

## Climb Stairs in variable jumps

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10  $\Rightarrow$  n (Stairs)  
3 3 0 2 1 2 4 2 0 0

0 1 2 3 4 5 6 7 8 9 10  
3 3 0 2 1 2 4 2 0 0

0 1 2 3 4 5 6 7 8 9 10  
5 3 0 2 1 1 1 0 0 0 1

dp[i]  $\Rightarrow$  no. ways to climb from i<sup>th</sup>  $\rightarrow$  dest (n<sup>th</sup>)

Tabulation

- ① Memory
- ② Meaning
- ③ (Traverse & solve)

Easiest  $\rightarrow$  Complex

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Isme hum direct tabulation lgate hai

Tabulation ke 3 step hote hai :

1. Define memory
2. Define meaning
3. Traverse from easiest to complex and solve.

To isme memory n+1 size ki hogi

Meaning : dp ka har ek block ye btayega ki us no. ki step se kitne ways me dest pe reach kr skte hai

aur dest pe reach krne ke kitne ways hai agr hum dest pe hi ho to - it's the easiest part so we start from last step to 0th step aur 0th step pe hmara ans hoga

ab agr hum dest pe hi hai to uspe reach krne ka way 1 hoga (relate in recursion when our base case achieved we return an arraylist with an empty string which shows its also a way and the base case we didn't want to achieve udhaer se hum empty arraylist return krte the which shows th is base case is unreachable)

To ab hum har step se moves lgake ke dekhte hai start from 1 to maxJump jo hum us stepse lga skte hai

Aur jisme dest pe reach kr jaate hai uske liye us step ke liye dp[index of that step] me 1 add kr lete hai aur jisme reach nh i kr paate uske liye 0

For e.g. 6th step se hum 4 moves kr skte hai to

If we take move of 1 we reach at 7th step aur 7th step se dest pe reach nhi kr skte means 0 ways hai to usko dp[6] me add kr liya

If we take move of 2 we reach at 8th step aur 8th step se dest pe reach nhi kr skte means 0 ways hai to usko dp[6] me add kr liya

If we take move of 3 we reach at 9th step aur 9th step se dest pe reach nhi kr skte means 0 ways hai to usko dp[6] me add kr liya

If we take move of 4 we reach at 10th step aur 10th step is the dest 1 ways hai to usko dp[6] me add kr liya

To finally 6th step se dest pe reach krne ke total ways are 1.

To aise kr krke hum easiest to difficult solve krte jaaynge

Aur hume question me pucha hai : 0th step se dest pe reach krne ke total ways kitne hai

Aur solve krte krte 0th step ke liye solve kr lenge aur dp[0] ko print kr lenge