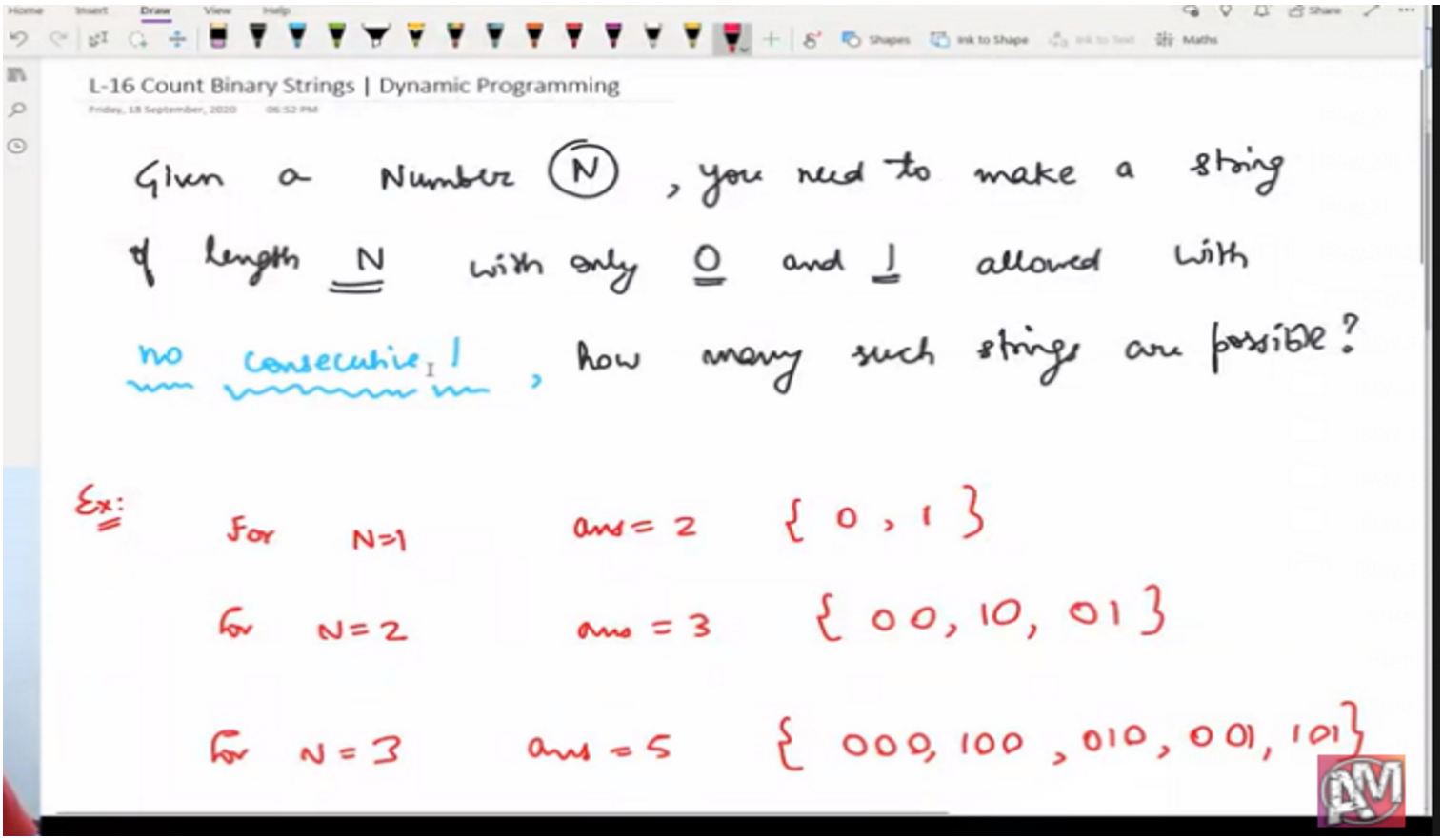
Thursday, August 19, 2021 3:15 AM

Count binary strings:

Question is mentioned in the below image. Given the length of an string we need to give number of strings can be created which is consists of only 0 and 1 where
Two 1s cant repeat , if n=2 then "1,1" is not possible.

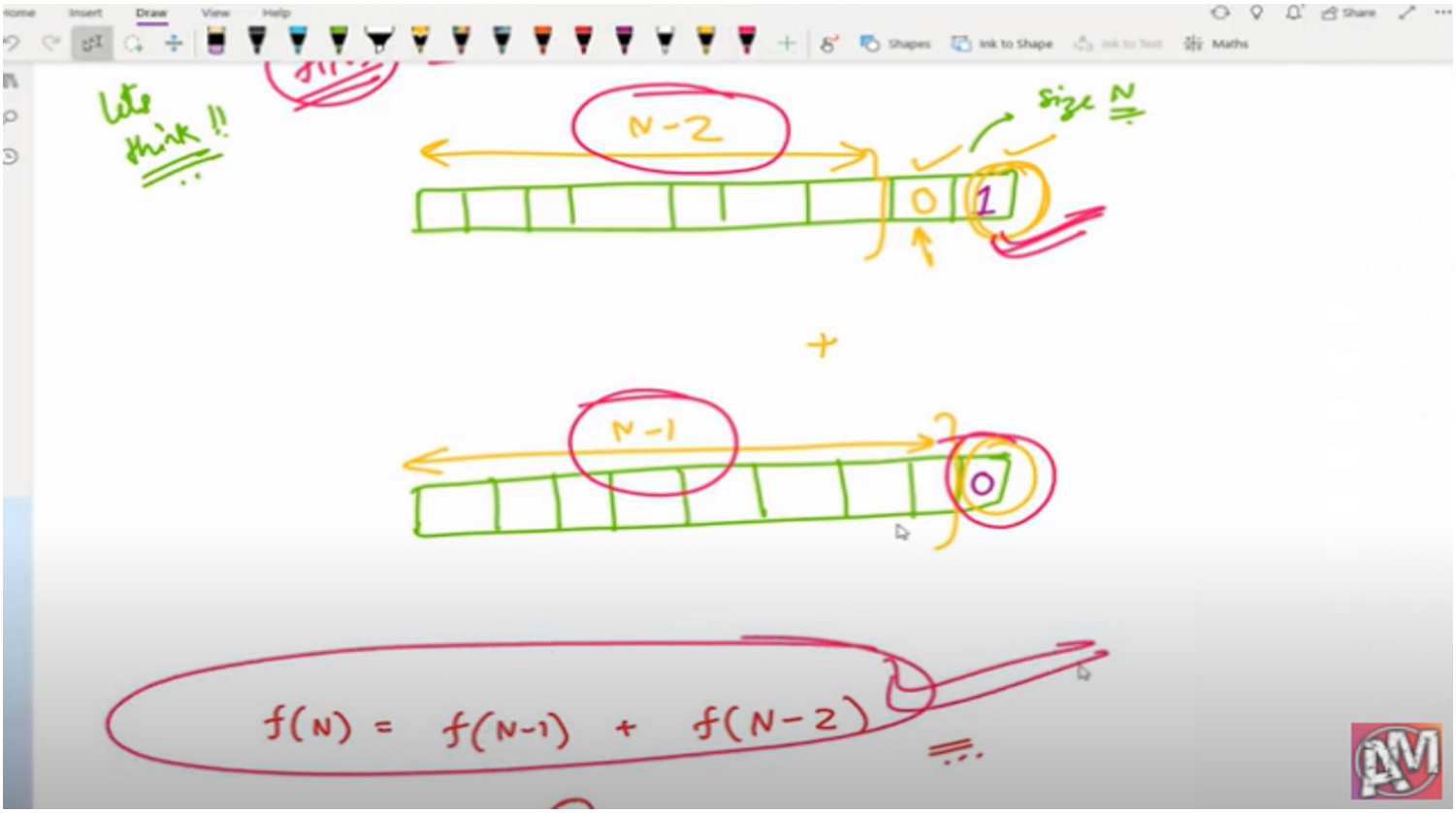


Solution:

There are two choice,

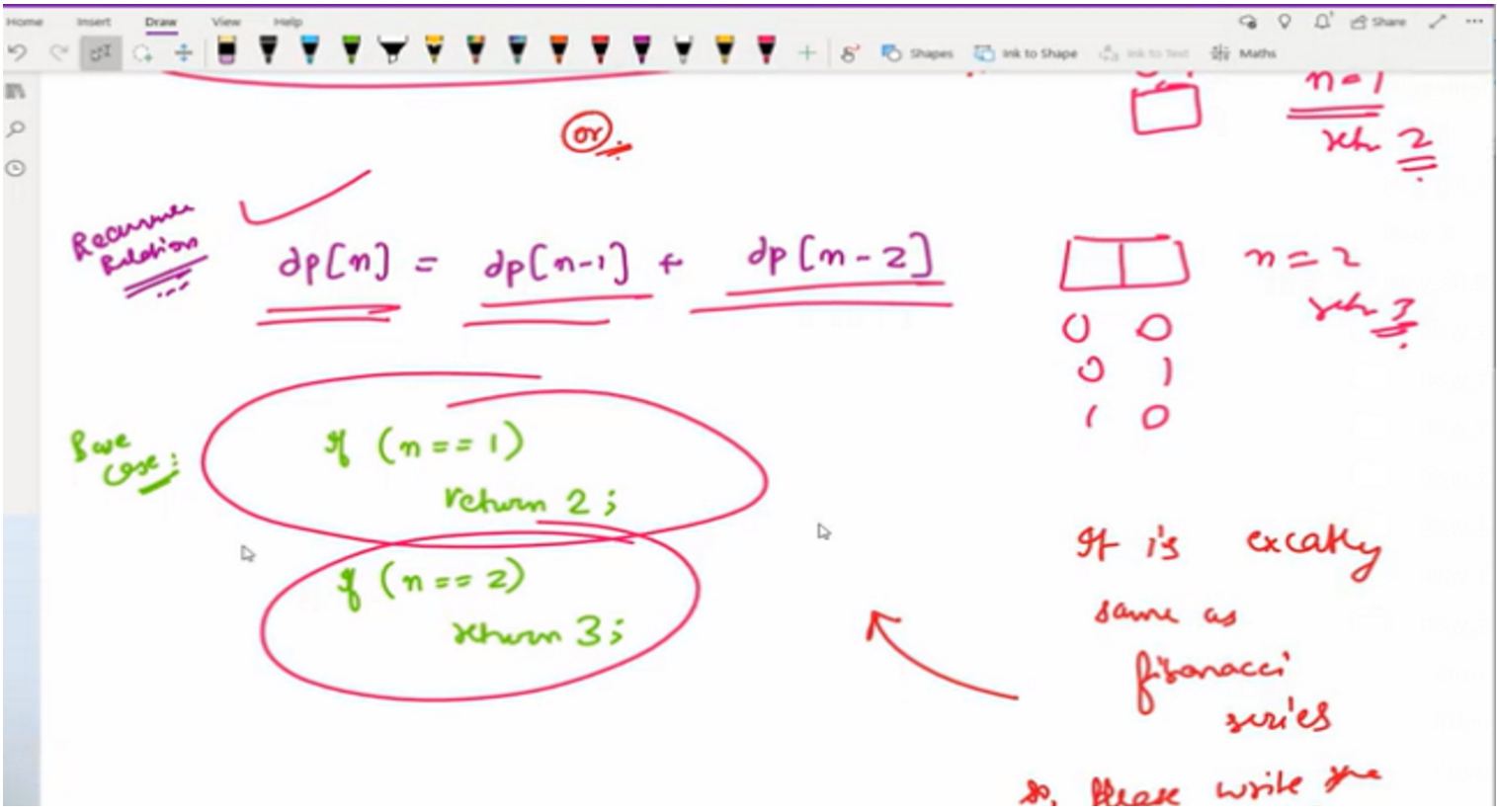
1. You start with 0
   As the below image, in this case you choose 0 as your 1sst element and ask recursion to number of ways rest of the string can be filled. In this case will call the function to do the counting for rest N-1 number of elements which is ***func(N-1)***.
2. Or you start with 1. and as we cant 1 as the next element so we the 2d element will always be 0. In this case recursion will count the number of ways for N-2 elements, which is ***func(N-2)***

Answer is ans = func(N-1) + func(N-2)



Base case:
if N=1, then we return 2 as the string either be filled wusing 1 or 0
If N=2 then we return 3 as we can fill the string in "00","01","10" ways and "11" is not allowed.

This is the perfect example where we find the base case after increasing the N by 1 or 2. Its not absolute that the base case will always start with n=0.



series

So, please write the code yourself ☺