Recursion Concepts & Qns

Video 5

"मैं, DSA की शपथ लेता हूँ कि मैं जो पढ़ाउगा बहोत अच्छे से पढ़ाउगा।"

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Motivation (भाषण)

- Believe in yourself, because you are capable of achieving greatness beyond your imagination.

- Mistakes are proof that you are trying. Learn from them, grow, and never be afraid take new challenges.

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"

Tail Recursion

Tail Call Optimisation

Examples ...

"

(Important for college interviews)

Tail Recursion :-

⇒ Form of recursion, where the recursive call is the last operation performed in the function.

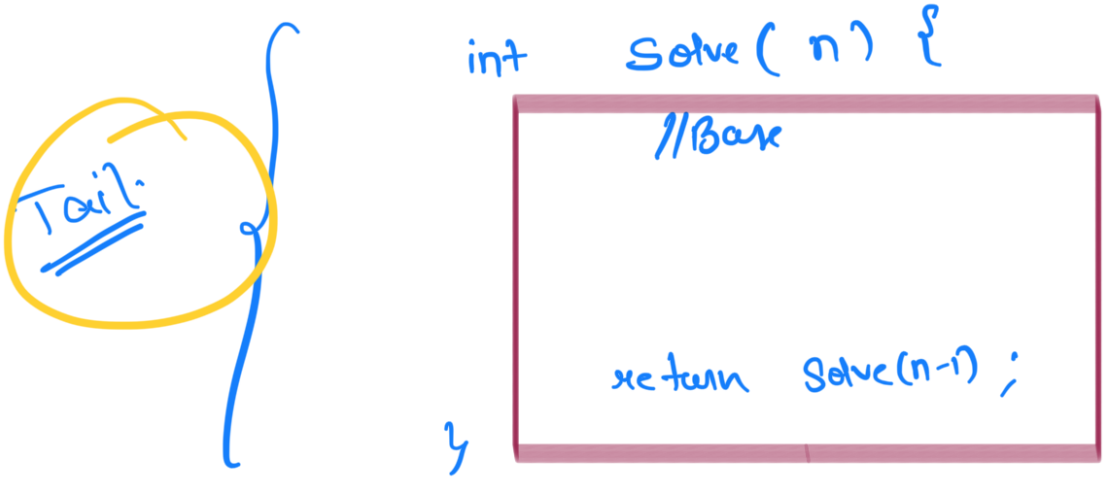
Let's understand with a simple example :-

```
int Solve (int n) {
    //Base Case

    int a = Solve (n-1);
```

Non-tail Recursion.

return a*a;

}



Factorial :-

```
int Fact (int n) {
    if(n<=1)
        return n;
    return n * Fact(n-1);
}
```

Is this Tail Recursion?

or

Non-Tail ??

① ← Fact(n-1)

x

② $n * x$

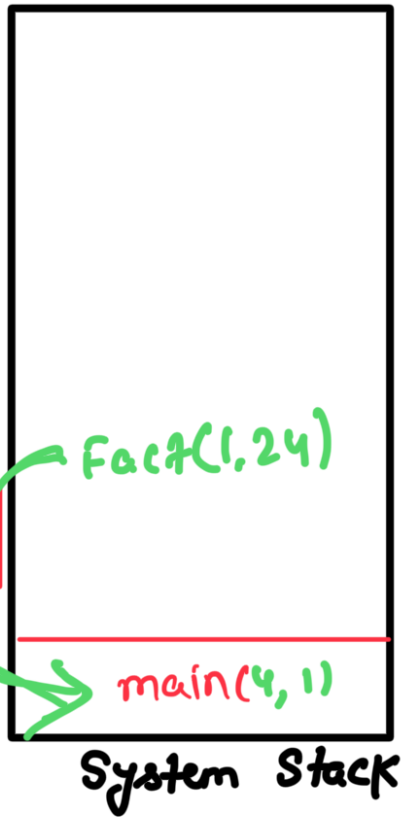
```
int Fact (int n, int Product) {
    if (n <= 1) {
        return Product;
    }

    return Fact(n-1, product*n);
}
```

Tail Recursion

Fact(1, 24)

main(4, 1)

System Stack

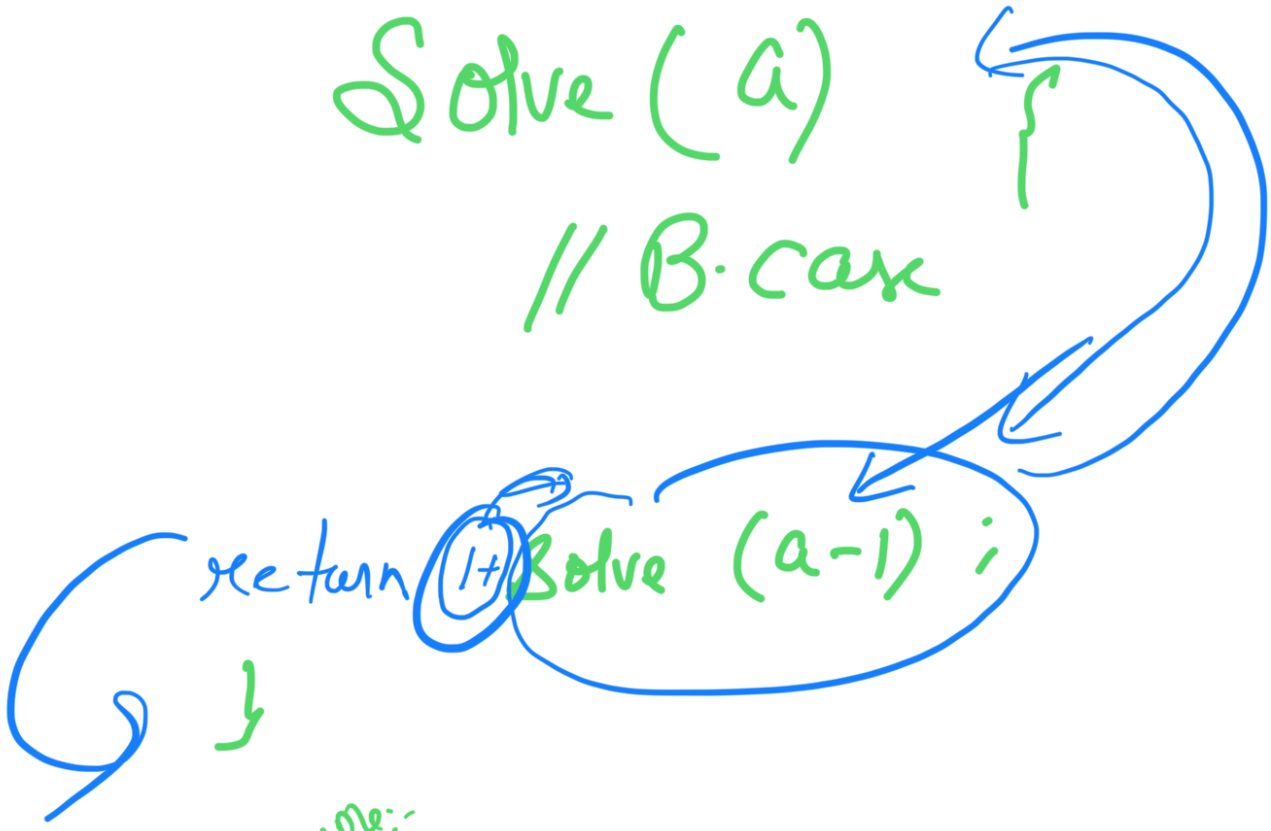


```
main () {
    Fact (n, 1);
}
```

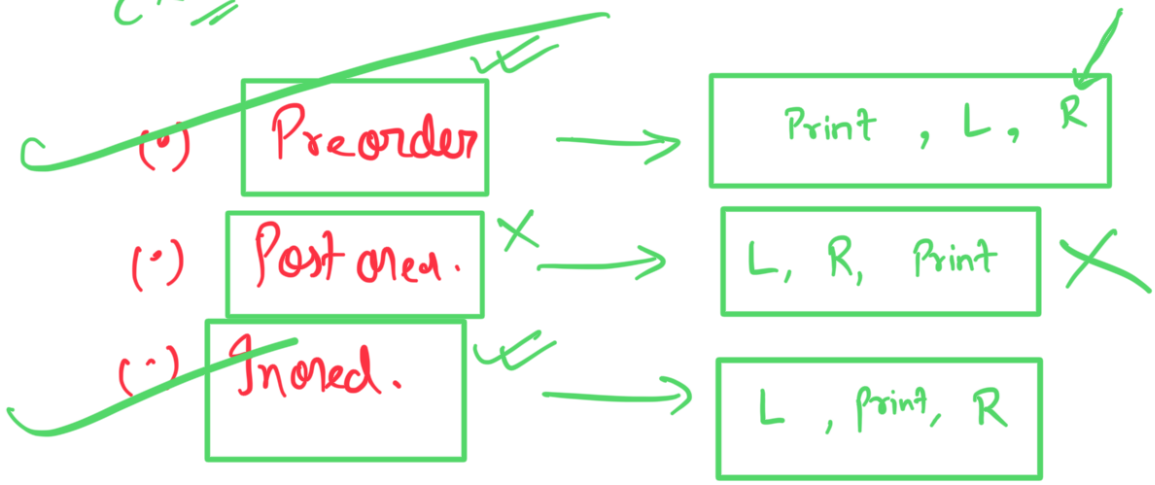
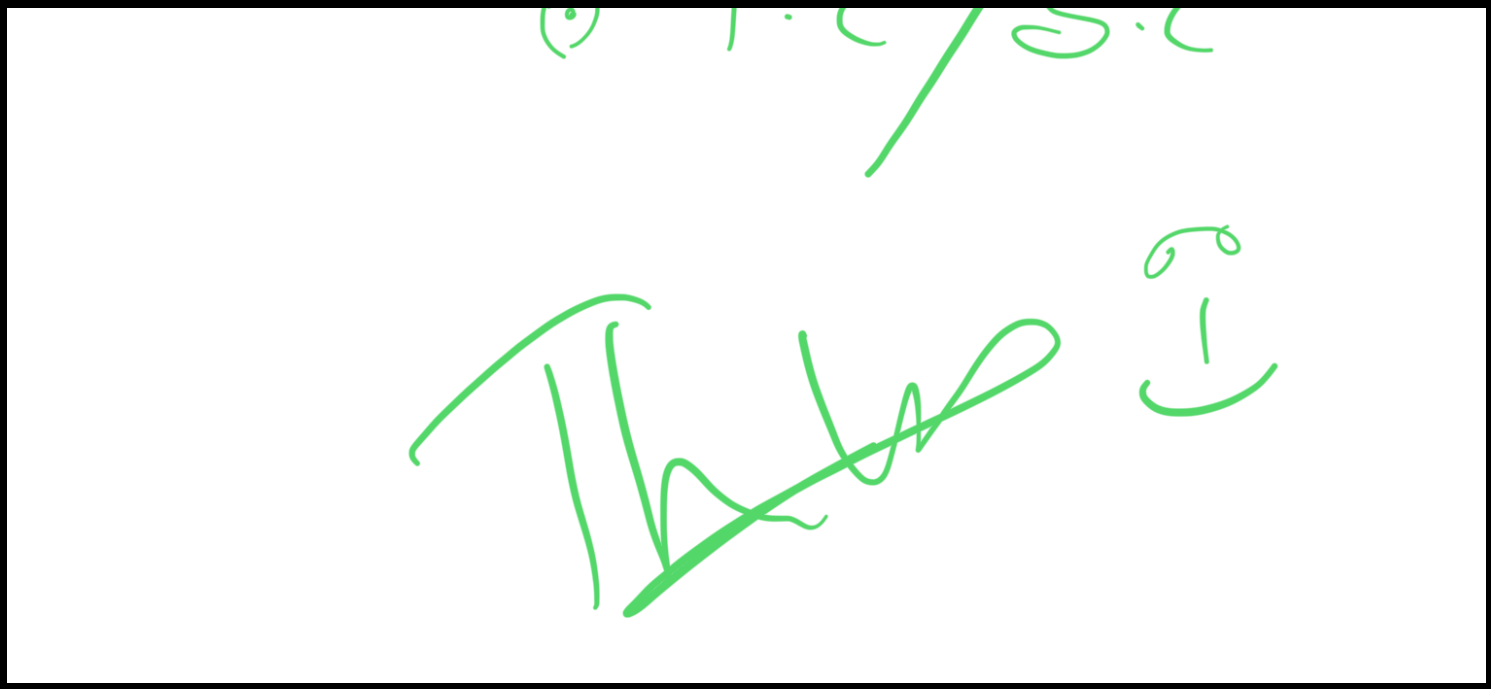
4 . 1

$4! = 4 * 3 * 2 * 1$

Space efficient :-



Example:-



(•) Recursion (Story).