what means trampoline in sw engineering?

In software engineering, the term "trampoline" refers to a technique used to convert a recursive function into an iterative one. This is done to eliminate the risk of stack overflow or to reduce the consumption of stack memory, which can be limited in some environments.

A trampoline function works by using a loop to repeatedly call a function that would otherwise be called recursively. This loop keeps track of the function calls and their return values without creating additional stack frames. As a result, the stack does not grow with each recursive call, preventing stack overflow and reducing the overall memory consumption.

Trampoline functions are especially useful in functional programming languages or in situations where recursion is a natural way to express a problem, but stack limitations make it unfeasible to use recursion directly.