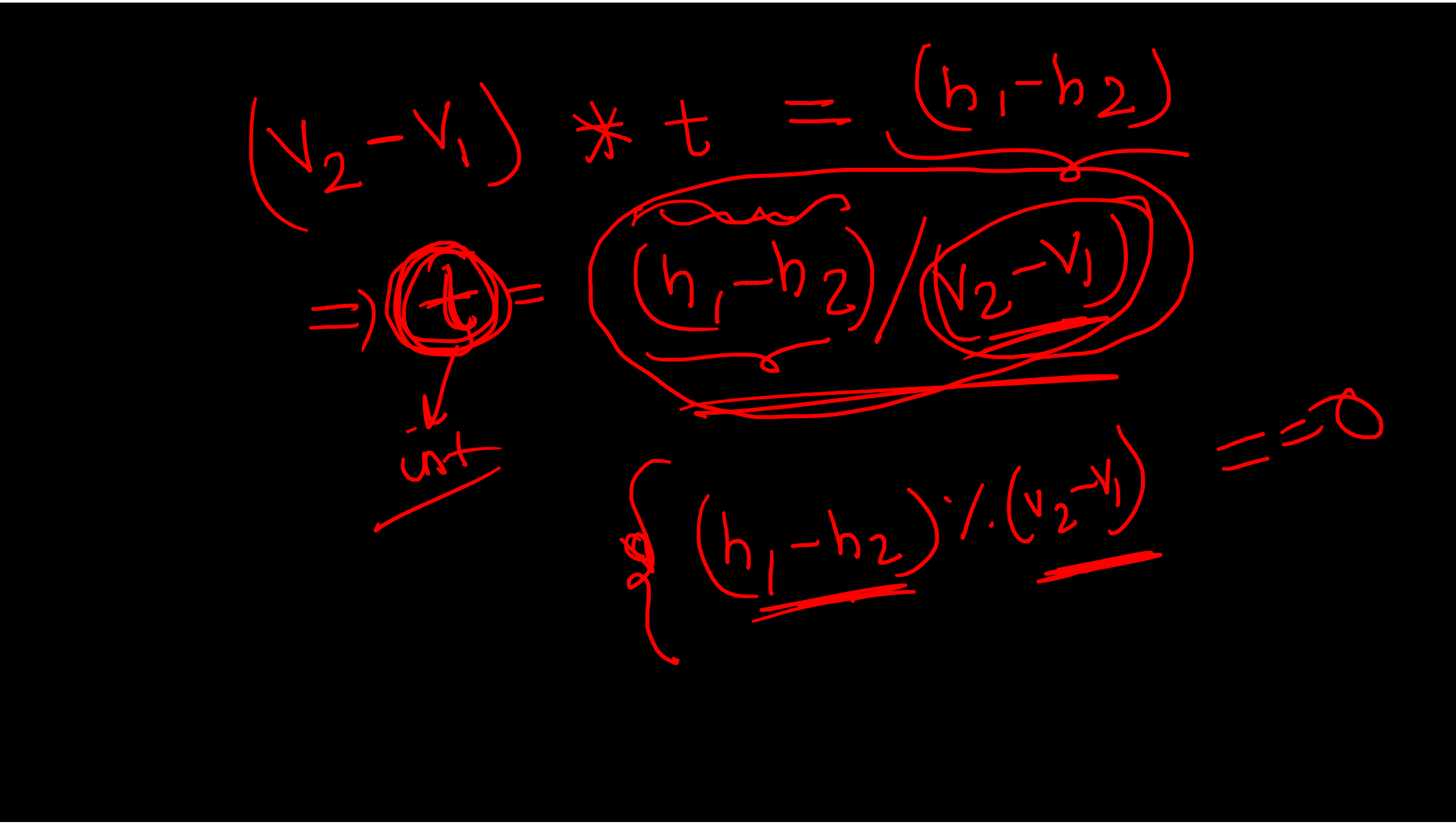
2km

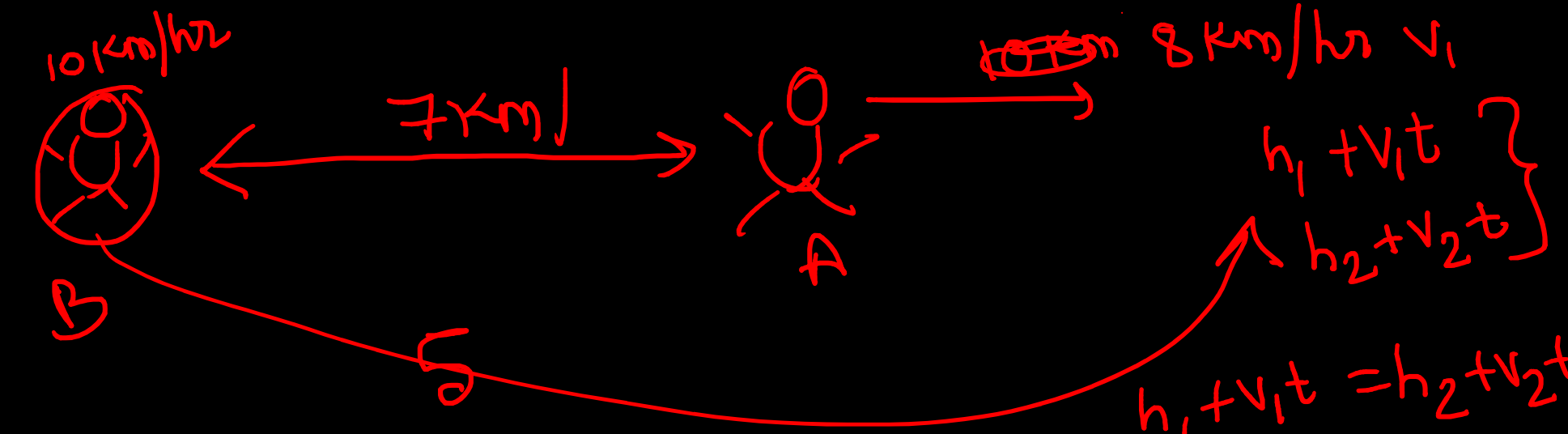
0km



$v_2 - v_1$

$h_1 - h_2$


(V2 - V1) * t = (h1 - h2)
=> t =
(h1 - h2) / (V2 - V1)
unit
(h1 - h2) != (V2 - V1) == 0



$h_1 + v_1 t = h_2 + v_2 t$

$\Rightarrow t(v_2 - v_1) = h_1 - h_2$

$\Rightarrow t = \frac{(h_1 - h_2)}{(v_2 - v_1)}$

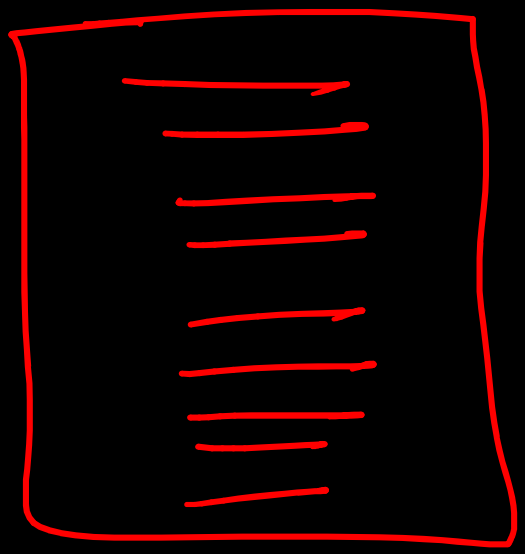
3

1

$(h_1 - h_2) \div (v_2 - v_1)$

$v_2 - v_1$ should be a factor of $(h_1 - h_2)$

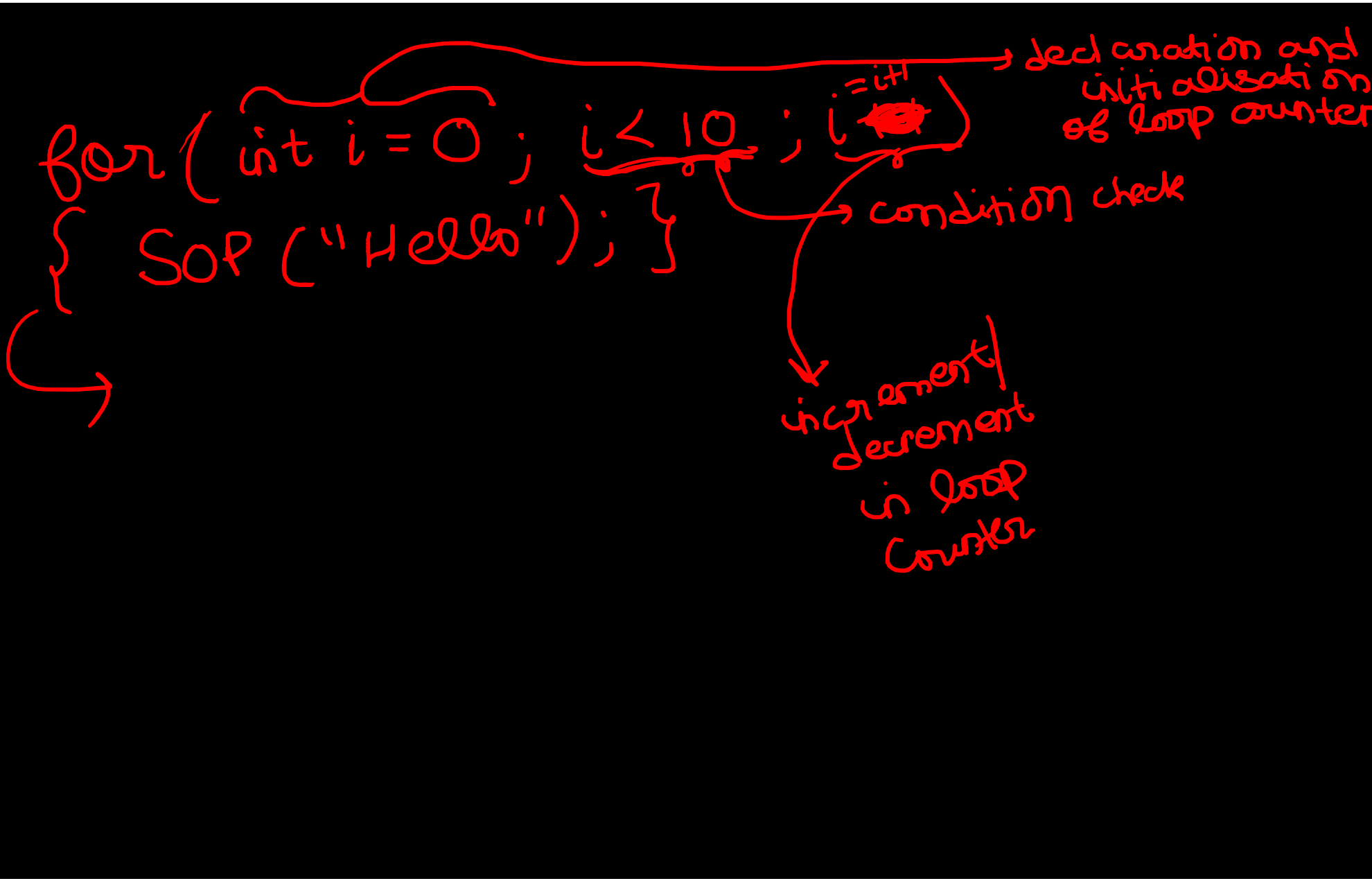
Loops

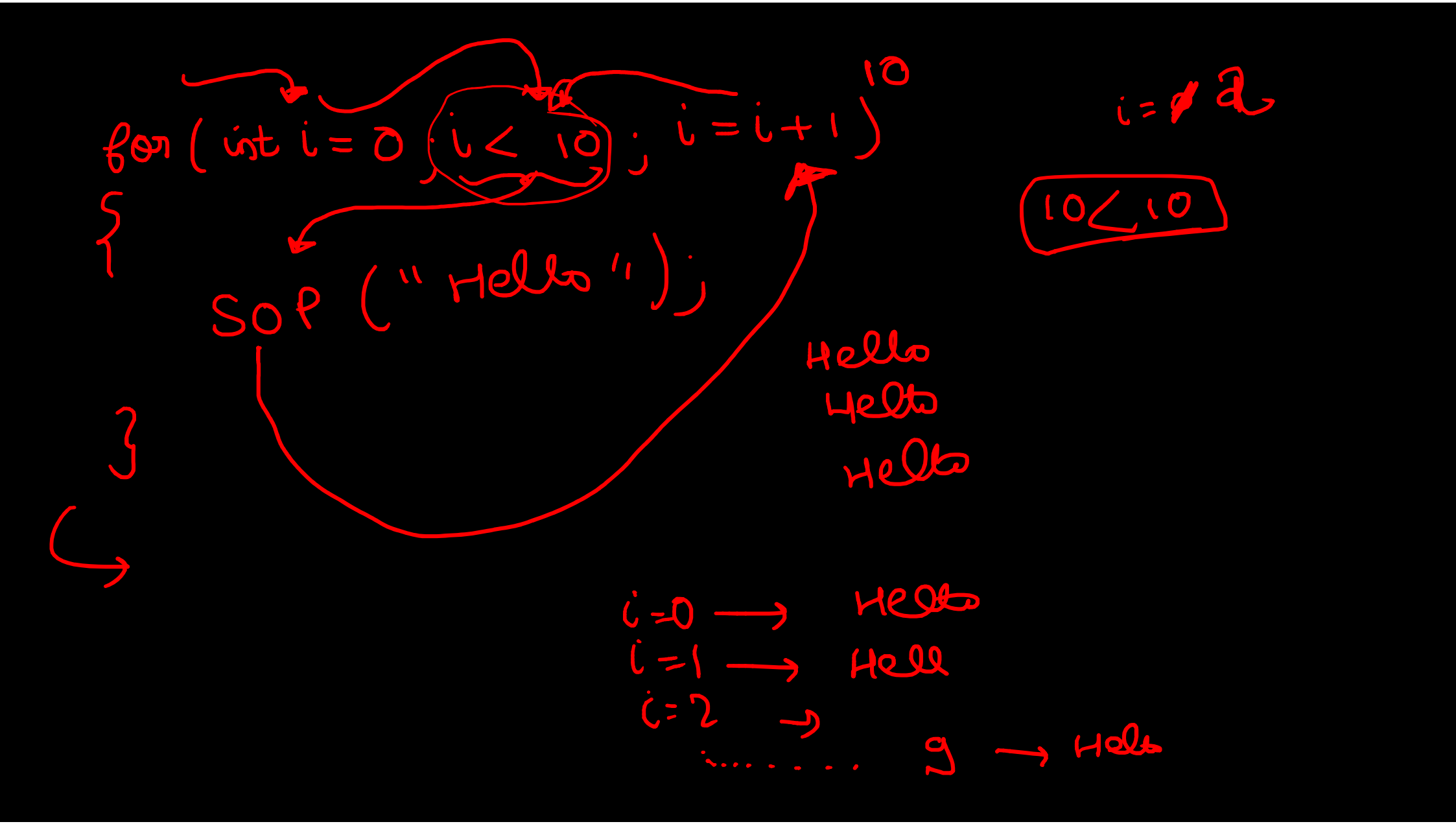


Spotify

while ( )
{ play

For
while
do while


for (int i = 0 ; i < 10 ; i++)
{ SOP ("Hello"); }
declaration and initialisation of loop counter
condition check
increment/decrement in loop counter


for (int i = 0 ; i < 10 ; i = i + 1)
{
SOP ("Hello");
}
10
i = 0 2
10 < 10
Hello
Hello
Hello
i = 0 → Hello
i = 1 → Hell
i = 2 →
9 → Hello

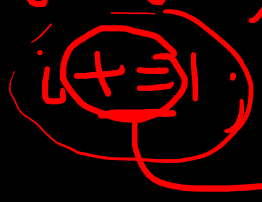
```
for(int i = 0;i<10; i+=1)
{ sop("Hello");}
```

```
for(int i=0 ;i<10; i++)
{ sop("Hello");}
```

++i → pre increment

i++ → post incr ement

i+= i+1 ;



compound operator

i++

++i

i = 5

int x = i++;

Sop(x) → 5

Sop(i) → 6

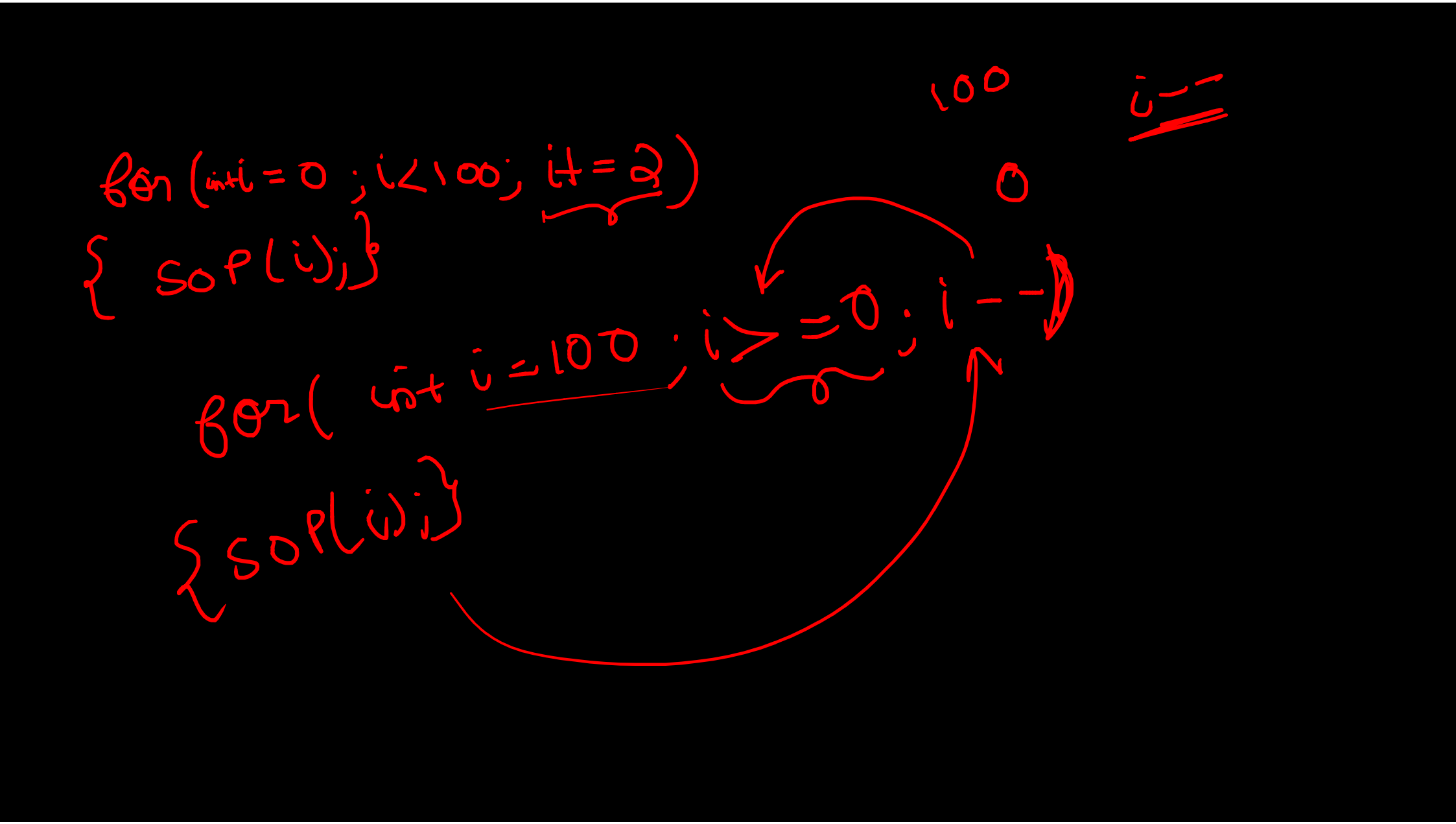
i = 5

int x = ++i;

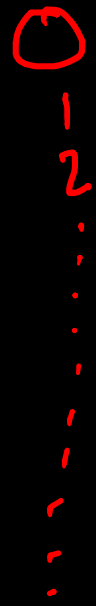
Sop(x) → 6

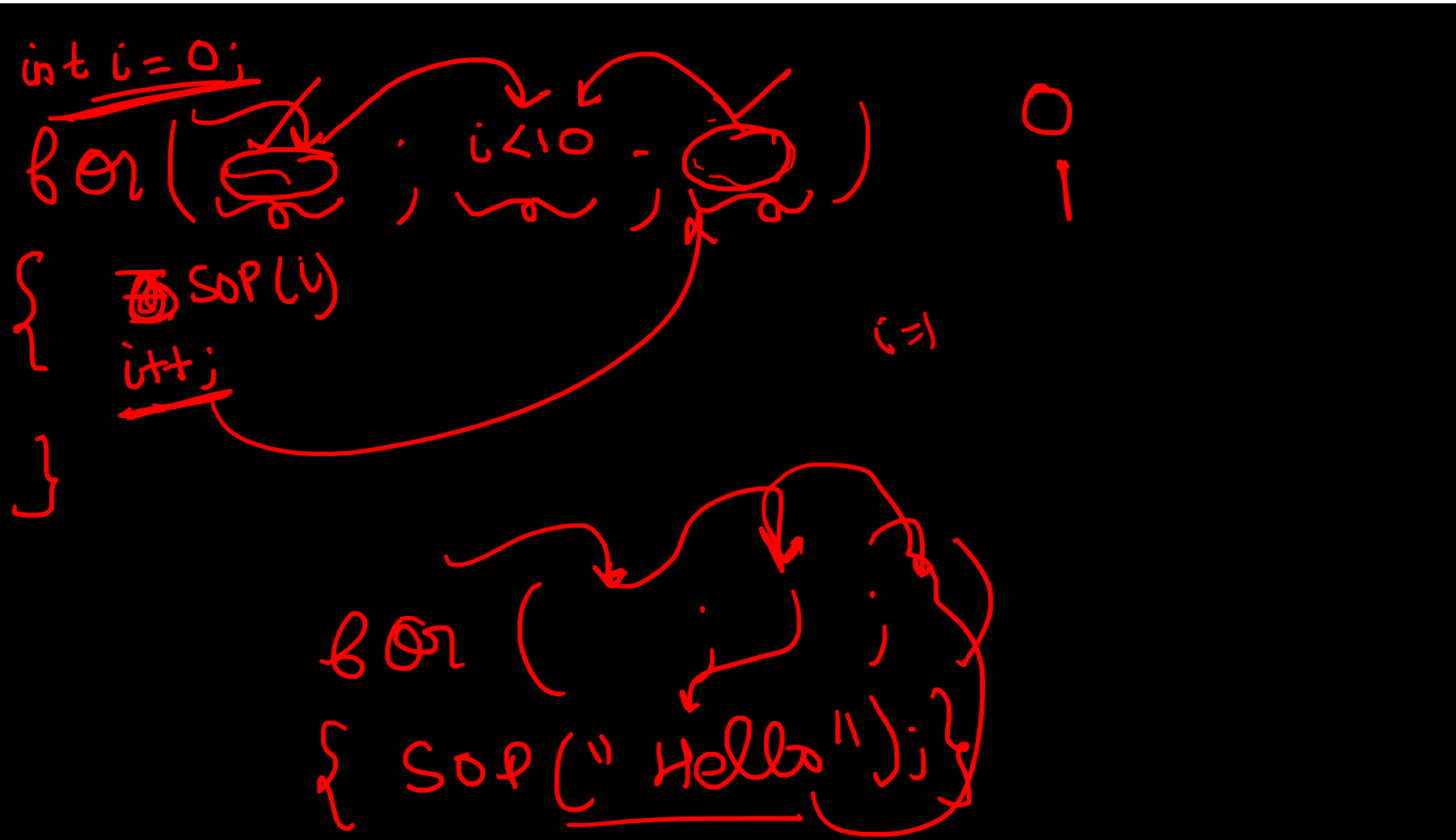
Sop(i) → 6

⑥


for (int i = 0 ; i < 100; i += 2)
{ sop(i); }
for(int i = 100 ; i >= 0 ; i--)
{ sop(i); }
100
0
i--

```
for(int i=0; i>-1; i++)
{SOP(i);}
```




int i=0;
for(; i<10 ;)
{
sop(i)
i++;
}
0
1
i=1
for (:)
{ sop(" Hello");}

99.99%

```
for(int i=0; i<n; i++)
{

}
```