DMOPC '22 Contest 5 P2 - Absolutely Even

Time limit: 1.0s **Memory limit:** 256M

Bob loves absolutely even arrays. For an array A, let X be the number of subarrays with a non-negative sum, and Y be the number of subarrays with a negative sum. An absolutely even array of size N is one which has the minimum absolute difference $|X - Y|$ over all possible arrays of size N. Please give Bob an example of an absolutely even array.

Constraints

$1 \leq N \leq 2 \times 10^5$

Subtask 1 [30%]

$1 \leq N \leq 8$

Subtask 2 [70%]

No additional constraints.

Input Specification

The first and only line contains the integer N.

Output Specification

The first and only line of your output should contain N space-separated integers $A_1, A_2, \ldots, A_N$, an array A which minimizes the value of $|X - Y|$.

$|A_i| \leq 10^{12}$ must hold.

Sample Input

```
3
```

Sample Output

```
1 -3 2
```

Explanation for Sample

X and Y are both equal to 3. The 3 subarrays with a non-negative sum are $[1]$, $[1, -3, 2]$, and $[2]$. The 3 subarrays with a negative sum are $[1, -3]$, $[-3]$, and $[-3, 2]$. The value of $|X - Y|$ is 0, which is minimal.