

Recursion

$$N=3$$

$$6$$

$$1+2+3 = 6$$

(1) sum of first N numbers
parameter
functional



TUF

◀ ▶ 🔍 1:57 / 18:13 • Problem Description >



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Intro

0:00



Problem Description

1:04



Parameterised Way

2:00



Functional Recursion

7:13



Code

13:06

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2

parameterised

```

j(3, 0)
{
    if(i < 1) x
    print(sum)
    return;
}
j(i-1, sum + i)
}
main()
{
    n ← 3
}
j(n, 0)

```

Output



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Intro

0:00



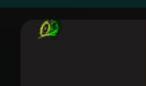
Problem Description

1:04



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2:00



Functional Recursion

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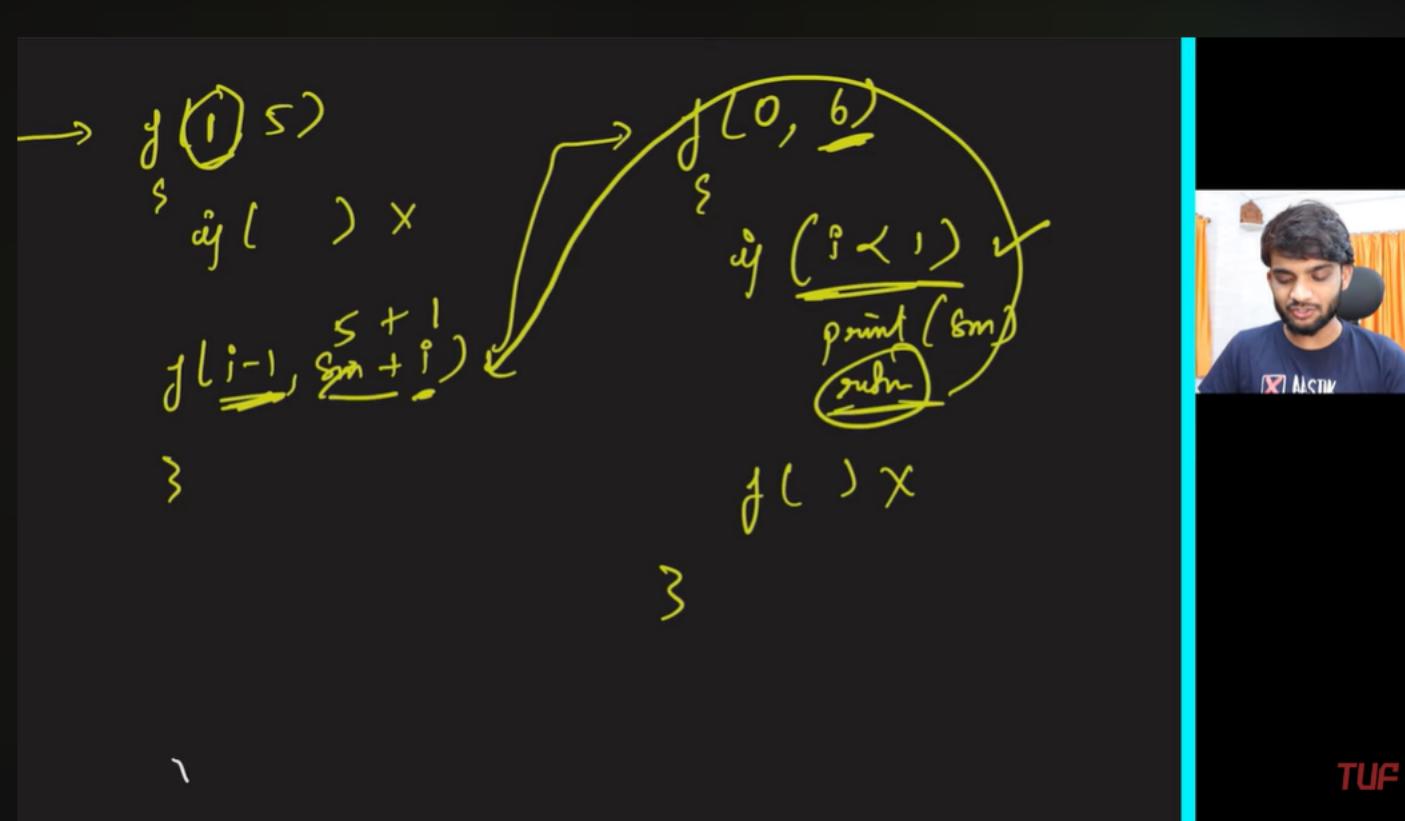


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Chapter	Duration	Actions
PARAMETERISED AND FUNCTIONAL RECURSION LECTURE 2	0:00	
Problem Description	1:04	
Parameterised Way	2:00	🔗 ↻
Functional Recursion	7:13	
Code	13:06	

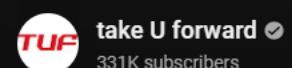
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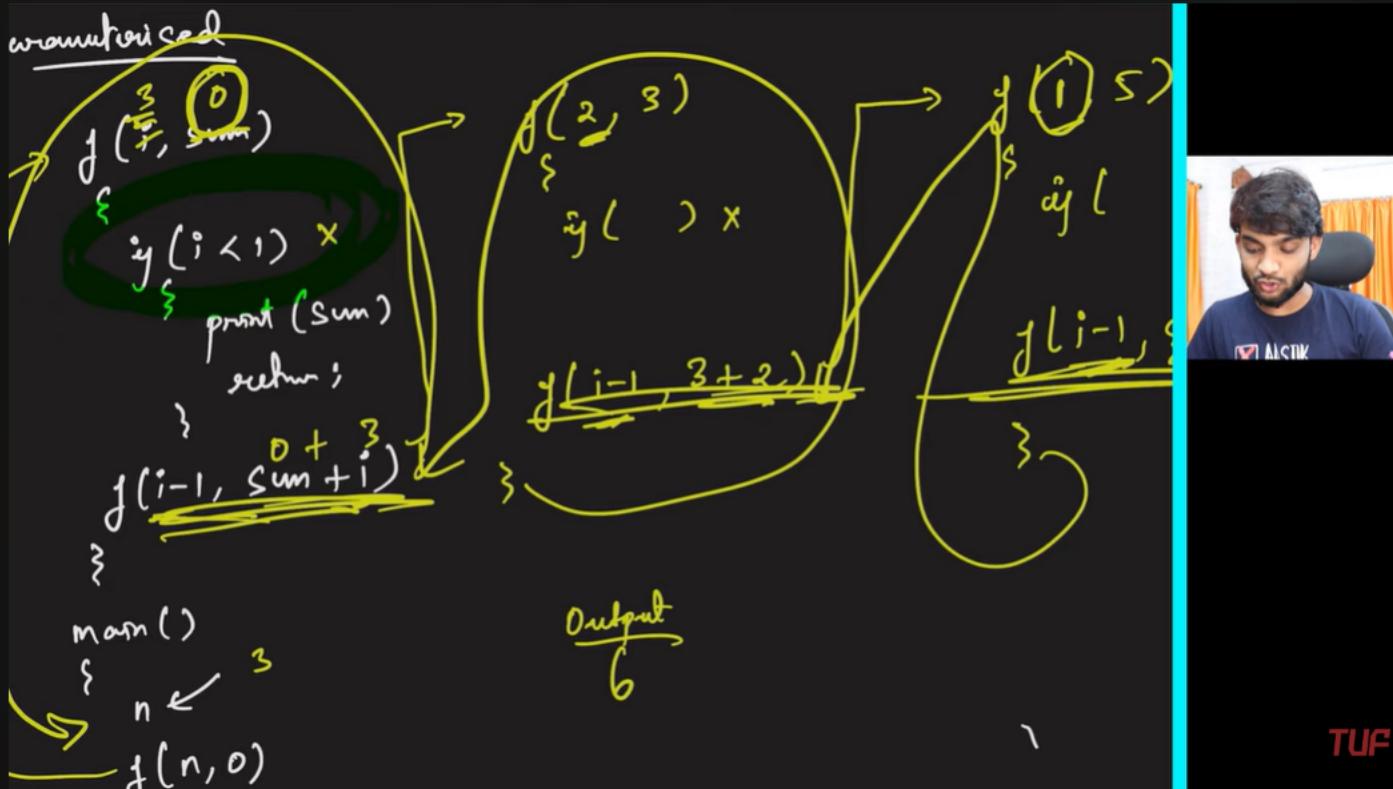
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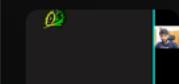
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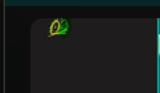
- Intro
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- Functional Recursion
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- Code
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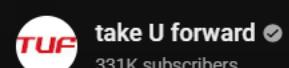
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functional

$$\begin{aligned} n &= 3 \\ f(3) &\rightarrow \text{Sum of first } N \text{ nos} \\ f(3) &\rightarrow 3 + f(2) \\ f(2) &\rightarrow 2 + f(1) \\ f(1) &\rightarrow 1 + f(0) \end{aligned}$$



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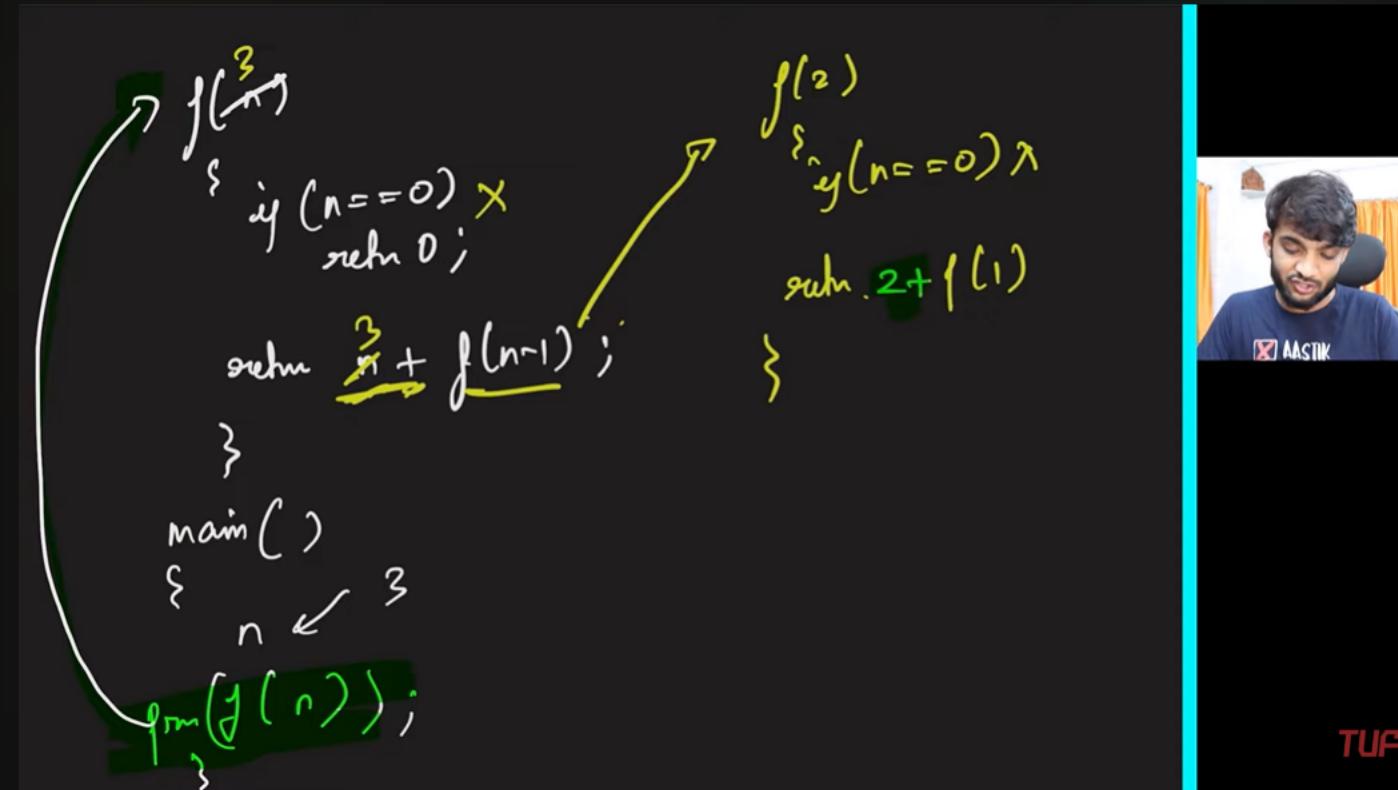


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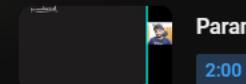
Intro

0:00



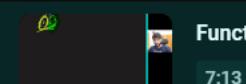
Problem Description

1:04



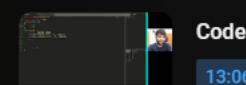
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2:00



Functional Recursion

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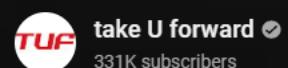


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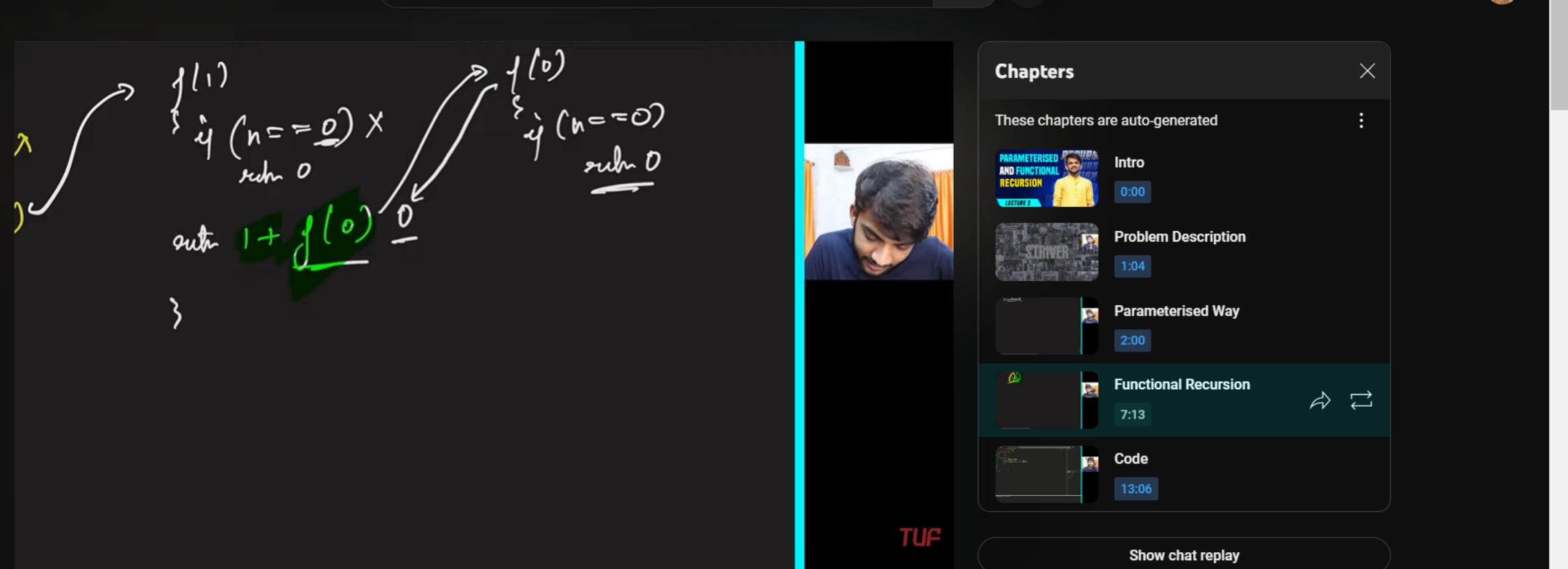


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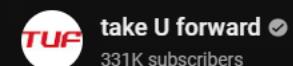
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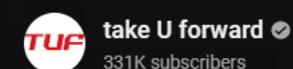
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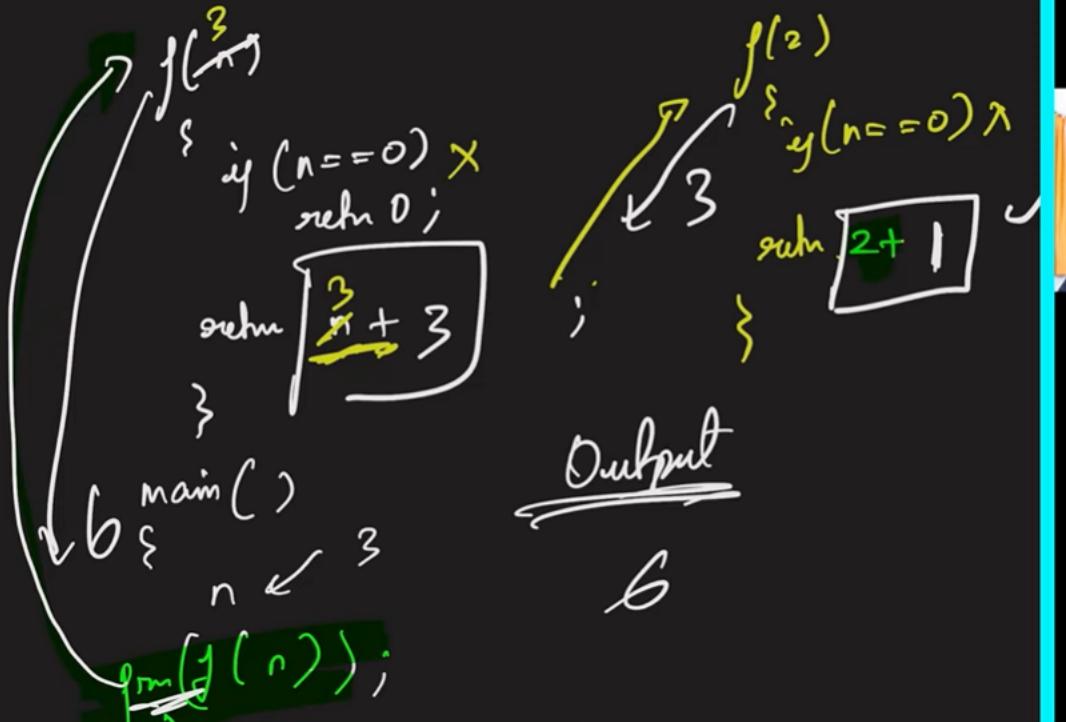
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Intro

0:00



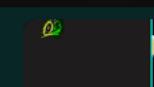
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Parameterised Way

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Functional Recursion

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```
1 #include<bits/stdc++.h>
2 using namespace std;
3 int sum(int n)
4 {
5     if( n == 0) return 0;
6     return n + sum(n-1);
7 }
8 int main() {
9 #ifndef ONLINE_JUDGE
10     freopen("input.txt", "r", stdin);
11     freopen("output.txt", "w", stdout);
12 #endif
13     int n = 3;
14     cout << sum(n);
15
16
17     return 0;
18 }
```

[Finished in 1.3s]

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- PARAMETERISED AND FUNCTIONAL RECURSION**
LECTURE 3
Intro
0:00
- Problem Description**
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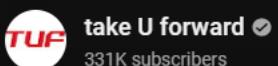
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Task

factorial of N

$N=3 \rightarrow 6$

$(1 \times 2 \times 3)$

$N=4 \rightarrow 24$

$1 \times 2 \times 3 \times 4$

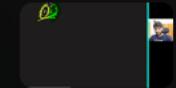


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A screenshot of a video player interface. On the left, there is a code editor window titled "code.cpp" containing C++ code for calculating factorial using recursion. The code includes handling for an online judge environment. Below the code editor is a message "[Finished in 0.8s]". At the bottom of the video player are standard playback controls (rewind, play/pause, forward) and a progress bar indicating the video is at 15:07 of 18:13. To the right of the video player is a "Chapters" panel.

```
#include<bits/stdc++.h>
using namespace std;
int fact(int n)
{
    if( n == 0) return 1;
    return n * fact(n-1);
}
int main()
{
#ifndef ONLINE_JUDGE
    freopen("input.txt", "r", stdin);
    freopen("output.txt", "w", stdout);
#endif
    int n = 3;
    cout << fact(n);
    return 0;
}
```

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PARAMETERISED AND FUNCTIONAL RECURSION LECTURE 3	Intro 0:00
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Parameterised Way 2:00	
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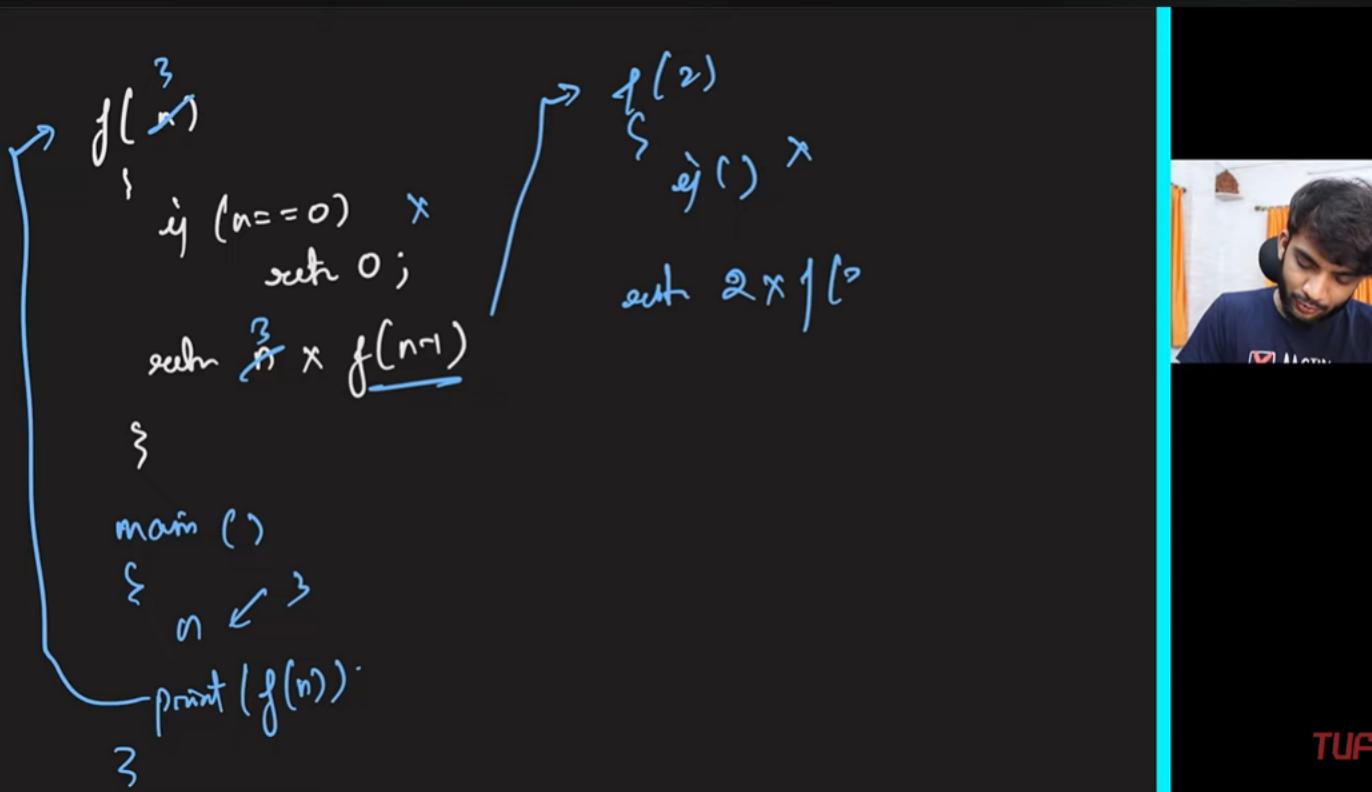
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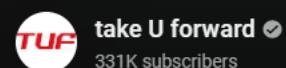
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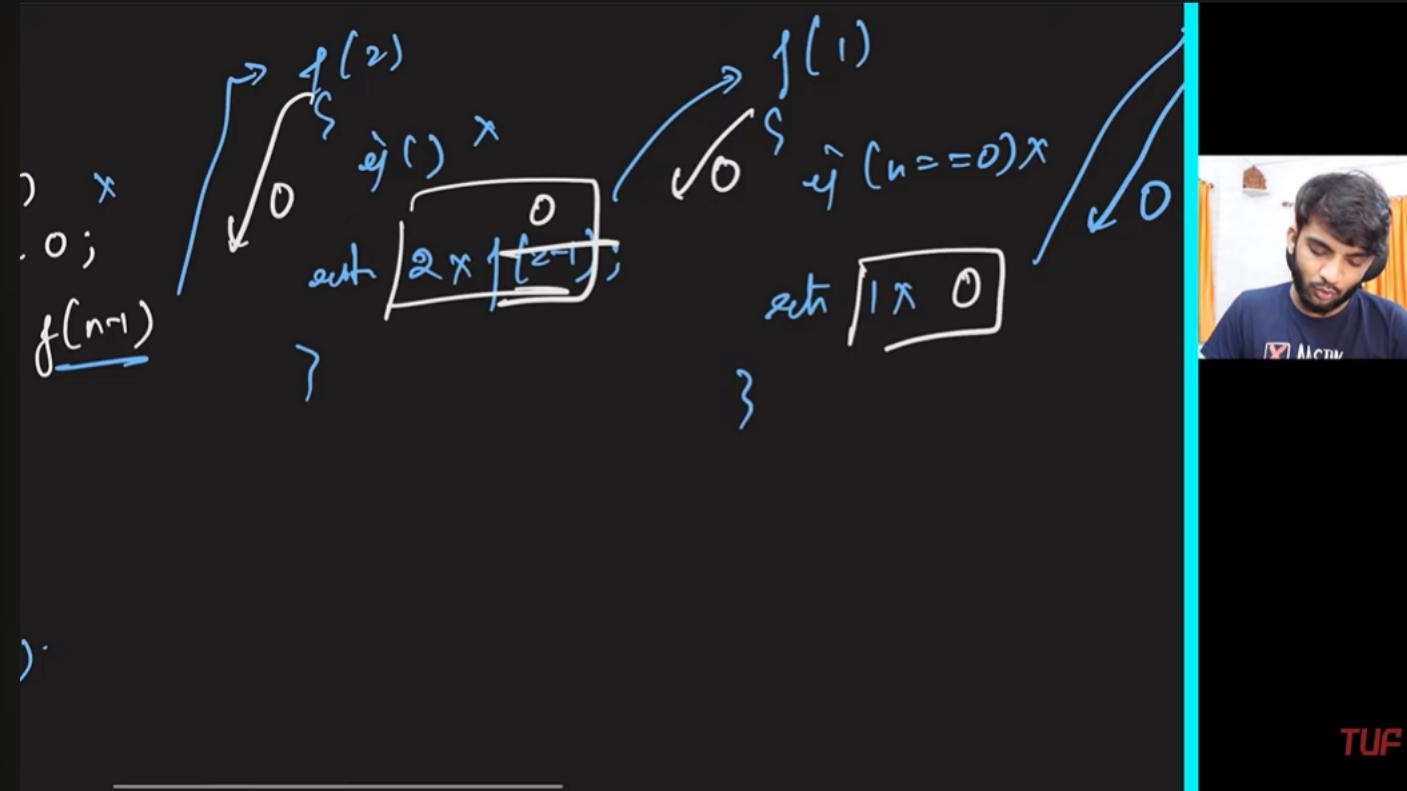


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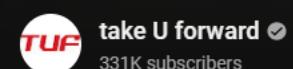
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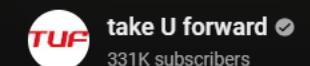
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```
code.cpp stdc++.h
1 #include<bits/stdc++.h>
2 using namespace std;
3 int fact(int n)
4 {
5     if( n == 0) return 1;
6     return n * fact(n-1);
7 }
8 int main() {
9     #ifndef ONLINE_JUDGE
10    freopen("input.txt", "r", stdin);
11    freopen("output.txt", "w", stdout);
12    #endif
13    int n = 3;
14    cout << fact(n);
15    return 0;
16 }
```

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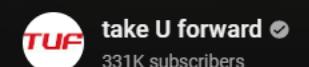


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```
#include<bits/stdc++.h>
using namespace std;
int fact(int n)
{
    if( n == 1) return 1;
    return n * fact(n-1);
}
int main() {
#ifndef ONLINE_JUDGE
freopen("input.txt", "r", stdin);
freopen("output.txt", "w", stdout);
#endif
int n = 3;
cout << fact(n);
return 0;
}
```

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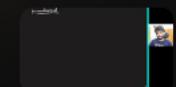
Intro

0:00



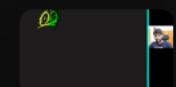
Problem Description

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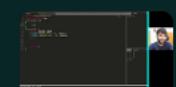
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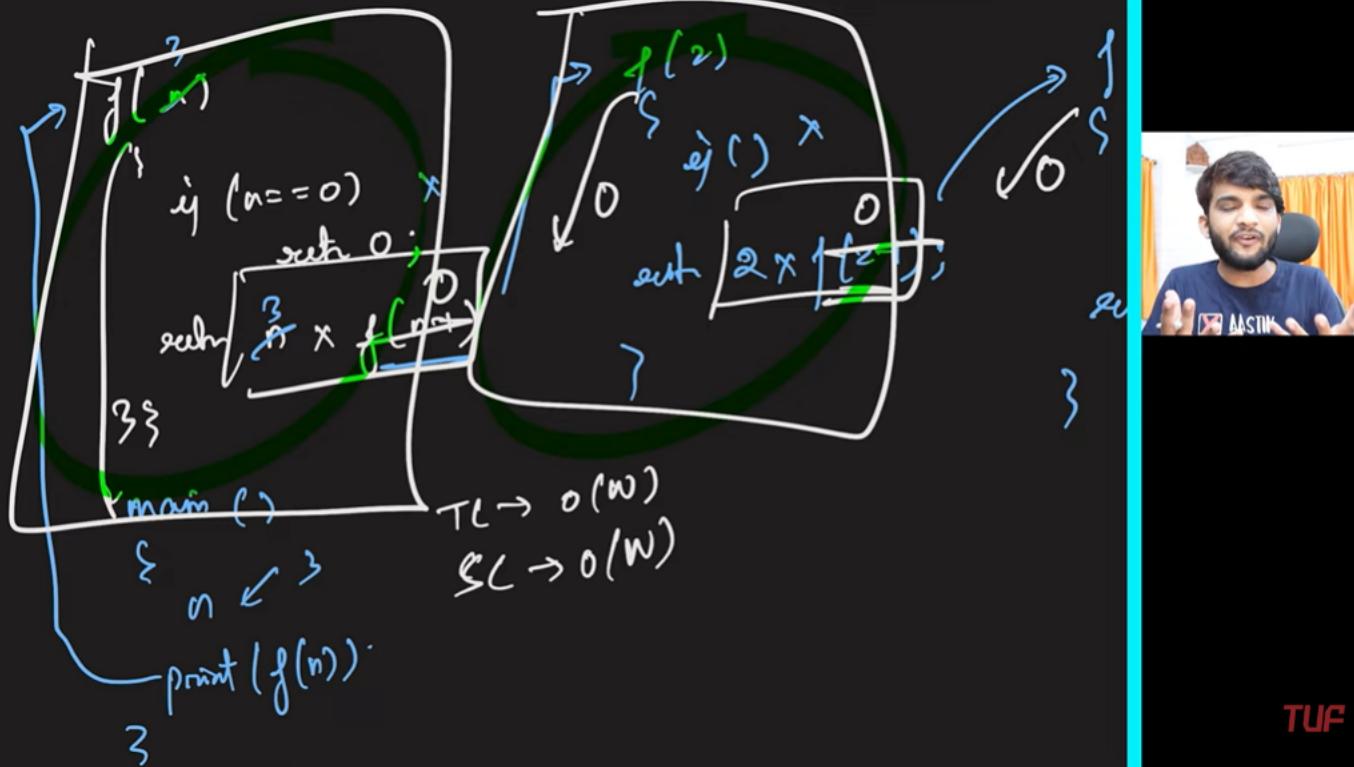


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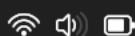
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