

# GFSSOC '15 Winter S3 - PalinDrone

---

**Time limit:** 1.0s    **Memory limit:** 64M

---

You've finished (or at least tried... hopefully) fixing up ButaneBot's OR-sum and Sokoban programs! Now you need to enter ButaneBot's files and update the code. There is a single problem now... to update the code you need to enter ButaneBot's security password, which Butane implemented to stop users from tampering with his files. ButaneBot cannot recall the password, but he remembers that it was a single integer under  $10^N$ . He also remembers that the number is a palindrome. Before you begin coding a brute force check-all-palindromes program to hack into ButaneBot's files, you would like to know how many possible passwords there could be to make sure the program won't run on forever. Since this number may be very big, output the answer modulo 1 000 000 000.

## Input Specification

---

The only line of input will contain a single integer,  $N$  ( $1 \leq N \leq 10^{25}$ ).

You can assume that 80% of test cases will have ( $1 \leq N \leq 100\,000$ ).

## Output Specification

---

The number of palindromes under  $10^N$ .

## Sample Input

---

```
2
```

## Sample Output

---

```
18
```

The palindromes less than or equal to  $10^2$  are:

1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 22, 33, 44, 55, 66, 77, 88, 99