

Contest Duration: 2025-10-11(Sat) 23:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251011T2100&p1=248>) - 2025-10-12(Sun) 00:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251011T2240&p1=248>) (local time) (100 minutes)

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# F - Not Adjacent

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Time Limit: 4 sec / Memory Limit: 1024 MiB

Score : 525 points

## Problem Statement

You are given a length- $N$  integer sequence  $A = (A_1, A_2, \dots, A_N)$ .

There are  $2^N$  (not necessarily contiguous) subsequences of  $A$ . Find how many subsequences  $(A_{i_1}, A_{i_2}, \dots, A_{i_k})$  ( $1 \leq i_1 < i_2 < \dots < i_k \leq N$ ) satisfy both of the following two conditions:

- The selected elements are not adjacent in  $A$ . That is,  $1 + i_j \neq i_{j+1}$  holds for all  $1 \leq j < k$ .
- The sum is a multiple of  $M$ . That is,  $\sum_{j=1}^k A_{i_j} \equiv 0 \pmod{M}$ .

Even if two subsequences are equal as integer sequences, they are counted separately if the positions from which they are taken are different.

## Constraints

- $1 \leq N \leq 60$
- $1 \leq M \leq 10^9$
- $0 \leq A_i < M$
- All input values are integers.

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## Input

The input is given from Standard Input in the following format:

```
 $N$   $M$   
 $A_1$   $A_2$  ...  $A_N$ 
```

## Output

Print the answer.

### Sample Input 1

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```
7 6  
3 1 4 1 5 3 2
```

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### Sample Output 1

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```
6
```

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The following six subsequences satisfy the conditions:

- $() = ()$
- $(A_1, A_3, A_5) = (3, 4, 5)$
- $(A_1, A_4, A_7) = (3, 1, 2)$
- $(A_1, A_6) = (3, 3)$
- $(A_2, A_5) = (1, 5)$
- $(A_3, A_7) = (4, 2)$

Thus, print 6.

### Sample Input 2

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```
15 10  
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
```

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### Sample Output 2

[Copy](#)

```
798
```

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## Sample Input 3

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```
20 998244353
778718481 719092922 676292280 713825156 0 434453766 620370916 67922064 0 577696866 21516
```

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## Sample Output 3

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```
40
```

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