

# Control flow statements - Part IV

Comprehensive Course on C- Programming



# CS & IT Engineering

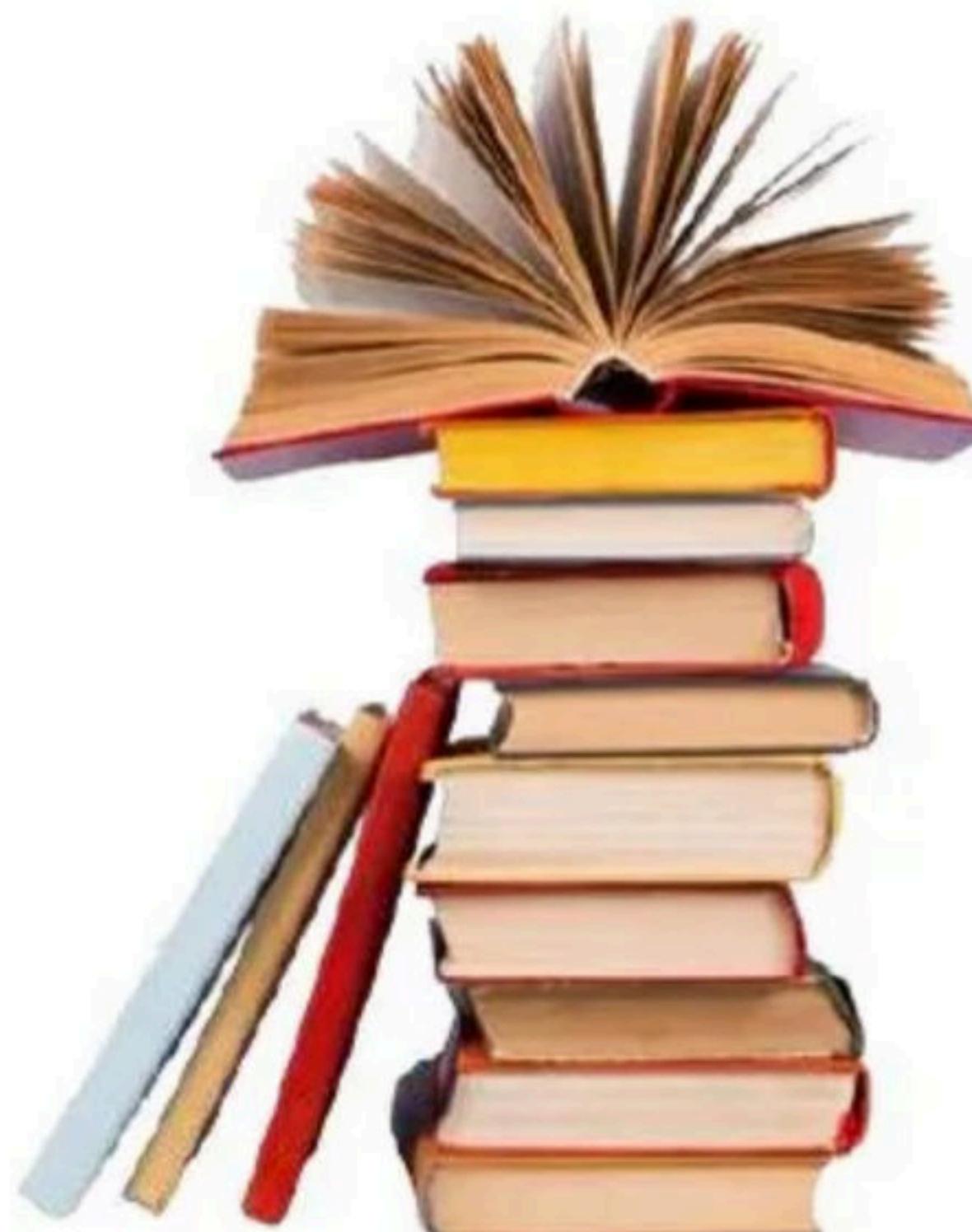
C Programming  
Control Flow Statements-IV





# Topics

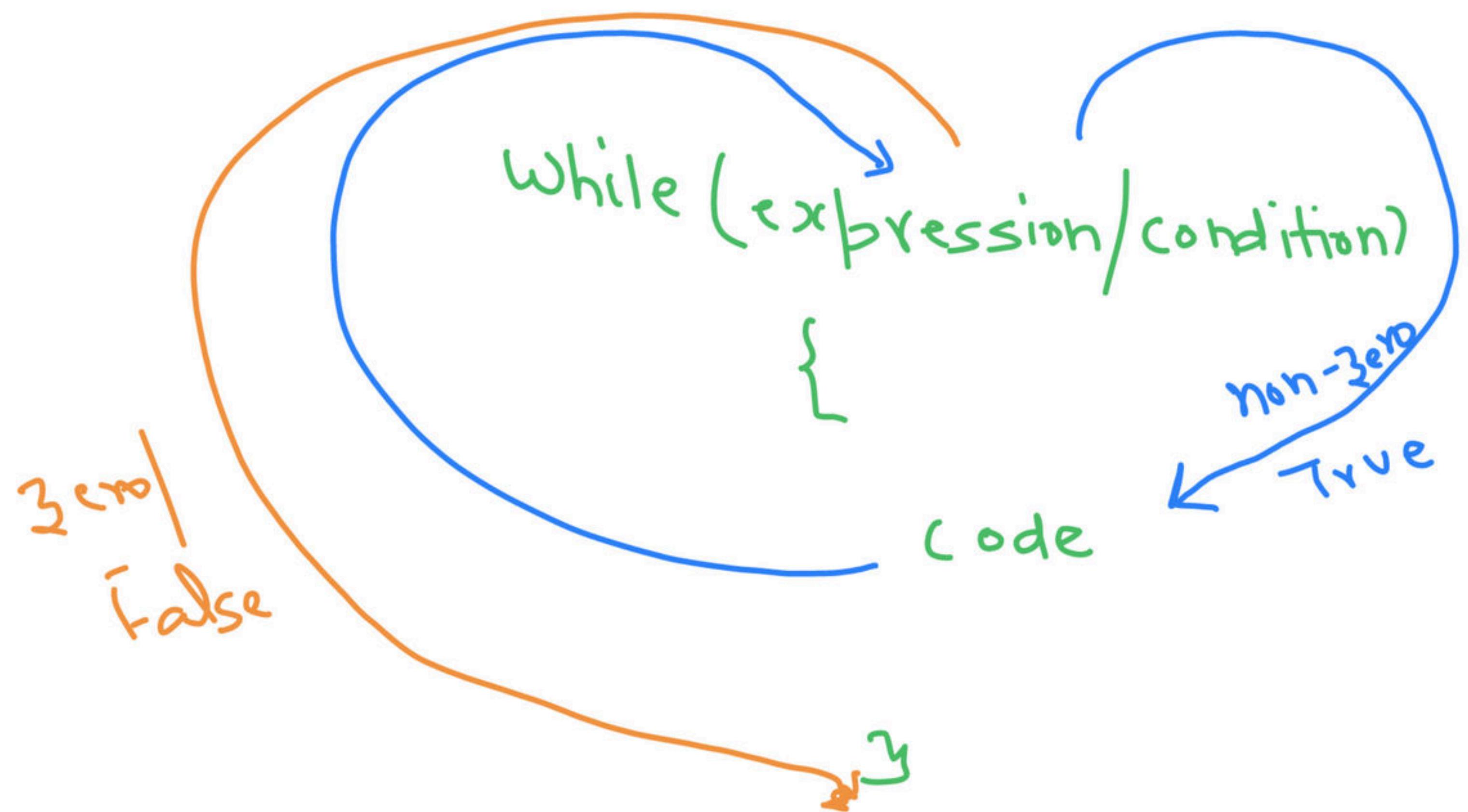
*to be covered*



1

## loops

for loop ✓ ⇒ while loop



```
for(i=1; i<=n; i++)  
{  
    printf(" Pankaj");  
}
```



```
i = 1;  
while (i <= n) {  
    printf(" Pankaj");  
    i = i + 1;  
}
```

①

```
int i=1;  
while (++i < 5)  
{  
    printf("%d", i);  
}
```

i 1 2 3 4 5

$2 < 5 \rightarrow \text{True} \rightarrow \text{bf} \rightarrow 2$   
 $3 < 5 \rightarrow \text{True} \rightarrow \text{bf} \rightarrow 3$   
 $4 < 5 \rightarrow \text{True} \rightarrow \text{bf} \rightarrow 4$   
 $5 < 5 \rightarrow \text{False}$

O/P: 234

```
#include <stdio.h>
```

```
void main() {
```

```
    int i = 1;
```

```
    while (++i < 5);
```

```
        printf(".%d", i);
```

```
}
```

first semi-colon

i  
[5]

int i = 1

while (++i < 5){

;

}

printf(".%d", i);

5 ✓

while ( ) → Mandatory

{      Compiler vd re laat marega  
      =      }  
      }

for( ; 0; )

{

    printf(" Pankaj");

}

0 times

condition

Pre-checking  
of condition

While(0)

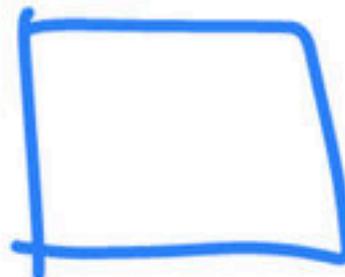
{

    printf(" Pankaj");

}

condition

do {



} while (expression);

do {  
 ↘ printf("Pankaj");  
} while(0);

Pankaj

① Number of Iterations are known in advance  
⇒

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

While  
Number of iteration are not known but some **criteria/crd.** is there.

do while  
Post - checking of condition  
\* Code will execute atleast 1 time irrespective of whether the condition is True or false.

while ( $a \overset{\rightarrow}{\neq} 0$ )

{

$\equiv$  code  $\equiv$

}

for ( $i = 1; i \leq 10; i++$ )

{

Code

}

Repeat

$$1 + 2 + 3 + 4 + 5$$

(15)

$$\Rightarrow \frac{n \times (n+1)}{2} = \frac{5 \times 1}{2} = 15$$

Abtakkasum = 0;

$$1+2+3+4+5$$

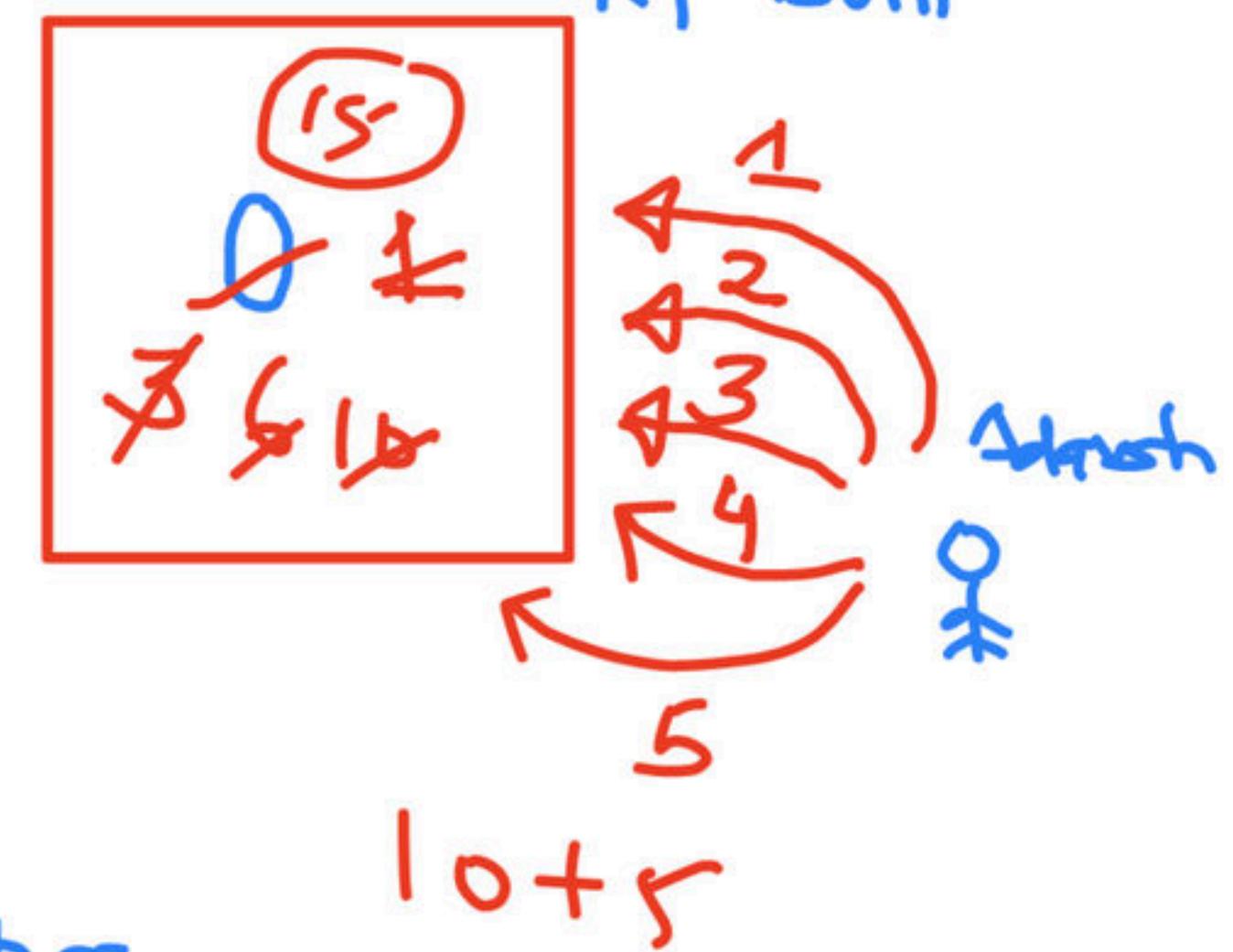
$$\begin{aligned} 3+3 &= \textcircled{5} \\ 6+4 &= \textcircled{10} \\ 7+4 &= \textcircled{11} \end{aligned}$$

$$\begin{aligned} 0+1 &= \textcircled{1} \\ 1+2 &= \textcircled{3} \\ 2+3 &= \textcircled{5} \end{aligned}$$

$$\begin{aligned} \text{Abtakkasum} &= \text{Abtakkasum} + 1 \\ \text{Abtakkasum} &= \text{Abtakkasum} + 2 \\ \text{Abtakkasum} &= \text{Abtakkasum} + 3 \\ \text{Abtakkasum} &= \text{Abtakkasum} + 4 \\ \text{Abtakkasum} &= \text{Abtakkasum} + 5 \end{aligned}$$

rebeat

2 Abtakkasum



for ( $i=1$ ;  $i<=5$ ;  $i++$ )

Abtakkasum = Abtakkasum +  $i$ ;

Abtakkasum = 0;

for(i = 1; i <= 5; i++)

    Abtakkasum = Abtakkasum + i;

    printf("The sum is -%.d", Abtakkasum);

Abtakrasum = 0;

for (i=1; i<=5; i++)

    Abtakrasum = Abtakrasum + i;

    printf ("%d", Abtakrasum)

Abtakrasum = 0;

for (i=1; i<=10; i++)

    Abtakrasum = Abtakrasum + i;

    printf ("%d", Abtakrasum);

(h) -> user

#include <stdio.h>

void main(){

int n, i, sum;

printf("Enter a no.");

scanf(".\d", &n);

sum = 0;

for(i=1; i<=n; i++)

    sum = sum + i;

printf(".\d", sum);

}

2<sup>nd</sup> Prog.

1 \* 2 \* 3 \* 4 \* ... \* n

1 \* 2 \* 3 \* 4 \* 5

AbtakkaProd = 1;

$$\textcircled{1 \times 1} = 1$$

$$1 + 2 = 2 \quad C + C = 24$$

$$2 + 3 = 5 \quad 24 + 1$$

$$\text{AbtakkaProd} = 120$$

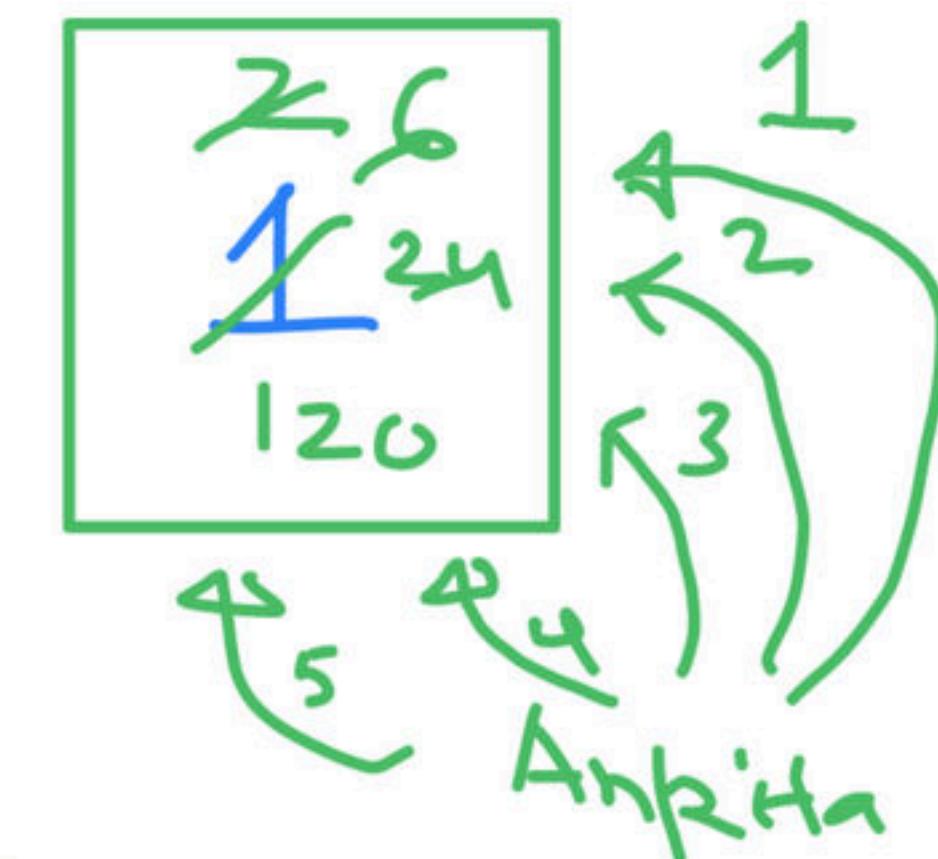
$$\text{AbtakkaProd} = \text{AbtakkaProd} \times \frac{1}{1};$$

$$\text{AbtakkaProd} = \text{AbtakkaProd} \times 2;$$

$$\text{AbtakkaProd} = \text{AbtakkaProd} + 3;$$

$$\text{AbtakkaProd} = \text{AbtakkaProd} + 4;$$

$$\text{AbtakkaProd} = \text{AbtakkaProd} + 5;$$



AbtakkaProd = 1;  
 for( $i=1; i <= 5; i++$ )

AbtakkaProd = AbtakkaProd \* i;

161.

```
Prod = 1;  
for( i=1; i<=5; i++)  
    Prod = Prod * i;  
printf("-l.d", Prod);
```

S\o

Prod = 1;  
for( i=1; i<=10; i++)  
 Prod = Prod \* i;  
printf("-l.d", Prod);

↑ h + user

```
#include<stdio.h>
```

```
Void main() {
```

```
    int n, i, Prod;
```

```
    printf("Enter a no");
```

```
    scanf("./d", &n);
```

```
    Prod = 1;
```

```
    for(i=1; i<=n; i++)
```

```
        Prod = Prod * i;
```

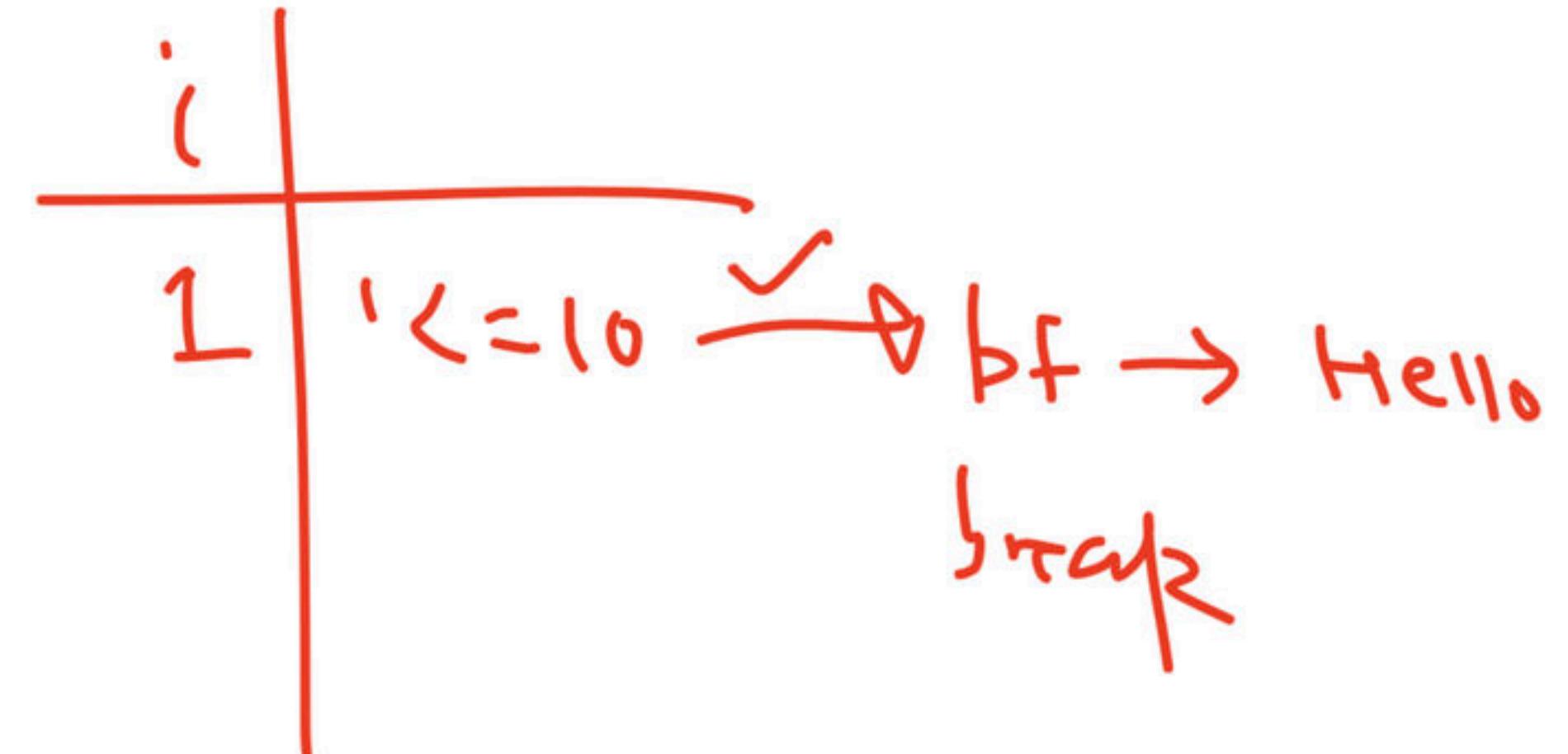
```
    printf("./d", Prod);
```

```
}
```

break

Whenever break is encountered in a loop  $\Rightarrow$  It  
terminate the loop.

```
void main() {  
    int i;  
    for(i=1; i<=10; i++)  
    {  
        printf("Hello");  
        break;  
    }  
    printf("END");  
}
```



Hello BYE

```
Void main(){
    int i;
    for( i=1; i<=10; i++ )
    {
        break;
        printf("Parkej");
    }
}
```

Previous recording →  
→ 3 recording  
(notes)

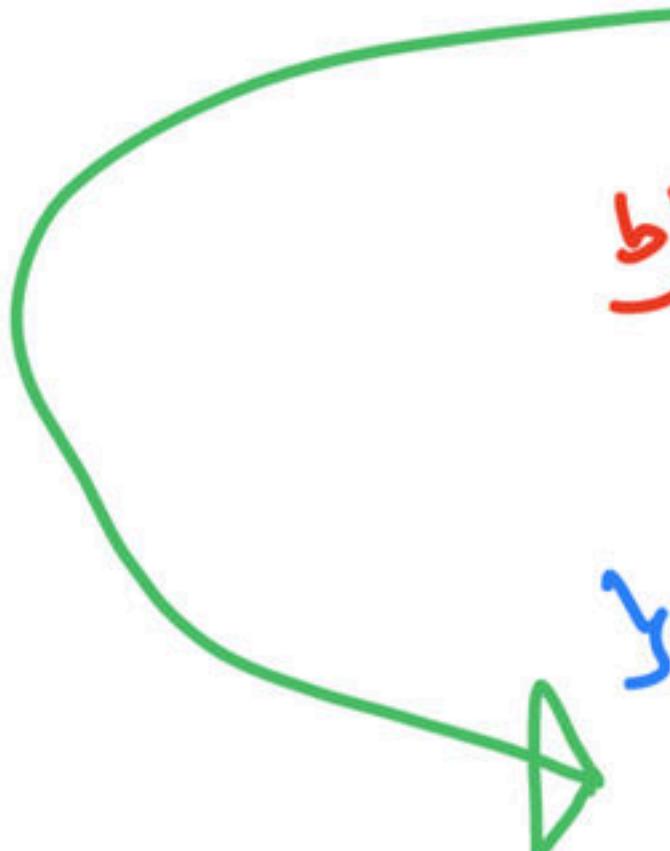
3

No o/p

Q

```

for (i=1 ; i<=10 ; i++)
{
    a) if (i%4==0)
        break();
    b) printf("%d", i);
}
  
```



G/P: 123

i	i <= 10	
1	1 <= 10 → 1%4 == 0 → false	break X
2	2 <= 10 → 2%4 == 0 → false	pf → 1
3	3 <= 10 → 3%4 == 0 → false	break X
4	4 <= 10 → 4%4 == 0 → true	pf → 2
		break X
		pf → 3
		break V

long long int Prod ;

## Continue

Whenever continue is encountered

Continue kya karta

⇒

skip the remaining portion of current iteration and CONTINUE with next iteration

```
for (i=1; i<=10; i++)  
{  
    printf("./d", i);  
}
```

```
for (i=1; i<=10; i++)  
{  
    continue;  
    printf("./d", i);  
}
```



```
printf("./d", i);
```

X

```

for(i=1; i<=10; i++)
{
    if(i%4 == 0)
        continue;
    printf("%d", i);
}

```

O/P: 123567910

i	
1	$1 \leq 10 \rightarrow 1 \% 4 == 0 \rightarrow \text{False}$ Cont X Pf → 1
2	$2 \leq 10 \rightarrow 2 \% 4 == 0 \rightarrow \text{cont X}$ Pf → 2
3	$3 \leq 10 \rightarrow 3 \% 4 == 0 \rightarrow \text{cont X}$ Pf → 3
4	$4 \leq 10 \rightarrow 4 \% 4 == 0 \rightarrow \text{True}$ Cont ✓ Pf X
5	$5 \leq 10 \rightarrow 5 \% 4 == 0 \rightarrow \text{cont X}$ Pf ✓

```
for (i=1; i<=4; i++)
```

{

```
    for (j=1; j<=4; j++)
```

{

```
        if ((i+j) % 3 == 0)
```

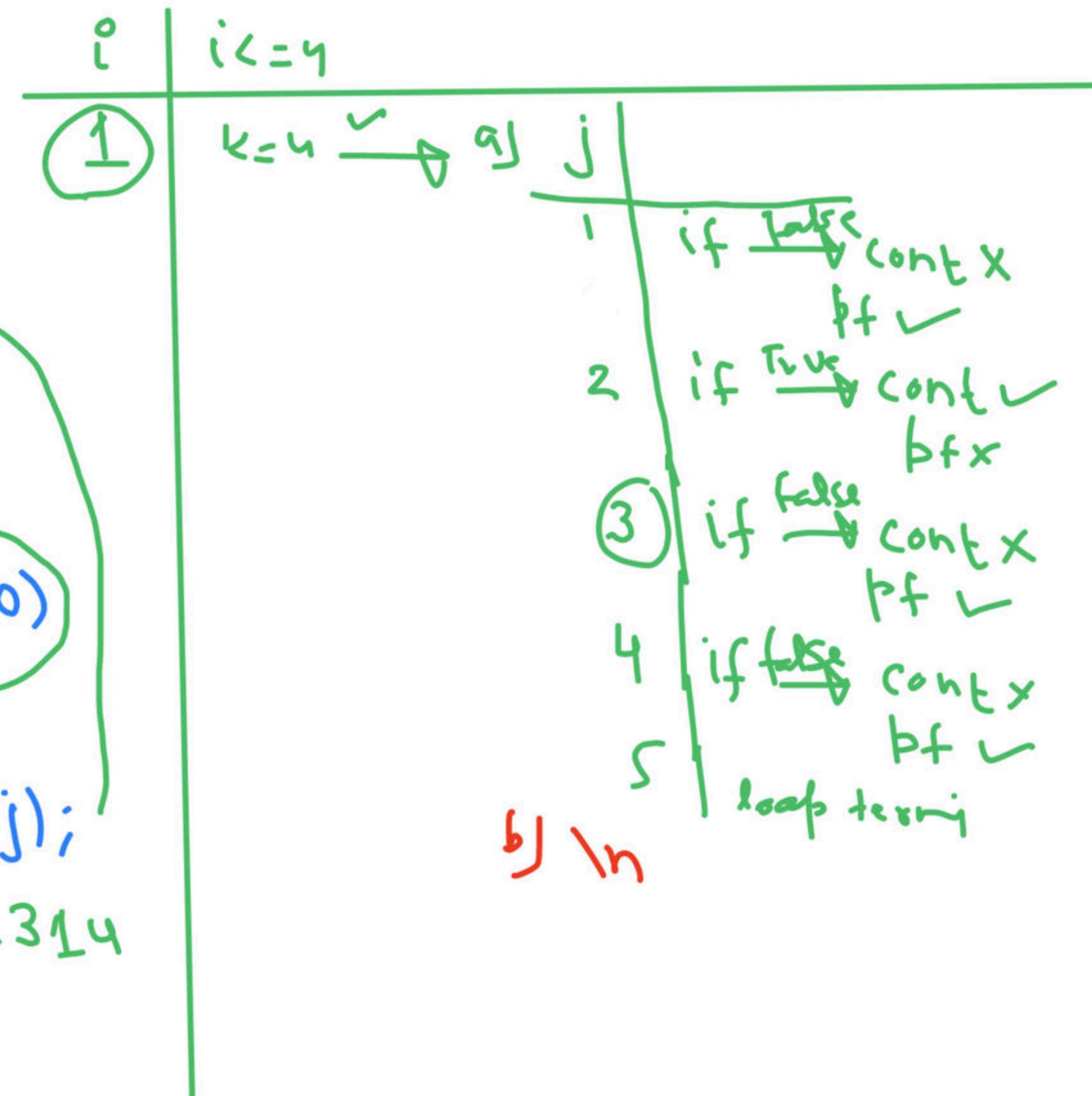
continue;

```
        printf("%d-%d", i, j);
```

}

111314  
-

code



**code**

```

for (i=1; i<=4; i++)
{
    for (j=1; j<=4; j++)
    {
        if ((i+j) % 3 == 0)
            continue;
        printf("%d.%d", i, j);
    }
    printf("\n");
}

```

0	i <= 4		
1	2 <= 4 → aj	j	
2		1	cont ✓ pf ✗
3		2	cont ✗ pf ✓
4		3	cont ✗ pf ✓
5		4	cont ✓ pf ✗

5 \n ✓

j = 1, 2, 3, 4  
i = 4 → j = 1, 2, 3, 4

1 1 1 3 1 4  
. 2 2 2 3  
3 1 3 2 3 4  
4 1 4 2 4 4

```
for(i= 1; i<=4; i++)  
{  
    for(j= 1; j<=4; j++)  
    {  
        if((i+j)%3 == 0)  
            break;  
        printf("%d.%d", i, j);  
    }  
    printf("\n");  
}
```

Continue

- 1.
- 2.
- 3.
- 4.
- 5.
- ..
- (5.)

break  
1  
2  
3  
4  
5  
..  
65

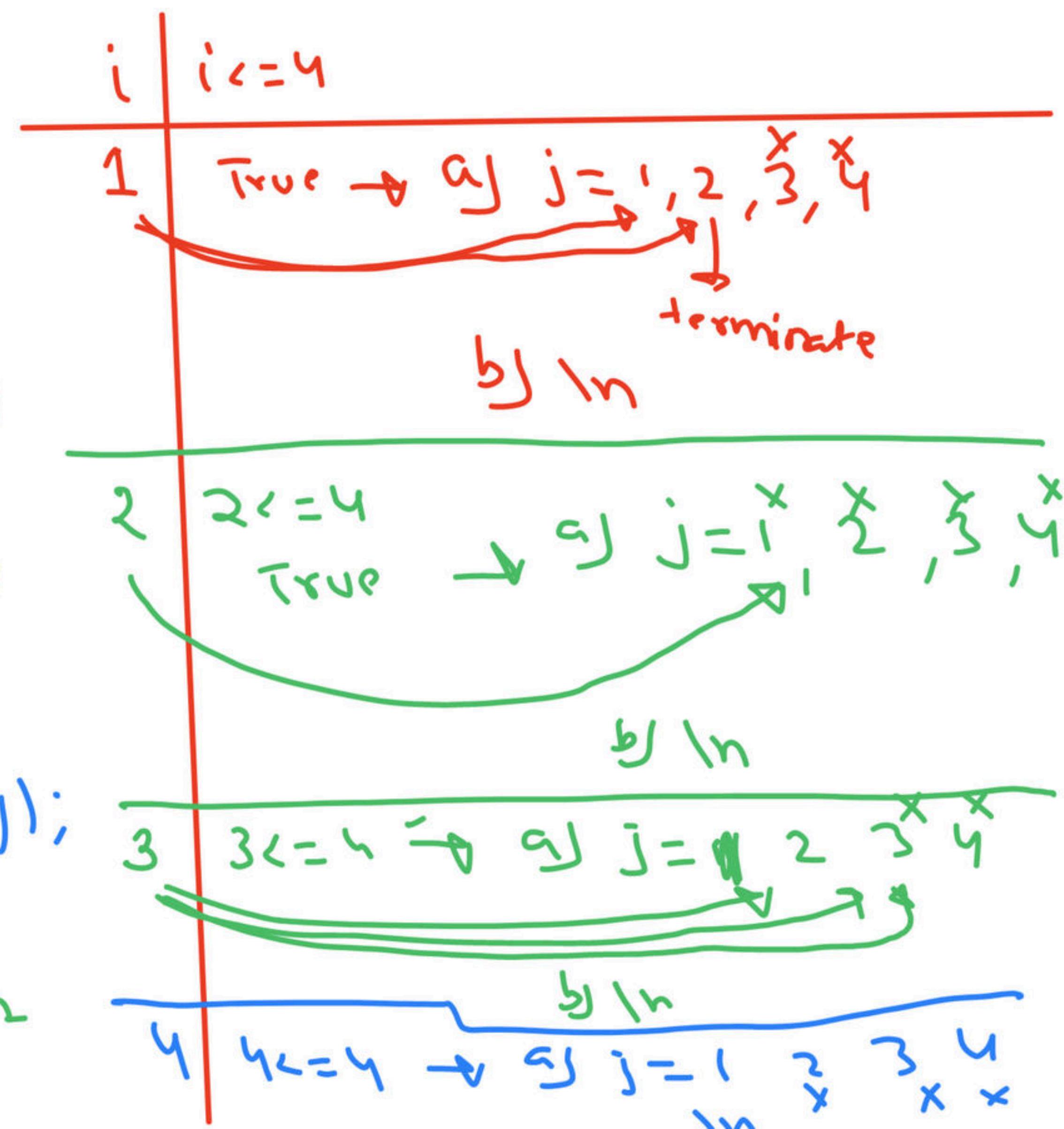
Current loop se  
Bahar le jata hai

```

for( i= 1 ; i<=4 ; i++)
{
    for( j= 1 ; j<=4 ; j++)
    {
        if ((i+j) % 3 == 0)
            break;
        printf("%d.%d", i, j);
        printf("\n");
    }
}

```

11  
3132  
51



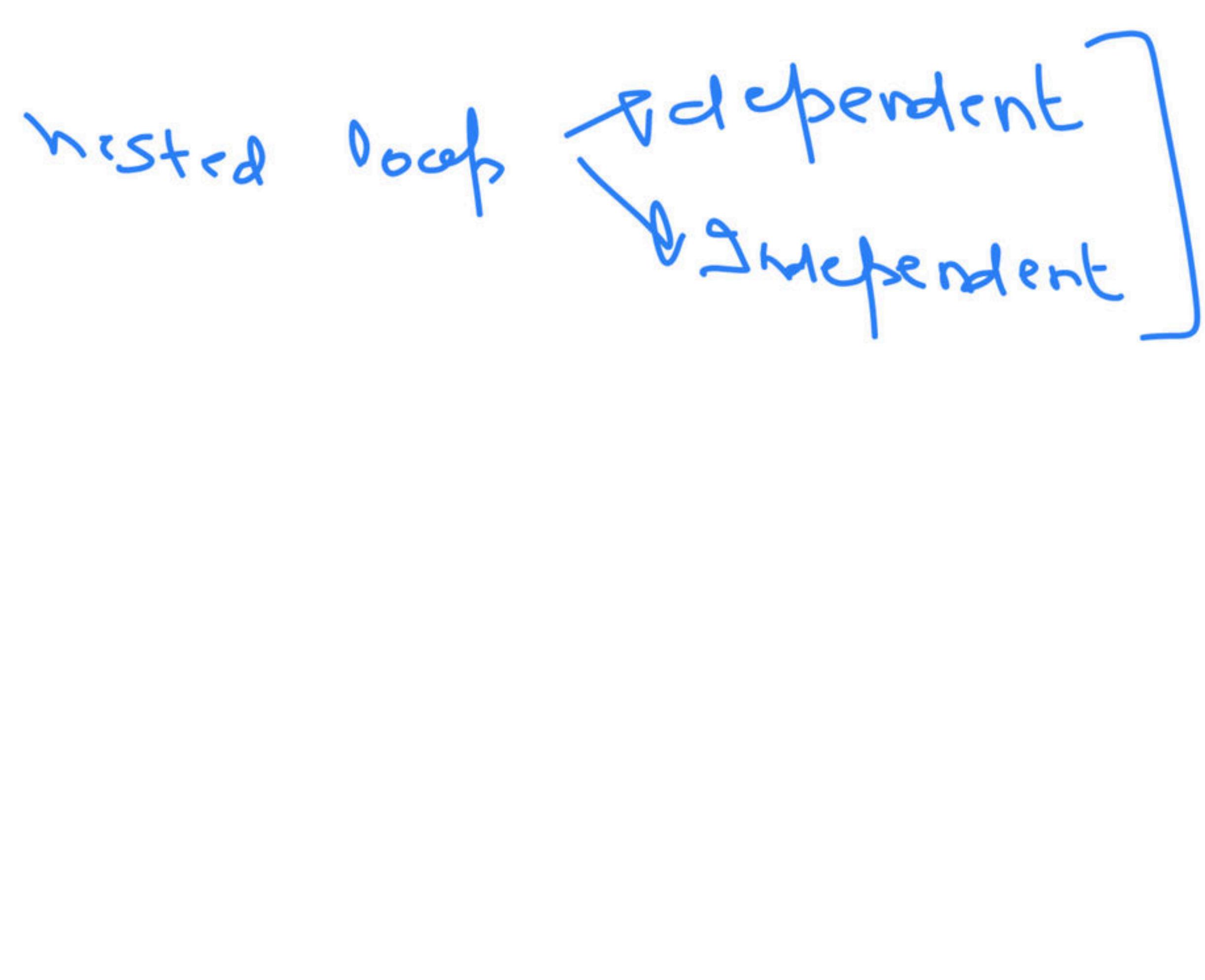
for

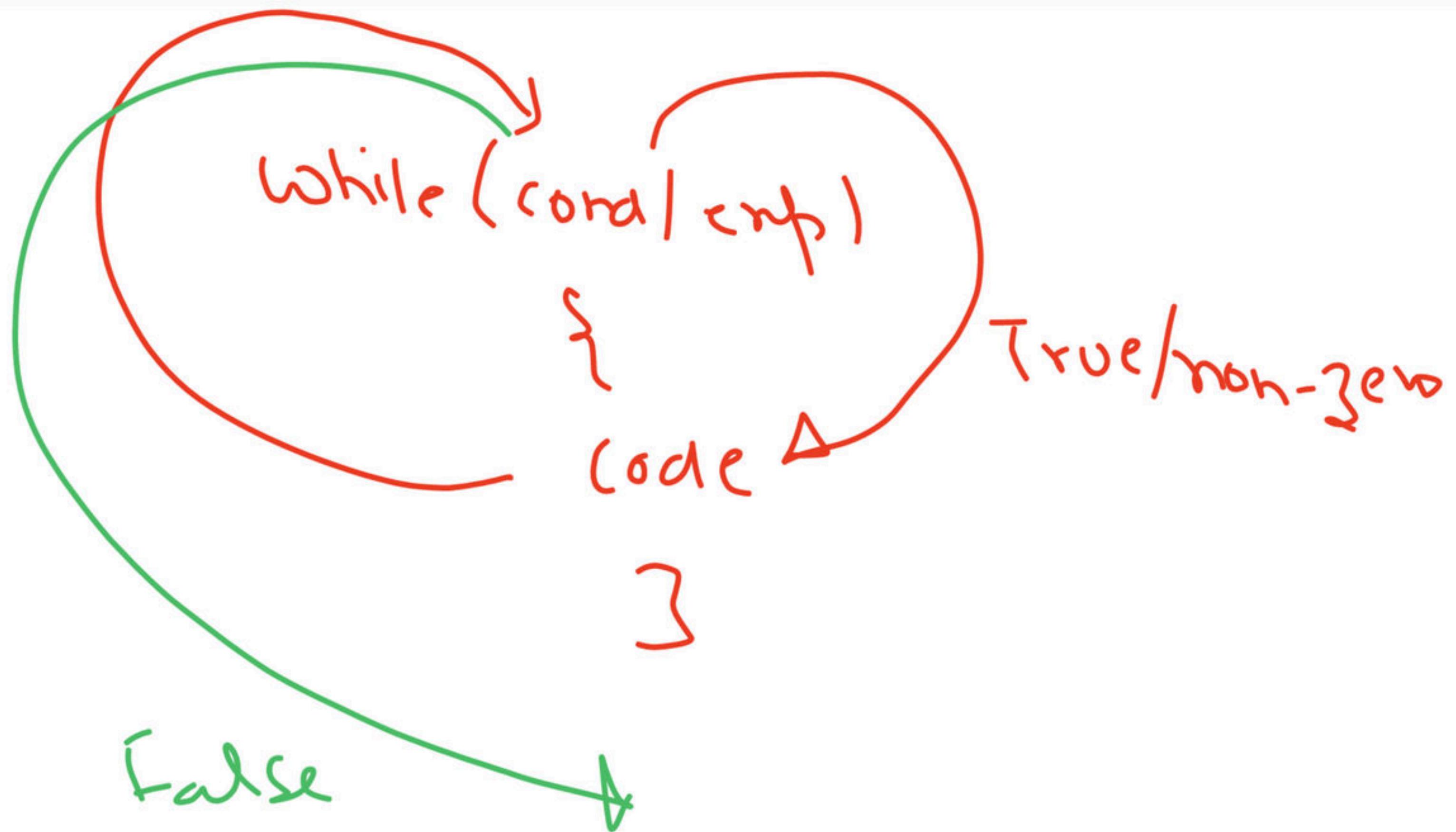
while

do while

continue

break

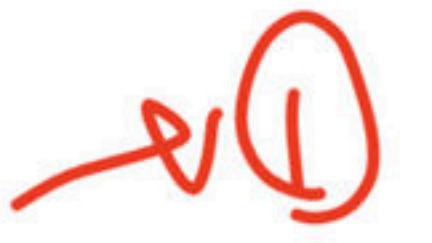




```
int i=1;  
while(i> 5)  
{  
    pf("-1.d",i);  
    i = i+1;  
}  
+2345
```

```
int i=1 ;  
do {  
    pf("-1.d", i);  
    i = i+1;  
} while(i> 5);
```

1

Switch  optional

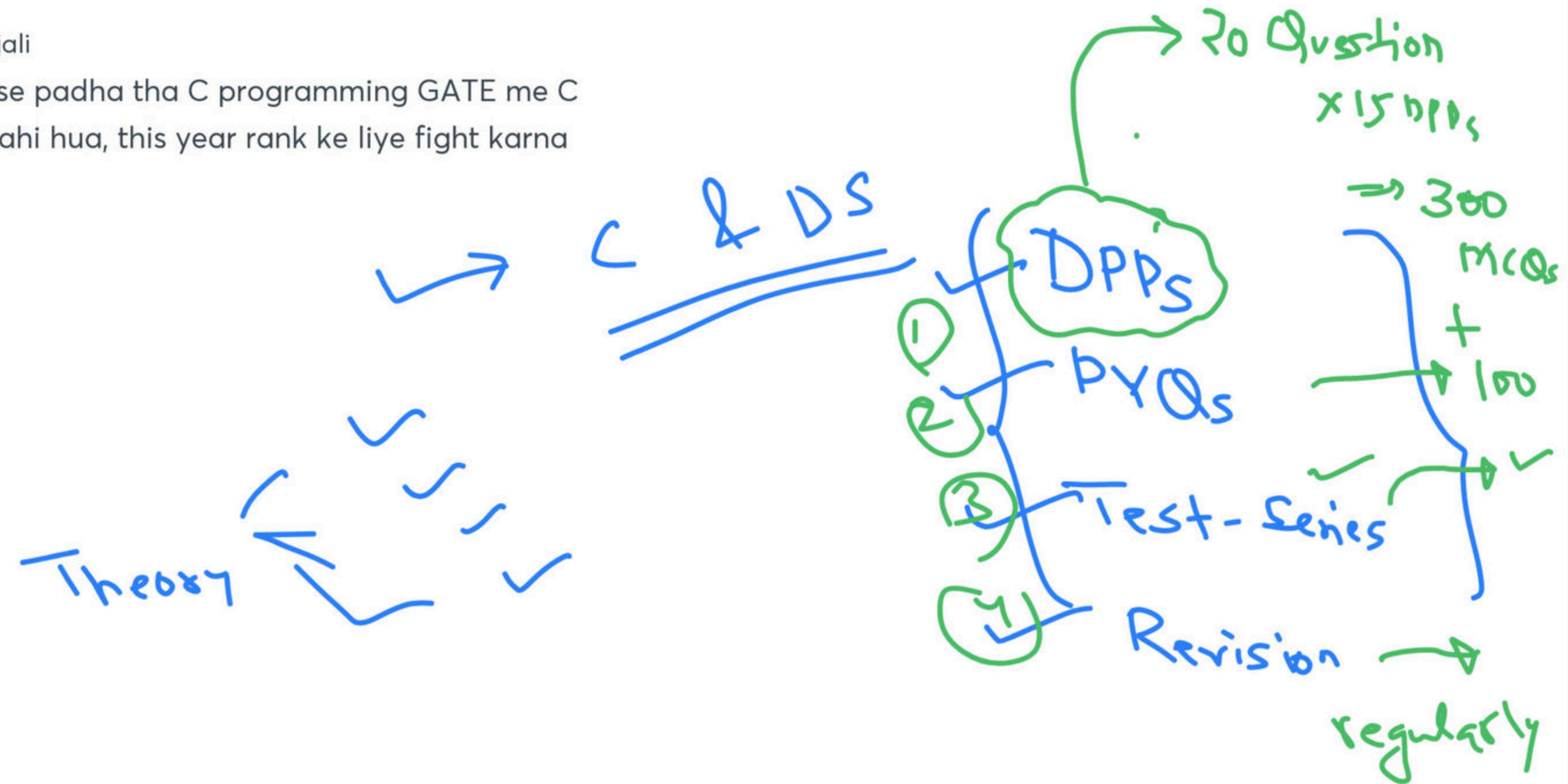
---

↓

next topic →

▲ 3 • Asked by Anjali

sir last time aap se padha tha C programming GATE me C ka ek bhi galat nahi hua, this year rank ke liye fight karna hai





**THANK YOU!**