Contest Code: SNCK1B21 **Problem Code:** HLPNISHANT

Read problem statements in Mandarin Chinese, Vietnamese, and Russian

Nishant does pretty weird stuff. Today, he wants to create a weird sequence.

According to Nishant, a sequence A of length N is called weird if:

- $N \geq 3$
- $2 \cdot A_i > A_{i-1} + A_{i+1}$ $\forall i \in \{2, 3, 4...., N-1\}$

Nishant wants to construct a long weird sequence to impress his weird friends, but there's a problem: he only knows how to count up to K, so the sequence can only contain integers in the range $[1, K]$.

Help Nishant determine the length of the longest weird sequence he can construct using only integers from 1 to K.

Input Format

- The first line contains a single integer T denoting the number of testcases. The description of T testcases follows.
- The first and only line of each testcase contains a single integer K.

Output Format

For each testcase, print one line containing a single integer - the maximum length of a weird sequence which can be obtained using only integers in $[1, K]$.

Constraints

- $1 \leq T \leq 10^5$
- $2 \leq K \leq 10^9$

Sample Input 1

```
3
3
5
1073
```

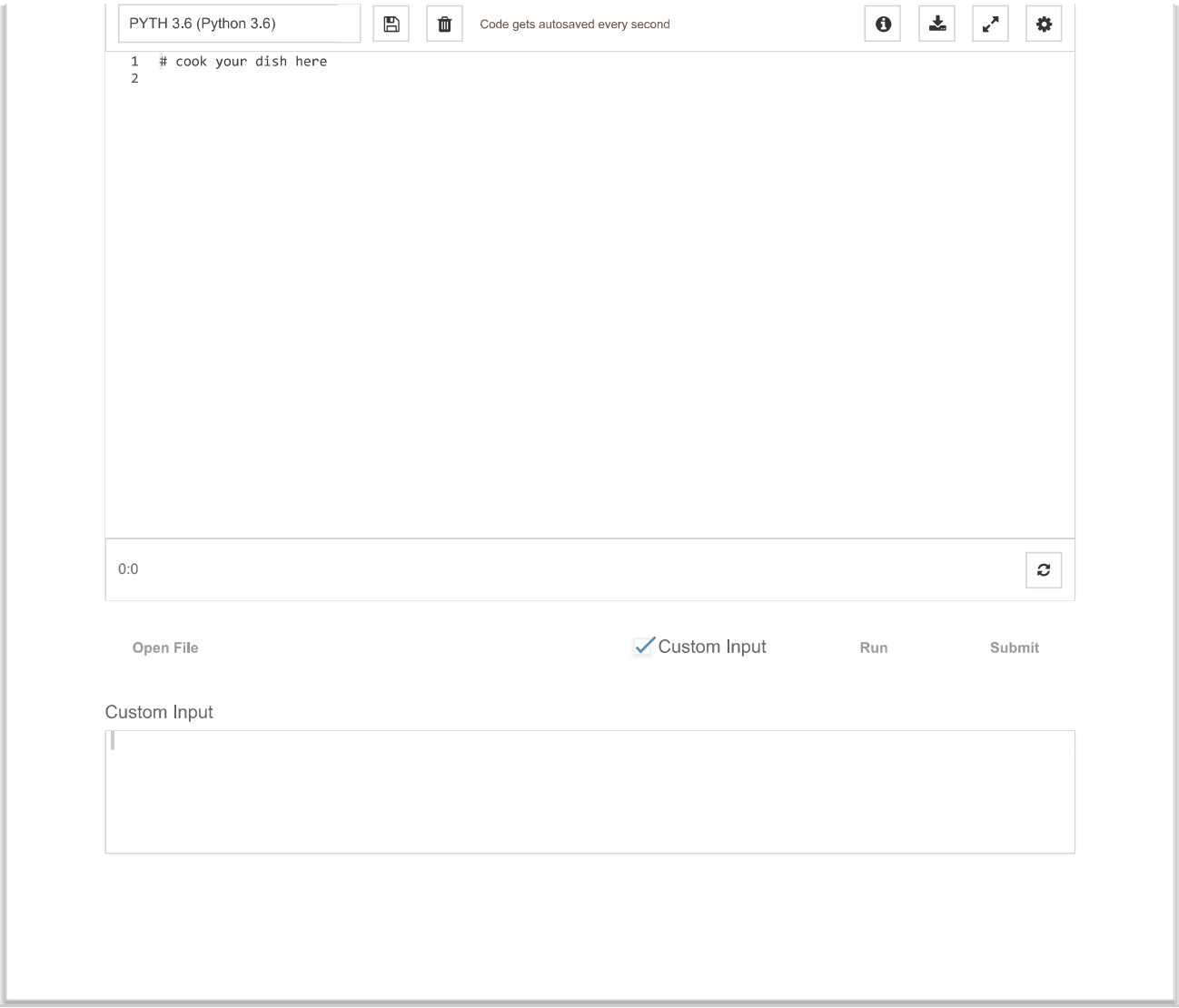
Sample Output 1

```
4
6
92
```

Explanation

Test Case 1: One possible weird sequence is $\{1, 3, 3, 2\}$. It can be shown that there is no weird sequence with length > 4.

Test Case 2: One possible weird sequence is $\{2, 4, 5, 5, 4, 1\}$. It can be shown that there is no weird sequence with length > 6.



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