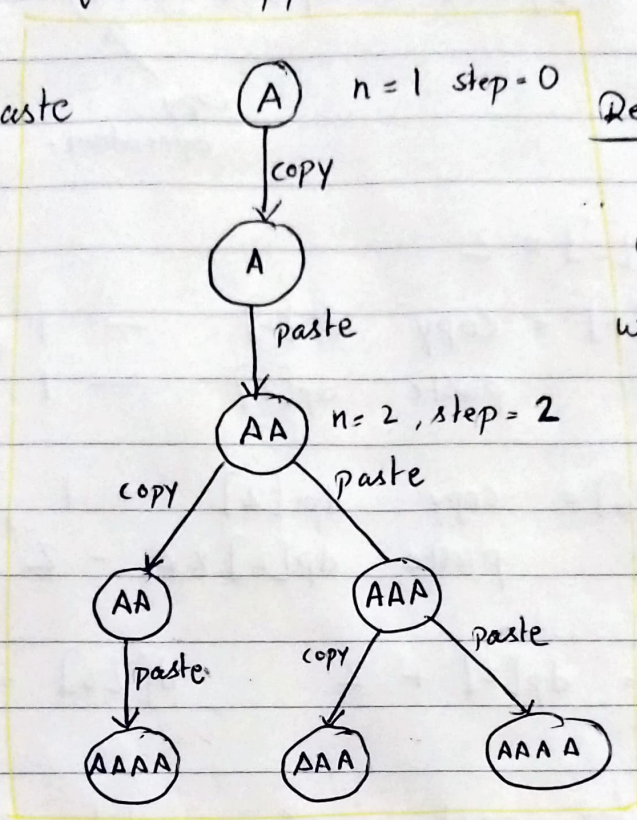


650 : 2 Keys Board

→ Two subsequent copy doesn't make sense, only paste

After copy only paste is possible



Decision Tree

Can be solved using recursion
worst time complexity
 $= 2^n$

Better approach would be tabulation:

→ One important pattern: prime numbers
if $\text{isPrime}(n) = \text{True}$ return n
 $n=5$, 1 copy step
4 paste step.

Ex.

0	2	3		5		7				11		13	
n=1	2	3	4	5	6	7	8	9	10	11	12	13	14

Create dp array upto n
& fill prime numbers.

2) Run loop from 2 to $n/2$

0	2	3	4	5	5	7	6		7	11	8	13	9
n=1	2	3	4	5	6	7	8	9	10	11	12	13	14

$\forall i \in [2, n/2]$

$j = 2$

while $j \times i \leq n$:

$$dp[j \times i] = dp[i] + (1) + (j)$$

copy operation.

paste operation

Example.

$$dp[2] = 2$$

$$dp[4] = \begin{matrix} \text{copy} & dp[2] & - & 1 \\ \text{paste} & dp[2] & - & 1 \end{matrix} + \} 2$$

$$dp[6] = \begin{matrix} \text{copy} & dp[2] & - & 1 \\ \text{paste} & dp[2] \times 2 & - & 2 \end{matrix} + \} 3$$

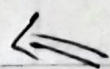
$$\therefore dp[4] = dp[2] + 2, \quad dp[6] = dp[2] + 3$$

\Rightarrow Continue for next $i = 3$, until $n/2$

Final result

0	2	3	4	5	5	7	6	5	7	11	8 76	13	9
1	2	3	4	5	6	7	8	9	10	11	12	13	14

return $dp[n]$



programmatically $dp[n-1]$
since starts from 0.