“Vanya and Books”

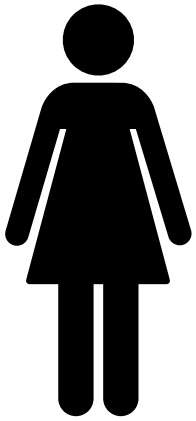
BOOKS

(Codeforces)

By Prince Agarwal

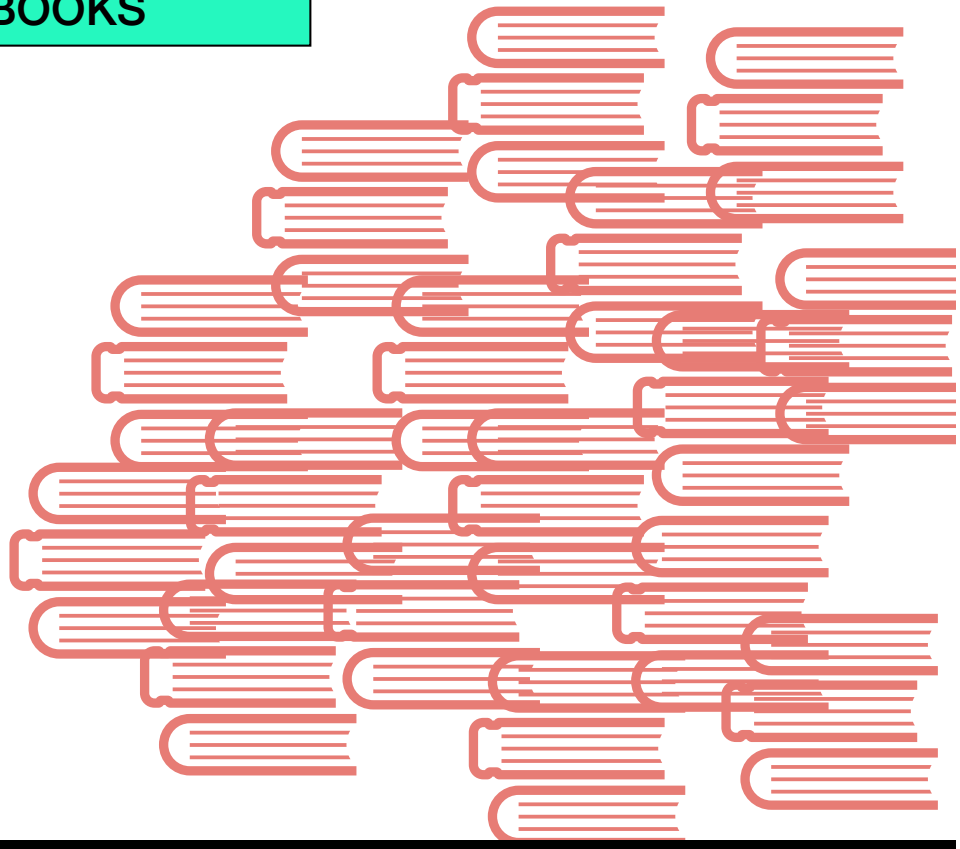
[“ Hello World ”]

VANYA AND BOOKS



Vanya

Want to provide numbers from 1 to n



Let say, She has total books = 13

Numbering be like,

1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13

Single = 9 Double = 4*2 = 8 = Total = 17.

VANYA AND BOOKS

Range of n = 10^9 —No. Of digit→ 1000000000 —> 10 digit

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, ...98, 99, 100

9 = 10^1 -1

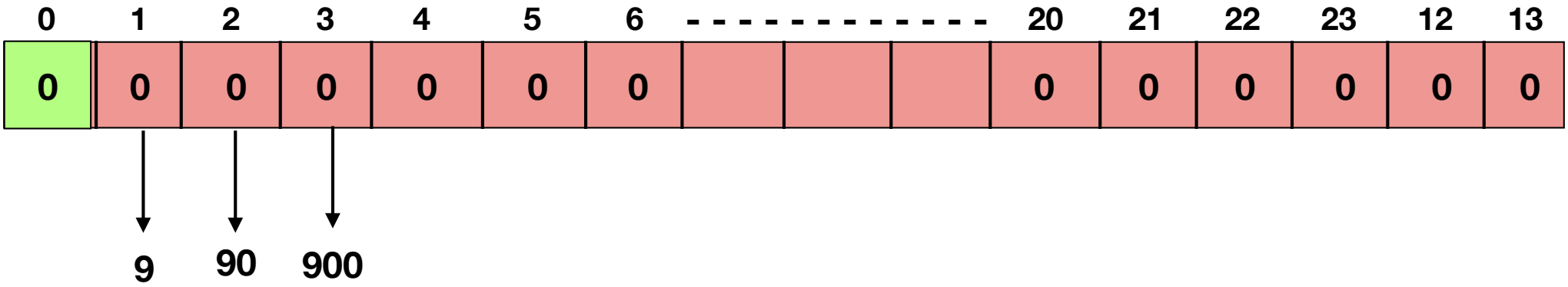
90 = 10^2 -1

100, 101, 102, 103, 104, 105, ...998, 999, 1000

900 999= 10^3 -1

Now , come to solution,

Make an array



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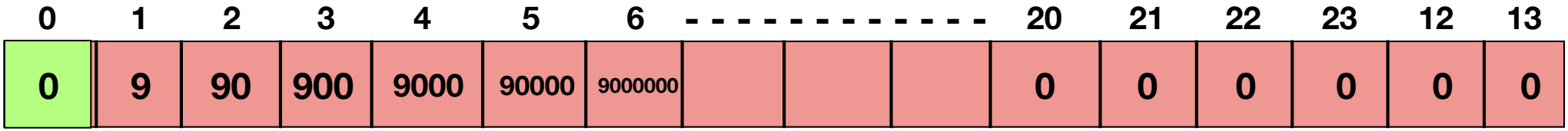


Take an example : n= 13 ⟶ Double digit = 4

↘ Single digit = 9

```
Int count = 0;
 If ( n - a[i] ) >=0
        Count +=  a[i]*i;
            n= n - a[i]
 Else
            Count +=  n*i;
```

13-9 = 4 ;

Count = 9*1= 9

---

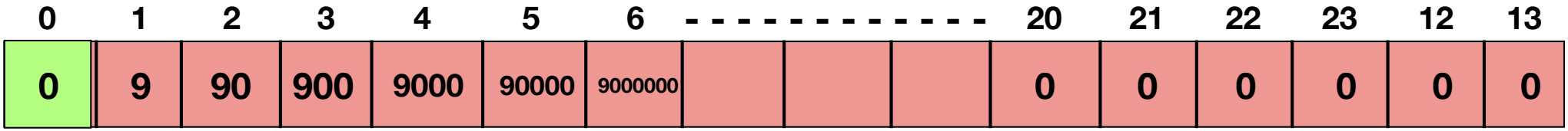
n= 4

4- 90 == negative

Count = 4*2= 8

Total = 17

VANYA AND BOOKS

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Else
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```

Take an example : n= 233 → Single digit = 9

Triple digit = 134

Double digit = 90

233-9 = 224 ;

Count = 9*1= 9

224 - 90= 134

Count = 90*2= 180

134 - 990 ==> negative

count = 134*3 = 402

Total = 591

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“ If you feel any problem then comments in my video
I will reply as soon as possible “

- Prince Agarwal