

$n!$

$$\text{Fac}(6) = 120 \times 6 = 720$$

BP:
SP:

$$\text{Fac}(5) = 5 \times 4 \times 3 \times 2 \times 1 = 120$$

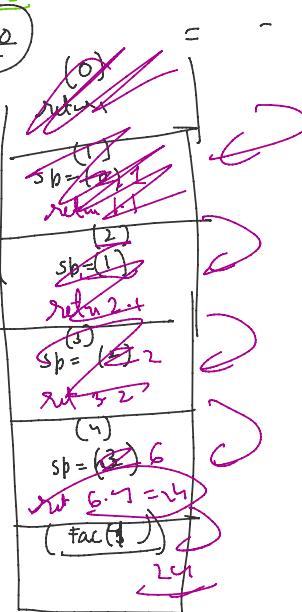
$$\text{Fac}(4) = 4 \times 3 \times 2 \times 1 =$$

$$\text{Fac}(3) = 6$$

$$\text{Fac}(2) = 2$$

```

public static int Fac(int n) {
    if(n==0) {
        return 1;
    }
    // BP : Fac(n)
    // SP : Fac(n-1)
    int sp = Fac(n-1);
    return sp*n;
}
  
```



a^k

Public S

$$\text{B.P.} = (2^{10}) \quad \left(2^3\right) = 8$$

$$\left(\begin{matrix} 2^2 \\ 2 \end{matrix}\right) = 1$$

$$\left(\begin{matrix} 2^4 \\ 2 \end{matrix}\right) = 2$$

$$\left(\begin{matrix} 2^0 \\ 2 \end{matrix}\right) = 1$$

$$BP \rightarrow Pow\left(\frac{2}{a}, b\right)$$

$$SP \rightarrow Pow(1, 2) \quad \left(\begin{matrix} 2 \\ 1 \end{matrix}\right) \quad \left(\begin{matrix} 2 \\ 0 \end{matrix}\right)$$

$SP = Pow(1, 2)$

$$BP \rightarrow \left(\frac{a^b}{a}\right)$$

$$\underbrace{a^b}_{SP} \rightarrow SP = (a, b-1)$$

$$\left(\begin{matrix} a^b \\ a \end{matrix}\right) = \left(\begin{matrix} a^{b-1} \\ a \end{matrix}\right) \times a$$

Fibonacci:

$$\begin{array}{ccccccccc} 0, & 1, & 1, & 2, & 3, & 5, & 8, & 13, & \dots \\ 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & \end{array}$$

$$\underbrace{Fibo(n)}_{SP \rightarrow}$$

$$\begin{aligned} SP &= Fib(n-1) \\ SP &= Fib(n-2) \end{aligned}$$

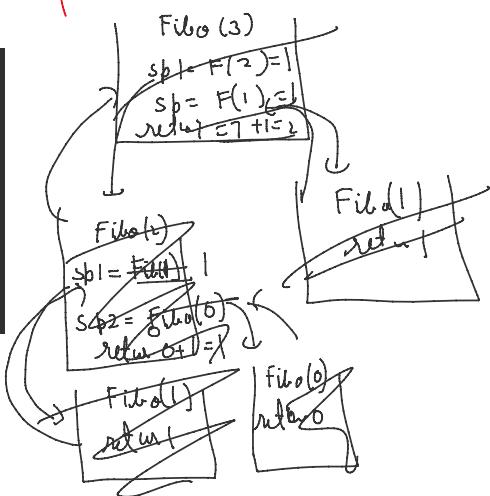
$$\underbrace{Fibo(5)}_{Fibo(0) \ F(1) \ F(2) \ F(3) \ F(4)}$$

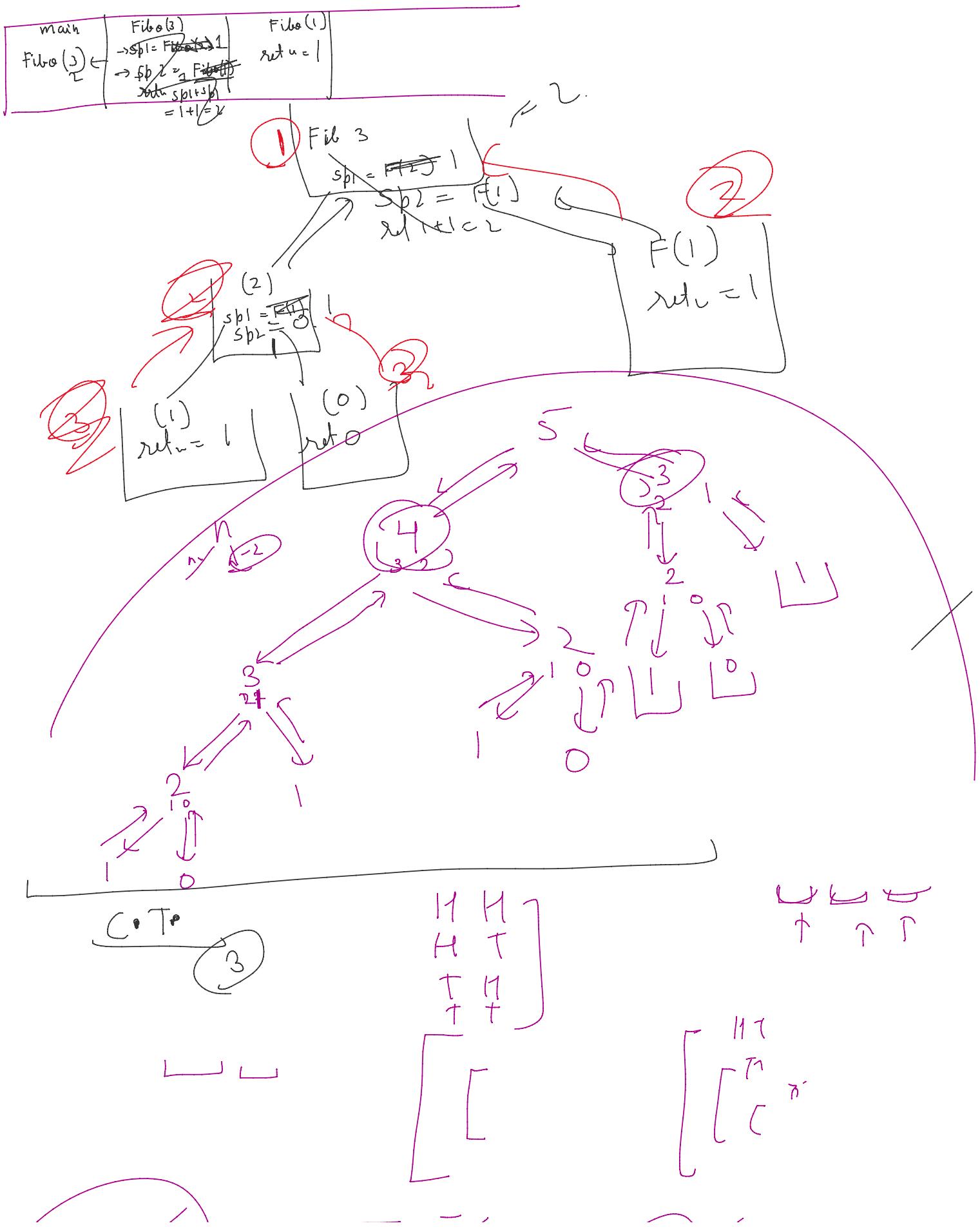
$$SP = Fib(4), F$$

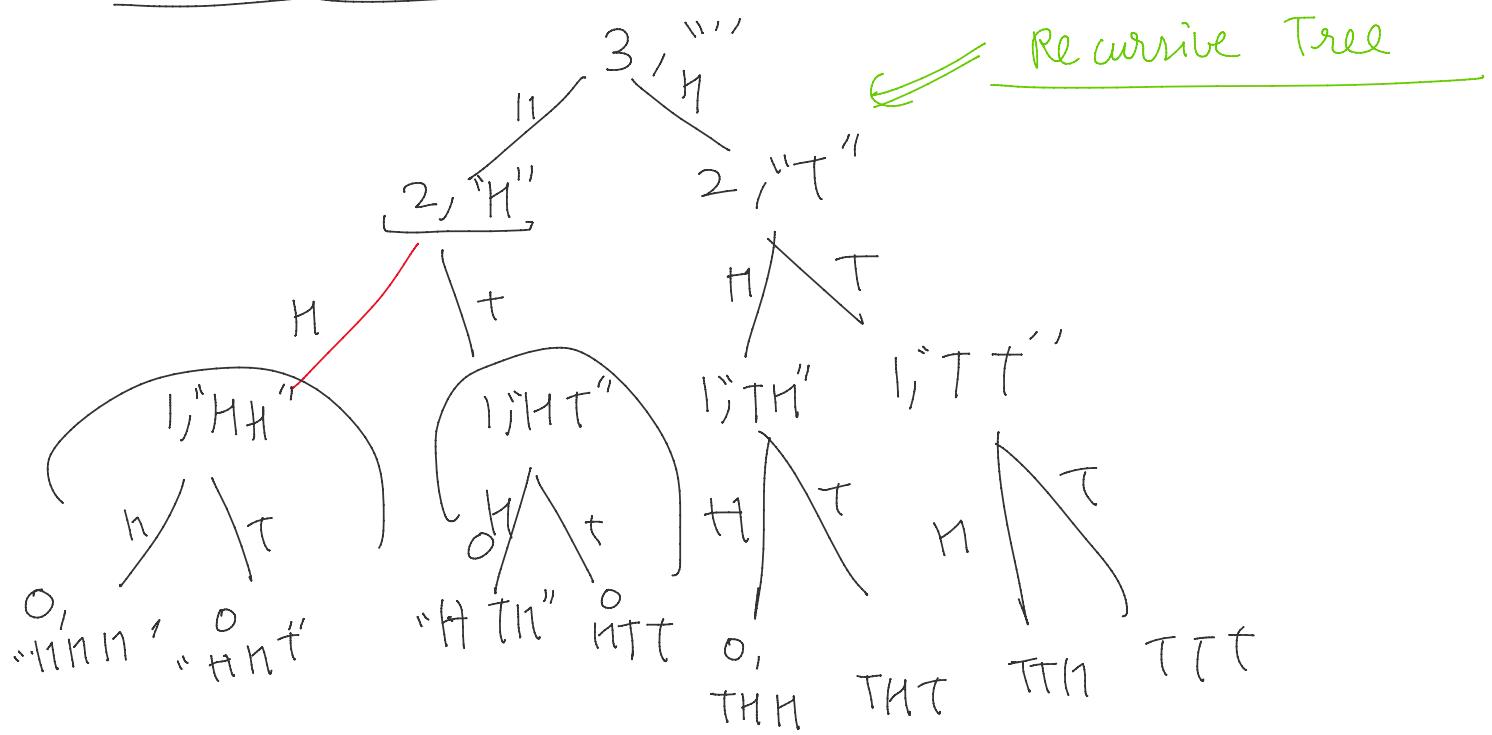
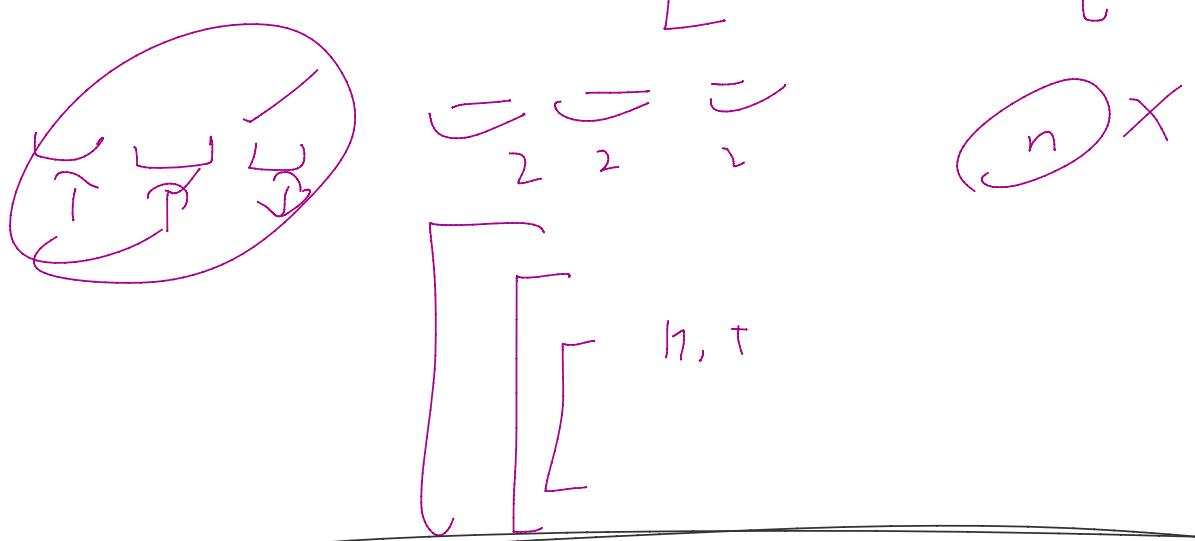
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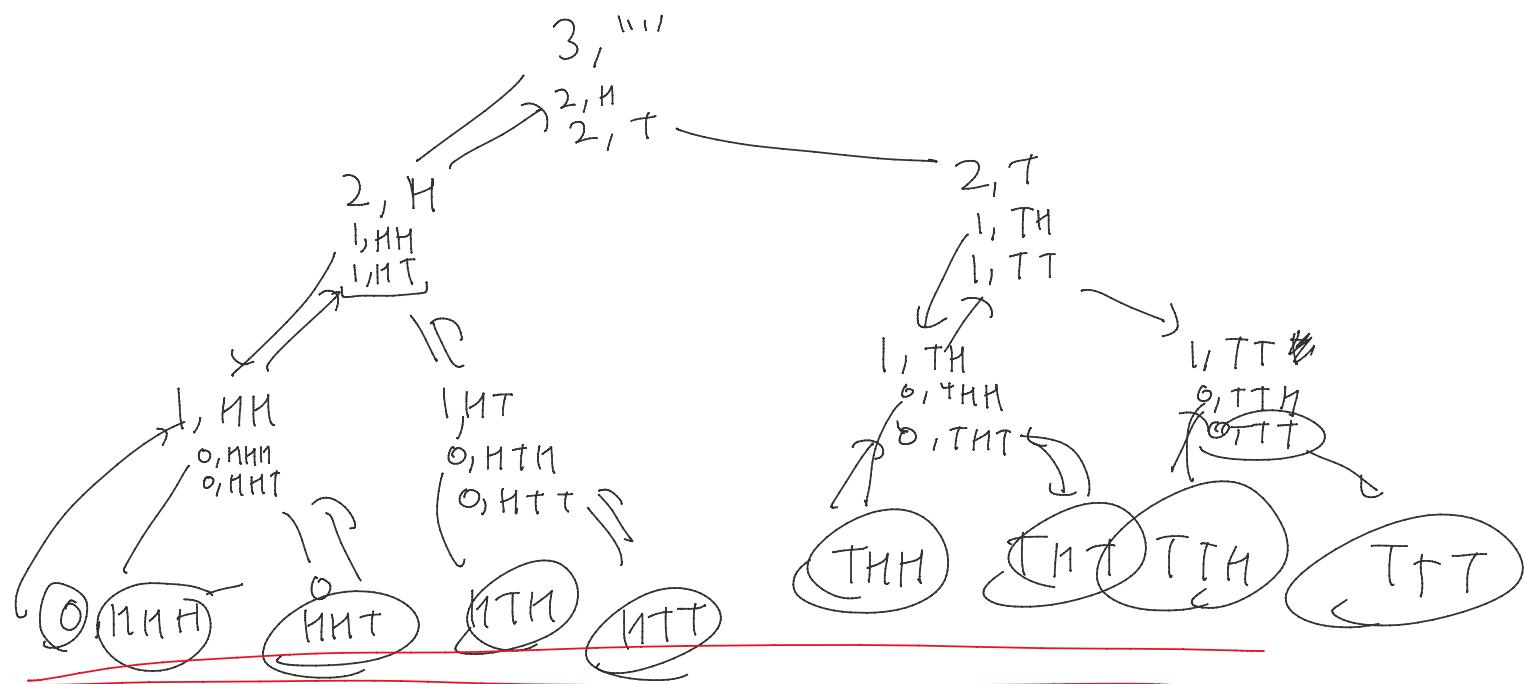
public static int Fibo(int n) {
    BP : Fibo(n)
    / SP : Fibo(n-1) and Fibo(n-2)
        if (n == 0) {
            return 0;
        }
        if (n == 1) {
            return 1;
        }
        int sp1 = Fibo(n - 1);
        int sp2 = Fibo(n - 2);
        return sp1 + sp2;
}

```









Subseq

abc

Subset op.

<u>a</u>	ab	<u>abc</u>
<u>b</u>	ac	
<u>c</u>	bc	

2ⁿ

$n \Rightarrow ??$

11

a
b
c
d

ab
ac
ad

bc
bd
cd

abcd

abcd

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$$nC_1 + nC_2 = \Sigma n$$

$$2^n - 1$$

Thurs day

abs
bzr

A Venn diagram consisting of two overlapping circles. The left circle contains the permutations abc, bac, and bca. The right circle contains the permutations cba, cab, and acb.

