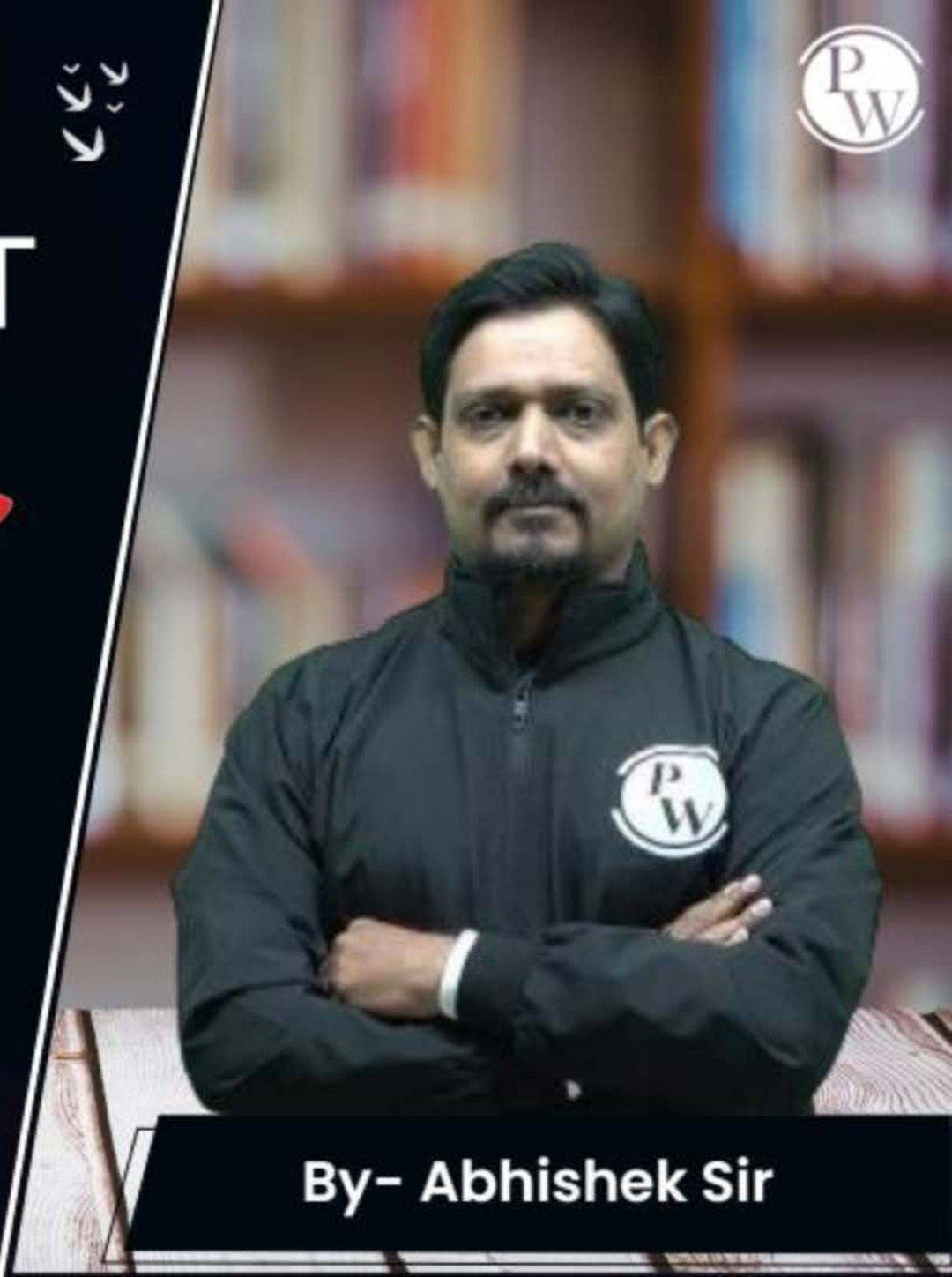
Computer Science & IT

C programming

Control Flow Statement

Lecture No. 04



By- Abhishek Sir

Recap of Previous Lecture

- Topic
- Topic
- Topic
- Topic
- Topic

while Loop

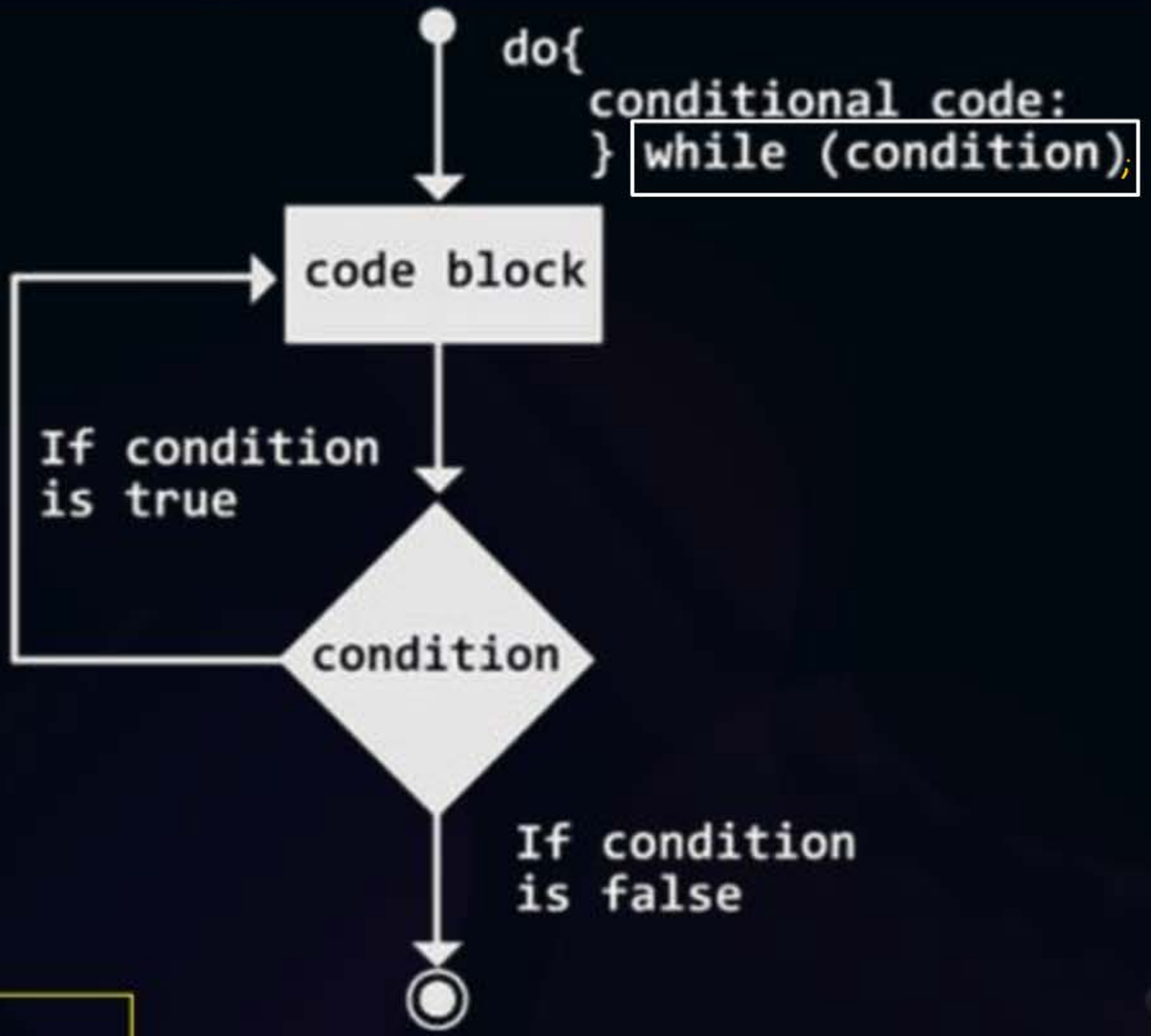
Slide

Topics to be Covered

- Topic — do while Loop
- Topic — break
- Topic — Continue
- Topic
- Topic

Slide

Do-while loop



1. exit control loop
2. At least one time the block will be executed.
3. do-while loop entry controlled loop
   if condition is true the block will execute.

Slide

```
int i;
for (i=3, i<=11; i+=2)
    printf ("Name");
```

$$\left\lceil \frac{UB - LB + 1}{K} \right\rceil$$

$$\left\lceil \frac{11 - 3 + 1}{2} \right\rceil$$

$$= \left\lceil \frac{9}{2} \right\rceil = 5$$

```
int i = 3;
while (i<=11) {
    printf ("Name");
    i+=2;
}
```

3 <= 11 - Name
5 <= 11 - Name
7 <= 11 - Name
9 <= 11 - Name
11 <= 11 - Name
13 <= 11

```
int i = 3;
do {
    printf ("Name");
    i+=2;
} while (i<=11);
```

Name 5<=11
Name 7<=11
Name 9<=11
Name 11<=11
Name 13<=11 exit

```
int i;
for (i=12 i<=11; i+=2)
    printf ("Name");
```

12<=11

false

0 times

```
int i =12;
while (i<=11) {
  printf ("Name");
  i+=2;
}
```

12<=11

0 time

```
int i =12;
do {
    printf ("Name");
    i+=2;
} while ( i<=11);
```

Name :

13<=11

Question

Consider the following program

```
##include<stdio.h>
int main(){
    int i=3;
    do {
        ++i;
    }while(i++<=9);
    printf("%d",i);
    return 0;
}
```

Output of the program is

++i i++<=9

i=4, 4<=9, 5

i=6 6<=9 7

i=8 8<=9 9

i=10 10<=9 11

A 9

B 10

C 11

D 12

Slide

Question

Consider the following program

```
#include <stdio.h>
int main() {
      int i=2+4%6*2+9/10;
      int count =0;
      do{
            count = count+i;
            i++;

      } while (i<20);
      printf("%d", count);
      return 0 ;
      }
```

Output of the program is

2+8+0=10

(A) 142

(B) 145

(C) 45

(D) 245

count=10 =11 11<20

10+11 12 12<20

19<20

10+11+12+13+14+1 .. 19

5[20+9×1]

5×29=145

Slide

Question

```
#include <stdio.h>
int main() {
    int i,j=10, k=10;
        for(i=10;i<=200; i++){
            printf("\nLine 1");
        }
        do{
            printf("\nline 2");
            j = j+2;
        }while(j<=200);

        while(k<=200){
            printf("\nline 3");
            k = k+3;    }
        return 0 ;
```

$200-10+1 = 191$

$\lceil \frac{200-10+1}{2} \rceil : \lceil \frac{191}{2} \rceil : 96$

$\lceil \frac{191}{3} \rceil : 64$

The number of times line 1 printed is x , number of time line 2 printed is y and number of times line 3 printed is z then which of the following is TRUE ?

(A)x=y=z

(B)x>y>z $x>y>z$

(C)x<y<z

(D)x=y<z

Slide

Question

```
#include <stdio.h>
int main() {
    int i,j=10,count =0;
   for(i =1; i<=3; i++){
        do{
            printf("I am good Student");
            j = j+10;
            count++;
        }while(j<=200);
   }

    return 0 ;
}
```

The number of times printf executed is _____

j is Not reinitializing

$i=1 \quad \lceil \frac{200-10+1}{10} \rceil = \lceil \frac{191}{10} \rceil = 20$

$j = 210$

$i=2$ 1 time $j=220$

$i=3$ 1 time $j=230$

22

Slide

Question

Consider the following program segment

```
#include<stdio.h>
int main(){
        int x, i, j;
        x = 20;
        for (i = 0;i<20; i++){
            j = i+1;
            do{
                x+=4;
                j++;

            }while(j<18);
        }
     printf("%d",x) ;
}
```

The value of x after executing the segment

(A) 600 (B) 644 (C) 342 (D) 380

X=20 J=i+1

i=0	1 — 17
i=1	2 — 16
i=2	3 — 15
i=3	4 — 14
i=4	5
⋮	
i=16	17 — 1
i=17	18 — 4
i=18	19 — 4
i=19	20 — 4

X=0

$\frac{17\times18}{2} = 153$

153 X 4

612

20

632

12

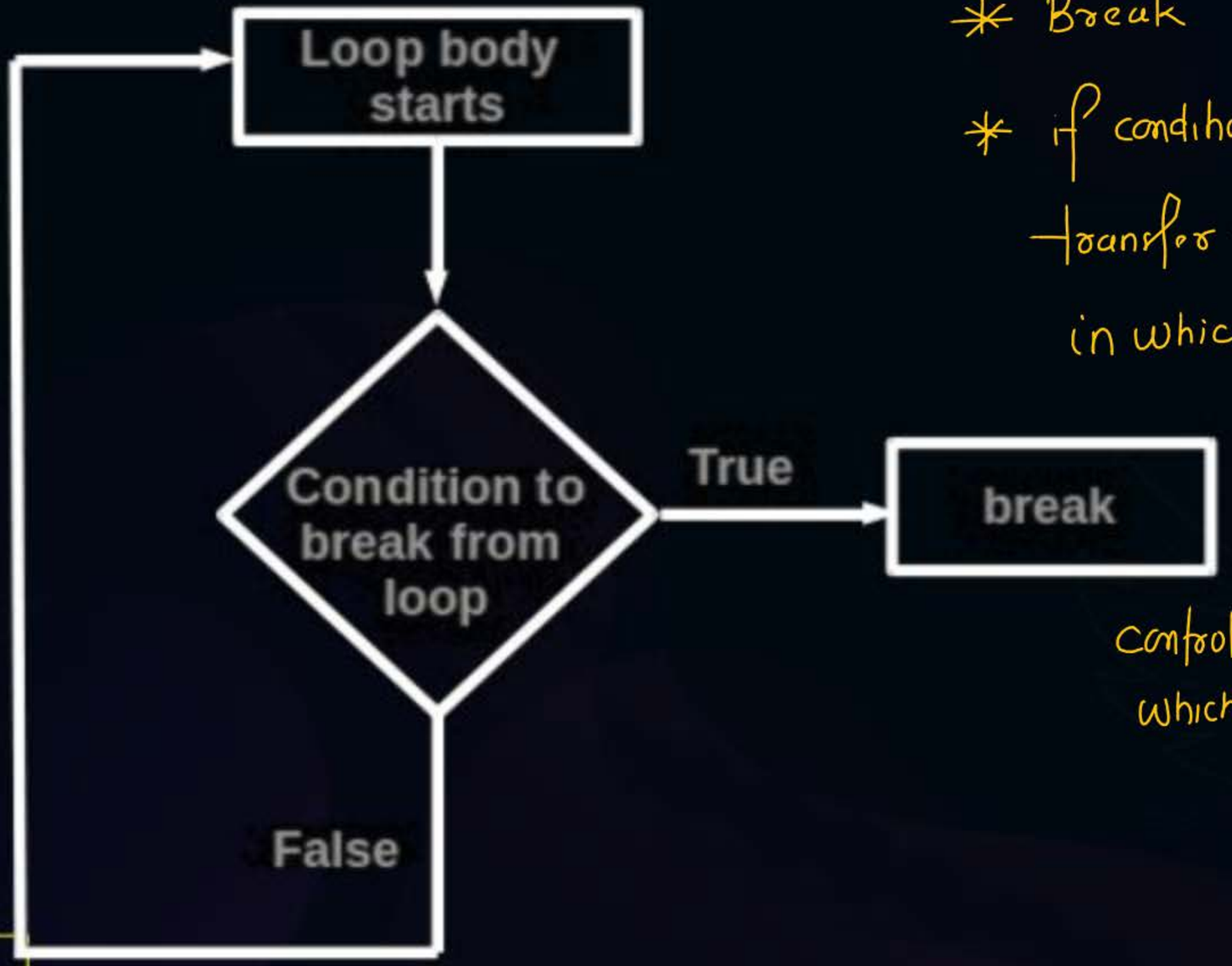
644

Slide

break, continue, goto

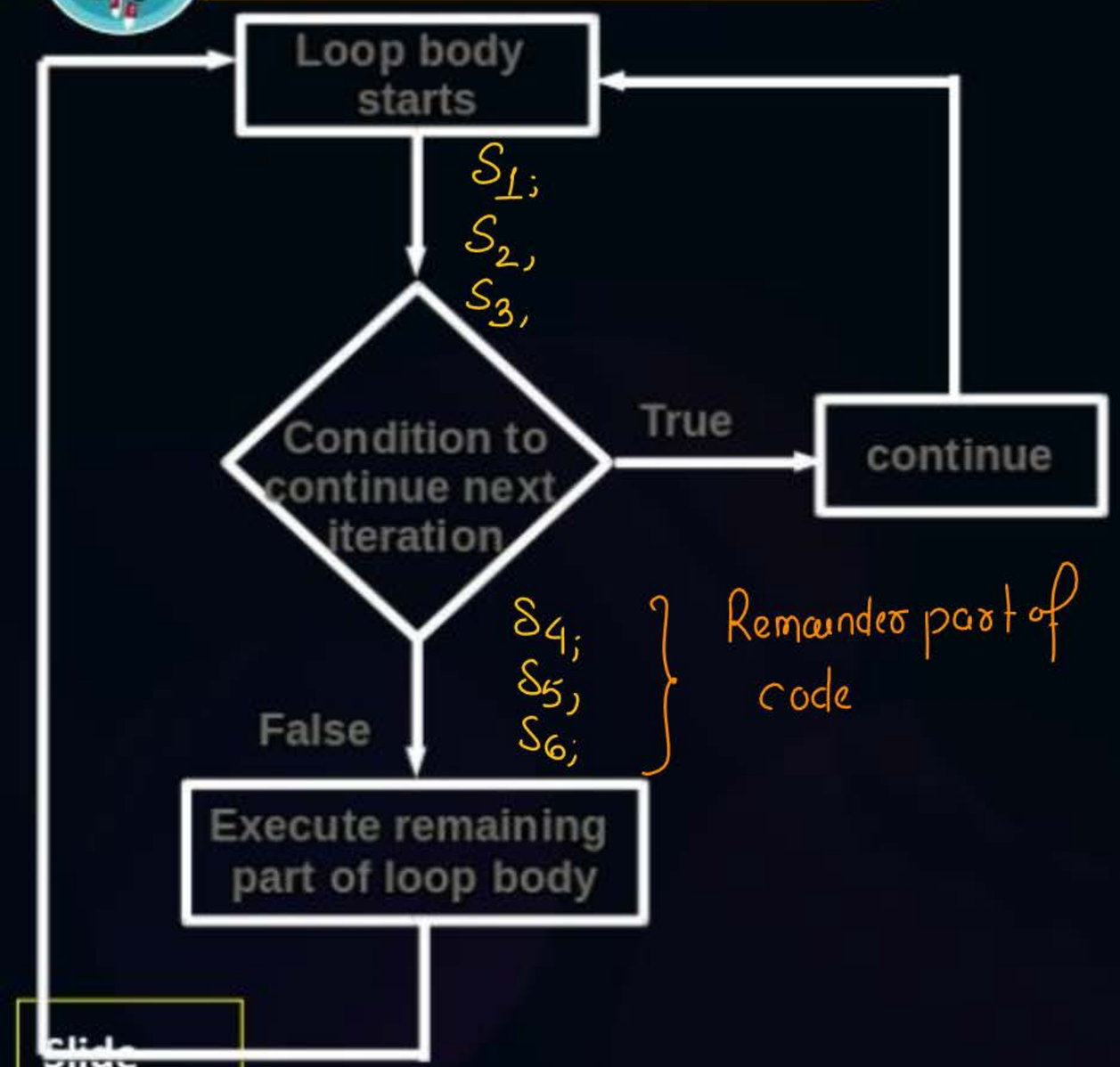
is jump statement

Break



* Break used with Loops and switch
* if condition is TRUE then control transfer to outside block of switch/Loop in whic break is used.
* if multiple blocks are present then break causes control transfer for the block in which its used.

Continue



* if condition is true then continue causes SKIP remainder part of loop and check the condition before executing the block.
* continue does not end the loop

Question: Continue

#Q.

```
#include<stdio.h>
void main () {
for (int i = 1; i <= 10; i++) {
      if (i > 5) {
            break;
       }
       printf("%d\n", i);
       }
}
```

i=1 1>5
i=2 2>5
i=3 3>5
i=4 4>5
i=5 5>5
i=6 6>5 true break

Number of times print statement executed is

A 4

b.5 ✓

C.7

d. 11

Slide

Question

#Q.

```
#include <stdio.h>
int main() {
    int i=2+4%6*2+9/10;
    while (i<20){
        printf("I am good student");
        i++;
        if(i%2) continue;

    }
    return 0 ;
    }
```

10 - 19 → 19 - 10 + 1 = 10

10

↑ continue
Skip remainder part

The number of times printf statement executed is

A 4

b.5

C.10

d. 11

Slide

Question: Continue

#Q.
```
#include <stdio.h>
int main() {
    int i,j;
    int count=0;
    for(i =1;i<=3;i++){
        for(j=1;j<=20;j++){
            printf("I am a good student");
           if(i==2) break;
     }

    }
     return 0 ;
}
```

The number of times printf will be executed is _____.

i=1 ⇒ j=1–20 – 20 times

i=2 ⇒ j=1 — 1 time

i=3 ⇒ j=1–20 – 20 times

41

Slide

Question

$2(19+18+17+16+15)$

$2 \times \frac{5}{2}[30+4\times1]$

$5 \times 34 = \boxed{170}$

```
#include <stdio.h>
int main(){

      for (int i=1;i<=10;i++)
         for(int j = 1; j<=20;j++){
              printf("I am a good student");
              if(j>i) continue;
              j++;

         }
    return 0;
}
```

The number of times printf statement executed is _____

i=1 1>1, 3>1 .. 20>1 — 19

i=2 1>2, 3>2 .. 20>2 — 19

i=3 1>3, 3>3, 5>3 .. 20>3 — 18

i=4 1>4 3>4 5>4 20>4 — 18

i=5 1>5, 3>5, 5>5, 7>5 .. 20>5 — 17

i=6 1>6 3>6 6>6 7>6 .. 20>6 — 17

i=7

i=8

i=9

i=10

Slide

2 mins Summary

Topic do while

Topic break

Topic continue

Topic

Topic

Slide

funchon

1500 free

Rankar's Club –

THANK - YOU