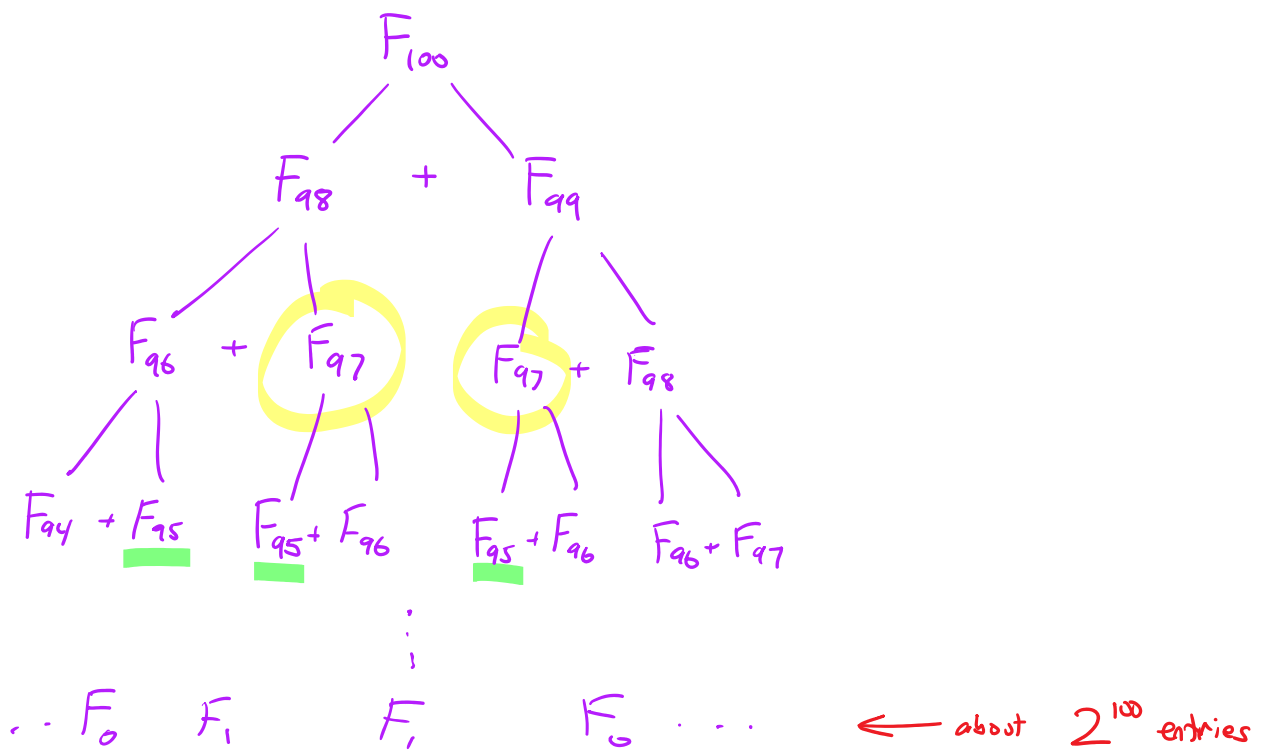


FIBONACCI NUMBERS

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...
 \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow
 F_0 F_1 F_2 F_3 F_4 F_5 F_6 F_7 etc.

Definition: $F_0 = 0, F_1 = 1$
 $F_n = F_{n-1} + F_{n-2}$ for integers $n > 1$



ALGORITHM: compute Fib
: index n of the Fibonacci number F_n to compute
 initialize: $a = 0$
 $b = 1$

repeat for k from 2 to n :

$next = a + b$ ← compute F_k

Print $\{a, b, next\}$

$a = b$
 $b = next$ } shifts the previous two values into a and b

return $next$
↑ F_n

QUESTIONS: What is the ratio $\frac{F_n}{F_{n-1}}$?

What is the ratio $\frac{F_n}{F_{n-k}}$?

(for integers n and k)

What patterns do you observe?