$$Vir(n) = \begin{cases} 0 & \text{if } n = 0 \\ 1 & \text{if } n = 1 \\ Vir(n-1) + Vir(n-2) \end{cases}$$

fibonacci sequence

Virahanka numbers

$Vir : \mathbb{N} \cup \{0\} \longrightarrow \mathbb{N} \cup \{0\}$

0, 1, 1, 2, 3, 5, 8, 13 . . . .

$$fact(n) = \begin{cases} 1 & \text{if } n = 0 \\ fact(n-1) * n & \text{otherwise} \end{cases}$$

$$succ(n) = n + 1$$

$$add(m, n) = \begin{cases} n & \text{if } m = 0 \\ succ(add(m-1, n)) & \text{otherwise} \end{cases}$$

$$mul(m,n) = \begin{cases} 0 & \text{if } m=0 \text{ or } n=0 \\ n & \text{if } m=1 \\ m & \text{if } n=1 \\ add(m, mul(m, n-1)) & \text{otherwise} \end{cases}$$

assume $m \neq 0$ and $n \neq 0$

$$pow(m,n) = \begin{cases} 1 & \text{if } n=0 \\ m & \text{if } n=1 \\ mul(m, pow(m,n-1)) & \text{otherwise} \end{cases}$$

m^n

foo(n) = n + foo(n-1)

8 x 8

place 8 queens so that no queen is attacking another queen