Cmpe 150 Lab 4: Recursion

So Far

- We learned a lot of stuff.

- Today, we will talk about an exciting way to solve some problems. Probably one of the most advanced concepts we covered in the course.

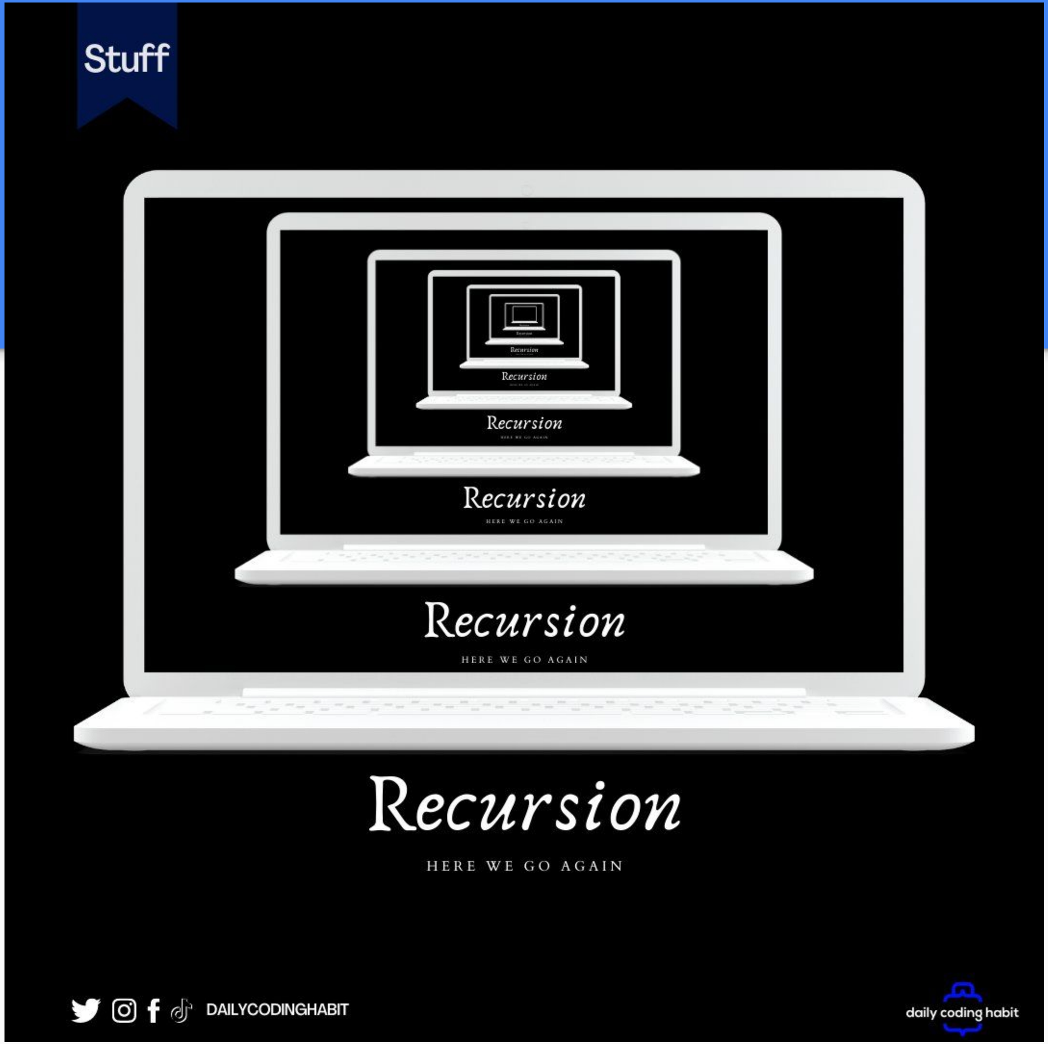
Recursion

- A function can call another function. We all know that.
- What if a function calls itself?

Factorial Example

```
def factorial(N):
    return N * factorial(N-1)
```

- Would it work?


Stuff
Recursion
HERE WE GO AGAIN
DAILYCODINGHABIT
daily coding habit

General Schema for Recursion

- We want to make a call to the same function with different parameters, but

- We need a base case that stops calling itself and does something like returning.

General Schema for Recursion (Cont.)

```
def recursive_function(parameter):
    if <base_condition>:        # parameter == 0 for the factorial example
        return base_value       # 1              for the factorial example
    return <recursive_call>     # Guess          for the factorial example
```

Applicable to Several Problems

- Fibonacci numbers

- Also, others we will see in the examples.

Caution

- It is possible to solve most of the problems by using a loop like for or while, but sometimes it is easier to express our solution using recursion.

- It might also take too long, as we will see in the Fibonacci case.

Thanks

Thanks, any questions?

References

1. https://www.programiz.com/python-programming/recursion
2. https://twitter.com/Dailycodinghab1/status/1351642591889076224