Counting Bits :-

In this problem n is given. n is some number we have to count the '1' bits in all the numbers from 0 to n

Lets take some example

for n = 5

0 → 0

1 → 1

2 - 10 → 1

3 → 011 → 2

4 → 100 → 1

5 → 101 → 2

[0, 1, 1, 2, 1, 2]

For odd numbers number of 1 bits is
1 + x//2

For even numbers number of 1 bits is
x//2

we will use memoization to find the bits of bigger numbers from smaller numbers.

```
count_array = [0] * (n+1)

for i in range(1, n+1)
    if i%2 == 1
        count_array[i] = 1 + count_array[i//2]
    else
        count_array[i] = count_array[i//2]
return count array
```