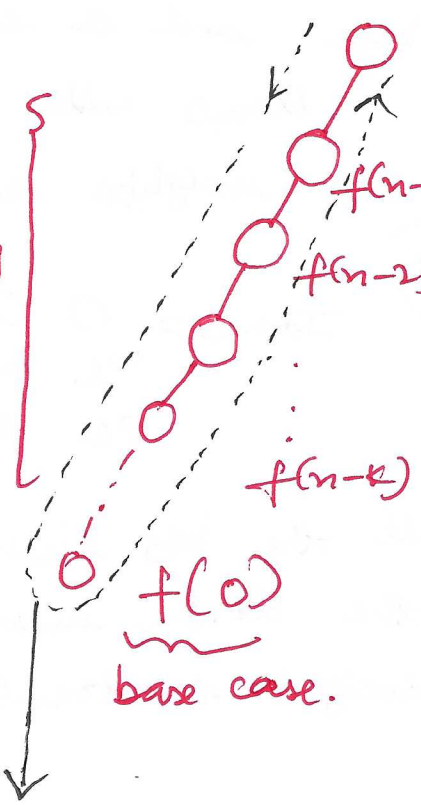
Lets now try to understand how recursion operates through some sample use cases:

Use case 1: Lets consider the following recursion tree



The way recursion executes in order to solve a specific problem.

- breaks the problem top-down
- builds the solution of the original sub-problem from solutions to smaller sub-problems.

(In situations such as these where there is only one sub-problem / branch being spawned off we will never encounter the concept of "overlapping sub-problems" which is a pre-requisite for the applicability of DP and hence DP is not required to apply to such problems).

Use case-2: A recursion tree spawning multiple sub-problems for instance the fibonacci series recursion

$$fib(n) = fib(n-1) + fib(n-2).$$

demonstrates how recursion executes.