

## C. Mr. Kitayuta, the Treasure Hunter

time limit per test: 1 second  
 memory limit per test: 256 megabytes  
 input: standard input  
 output: standard output

The Shuseki Islands are an archipelago of 30001 small islands in the Yutampo Sea. The islands are evenly spaced along a line, numbered from 0 to 30000 from the west to the east. These islands are known to contain many treasures. There are  $n$  gems in the Shuseki Islands in total, and the  $i$ -th gem is located on island  $p_i$ .

Mr. Kitayuta has just arrived at island 0. With his great jumping ability, he will repeatedly perform jumps between islands to the east according to the following process:

- First, he will jump from island 0 to island  $d$ .
- After that, he will continue jumping according to the following rule. Let  $l$  be the length of the previous jump, that is, if his previous jump was from island  $prev$  to island  $cur$ , let  $l = cur - prev$ . He will perform a jump of length  $l - 1$ ,  $l$  or  $l + 1$  to the east. That is, he will jump to island  $(cur + l - 1)$ ,  $(cur + l)$  or  $(cur + l + 1)$  (if they exist). The length of a jump must be positive, that is, he cannot perform a jump of length 0 when  $l = 1$ . If there is no valid destination, he will stop jumping.

Mr. Kitayuta will collect the gems on the islands visited during the process. Find the maximum number of gems that he can collect.

### Input

The first line of the input contains two space-separated integers  $n$  and  $d$  ( $1 \leq n, d \leq 30000$ ), denoting the number of the gems in the Shuseki Islands and the length of the Mr. Kitayuta's first jump, respectively.

The next  $n$  lines describe the location of the gems. The  $i$ -th of them ( $1 \leq i \leq n$ ) contains a integer  $p_i$  ( $d \leq p_1 \leq p_2 \leq \dots \leq p_n \leq 30000$ ), denoting the number of the island that contains the  $i$ -th gem.

### Output

Print the maximum number of gems that Mr. Kitayuta can collect.

### Examples

<b>input</b>	<a href="#">Copy</a>
<pre>4 10 10 21 27 27</pre>	
<b>output</b>	<a href="#">Copy</a>
<pre>3</pre>	

<b>input</b>	<a href="#">Copy</a>
<pre>8 8 9 19 28 36 45</pre>	

### Codeforces Round #286 (Div. 2)

Finished

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#### → Problem tags

dfs and similar dp two pointers  
 \*1900

No tag edit access

#### → Contest materials

- Announcement (en) [×](#)
- Tutorial (en) [×](#)

```
55
66
78
```

**output**

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```
6
```

**input**

Copy

```
13 7
8
8
9
16
17
17
18
21
23
24
24
26
30
```

**output**

Copy

```
4
```

**Note**

In the first sample, the optimal route is  $0 \rightarrow 10$  (+1 gem)  $\rightarrow 19 \rightarrow 27$  (+2 gems)  $\rightarrow \dots$

In the second sample, the optimal route is  $0 \rightarrow 8 \rightarrow 15 \rightarrow 21 \rightarrow 28$  (+1 gem)  $\rightarrow 36$  (+1 gem)  $\rightarrow 45$  (+1 gem)  $\rightarrow 55$  (+1 gem)  $\rightarrow 66$  (+1 gem)  $\rightarrow 78$  (+1 gem)  $\rightarrow \dots$

In the third sample, the optimal route is  $0 \rightarrow 7 \rightarrow 13 \rightarrow 18$  (+1 gem)  $\rightarrow 24$  (+2 gems)  $\rightarrow 30$  (+1 gem)  $\rightarrow \dots$

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