矩阵构造原理：

$F_n = [f_n, f_{n+1}]$

$F_{n+1} = [f_{n+1}, f_{n+2}]$

$$[f_n, f_{n+1}] \begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix} = [f_{n+1}, f_{n+2}]$$

$\Downarrow$

A

则 $F_n = F_0 \cdot A^n$ （即可用快速幂求解）

以本题为例

$F_n = [f_n, f_{n+1}, S_n]$

$F_{n+1} = [f_{n+1}, f_{n+2}, S_{n+1}]$

$F_n \cdot A = F_{n+1}$，

A

$$[f_n, f_{n+1}, S_n] \begin{bmatrix} 0 & 1 & 0 \\ 1 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix} = [f_{n+1}, f_{n+2}, S_{n+1}]$$

$F_n = F_1 \cdot A^{n-1}$