Recursion

Outline

- Recursions
- Types of Recursion
- Computing the Nth Fibonacci Number
- Problem with recursion(StackOverFlow)
- Visualizing Tree Recursion
- Interview Questions
- Summary

Recursion

A method that calls itself is known as a recursive method. This process is known as recursion. A physical world example would be to place two parallel mirrors facing each other. Any object in between them would be reflected recursively.

- A recursive algorithm must **call itself**, recursively.
- A recursive algorithm must have a **base condition**.
- A recursive algorithm **must change** its state and move toward the base condition.

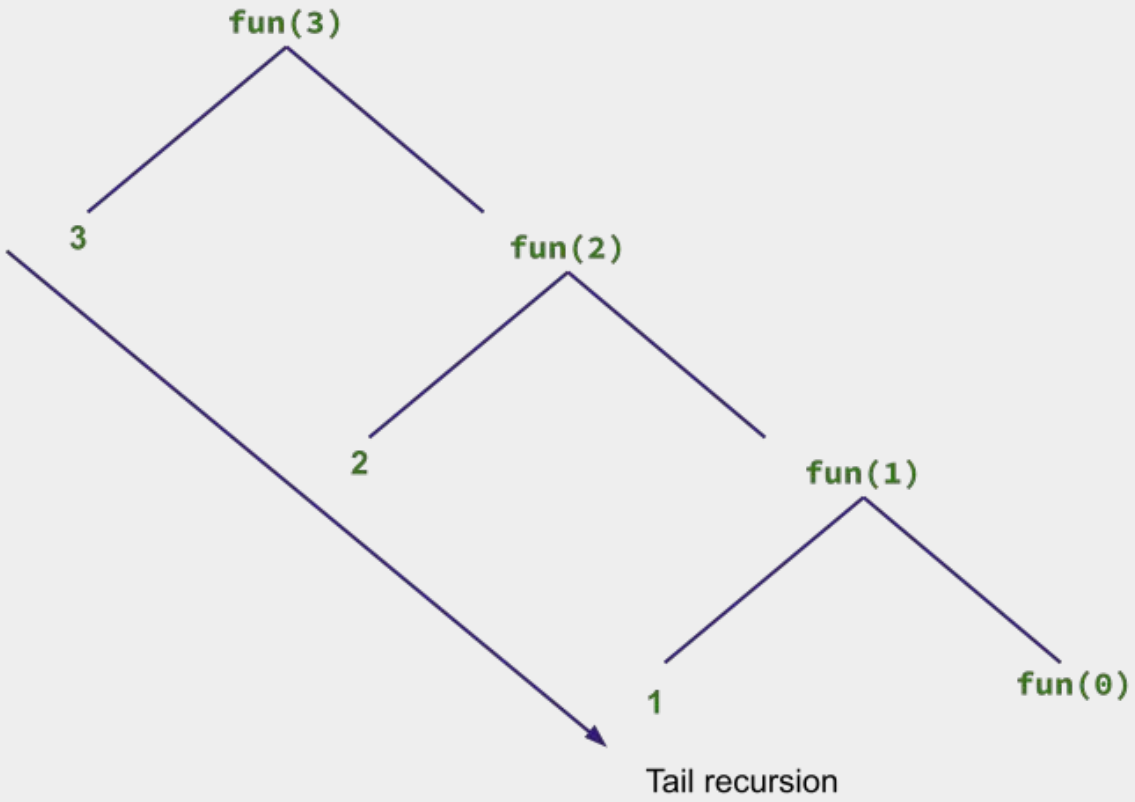
Types of recursions

- Direct Recursion
  - Linear Recursion
    - Tail Recursion
    - Head Recursion
  - Tree Recursion
- Indirect Recursion

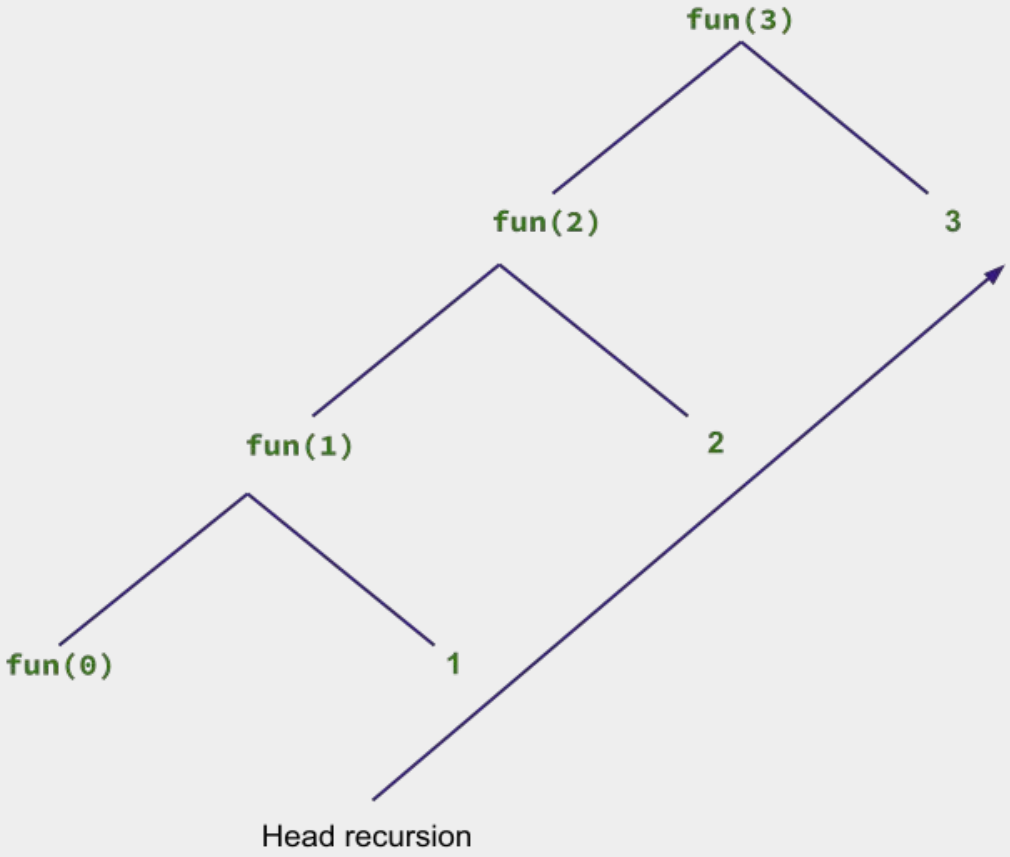
Linear Recursion

If a recursive function calling itself for one time then it’s known as **Linear Recursion**.

Tail Recursion

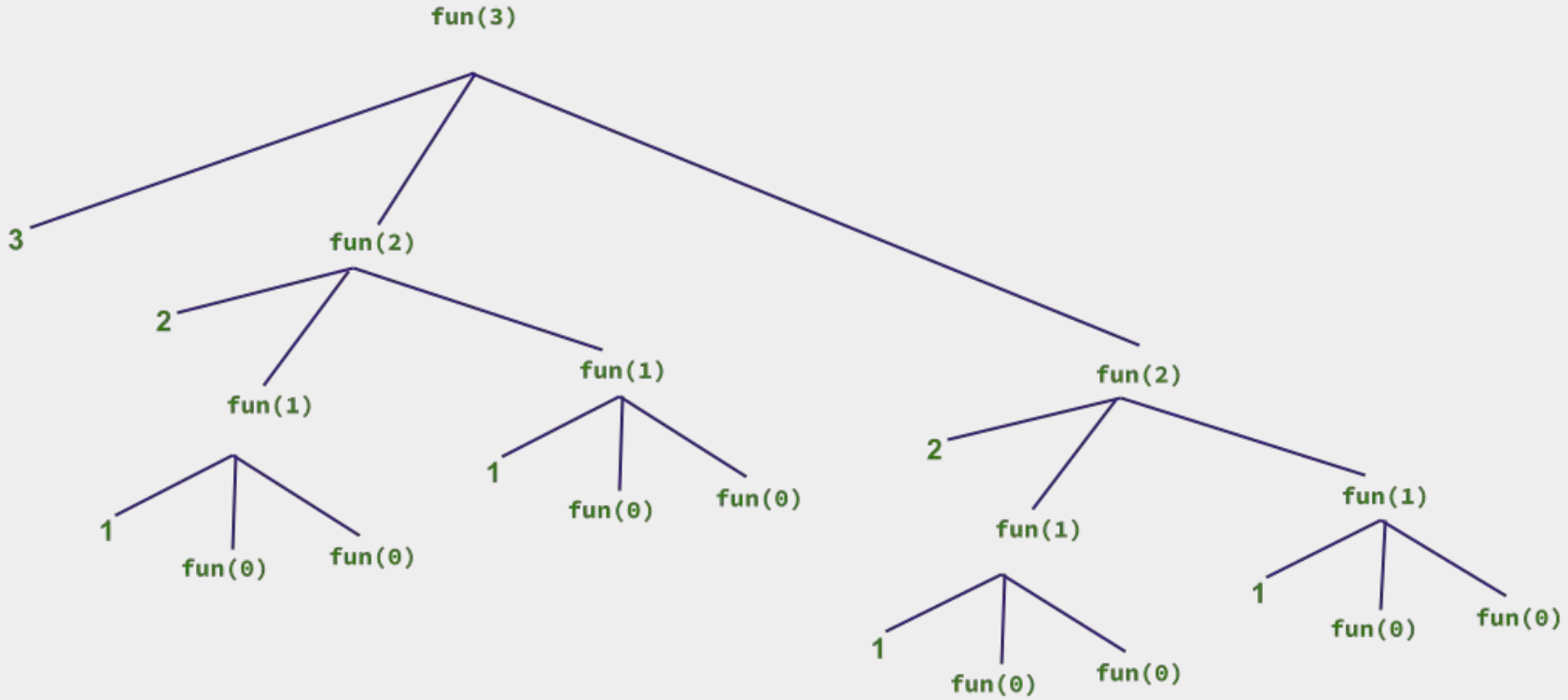


Head Recursion

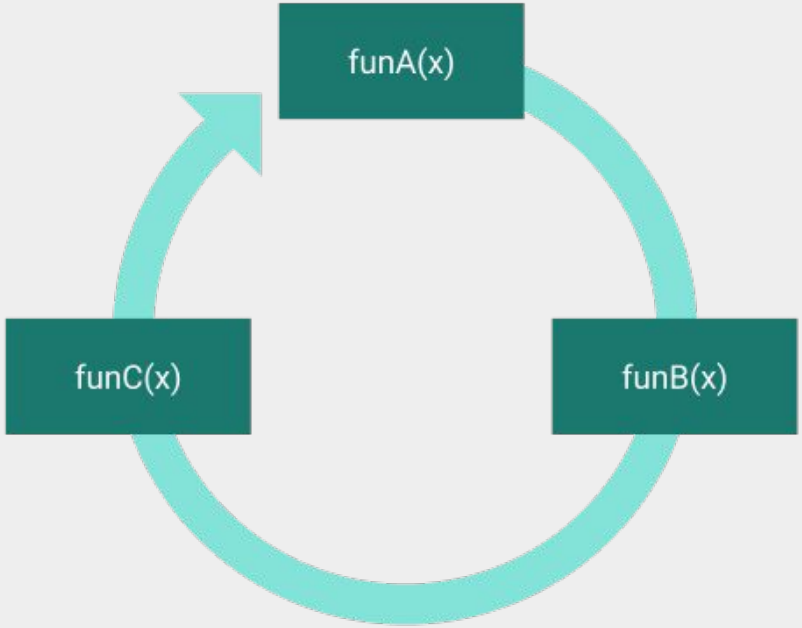


Tree Recursion

if a recursive function calling itself for more than one time then it's known as **Tree Recursion**.



Indirect Recursion



Computing the Nth Fibonacci Number

Problem With Recursion(StackOverFlow)

Visualizing Tree Recursion

Interview Questions

I am who I am today because of the choices

I made yesterday