1088. Confusing Number II Premium

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A **confusing number** is a number that when rotated `180` degrees becomes a different number with **each digit valid**.

We can rotate digits of a number by `180` degrees to form new digits.

- When `0`, `1`, `6`, `8`, and `9` are rotated `180` degrees, they become `0`, `1`, `9`, `8`, and `6` respectively.
- When `2`, `3`, `4`, `5`, and `7` are rotated `180` degrees, they become **invalid**.

Note that after rotating a number, we can ignore leading zeros.

- For example, after rotating `8000`, we have `0008` which is considered as just `8`.

Given an integer `n`, return *the number of **confusing numbers** in the inclusive range* `[1, n]`.

Example 1:

```
Input: n = 20
Output: 6
Explanation: The confusing numbers are [6,9,10,16,18,19].
6 converts to 9.
9 converts to 6.
10 converts to 01 which is just 1.
16 converts to 91.
18 converts to 81.
19 converts to 61.
```

Example 2:

```
Input: n = 100
Output: 19
Explanation: The confusing numbers are
[6,9,10,16,18,19,60,61,66,68,80,81,86,89,90,91,98,99,100].
```

Constraints:

- $1 <= n <= 10^9$

Seen this question in a real interview before? 1/5

Yes No

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Hint 1

Which set of digits have the valid numbers?

Hint 2

Only 0, 1, 6, 8, 9 are the valid set of digits, do a backtracking to generate all the numbers containing this digits and check they are valid.

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