Problem E. Economy Printing

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Helen has a large document consisting of 10^9 pages numbered from 1 to 10^9. She is given the list of indices of pages $p_1, p_2, \ldots, p_n$ she needs to print. Helen likes nature and cares a lot about the trees, so she wants to print exactly one copy of each of these pages and no copies of any other pages. In order to achieve this she composes the printing instruction using tokens of four types:

1. Single index "i". This token asks to print the page number i.
2. Range "i_1-i_2". This token asks to print all pages from i_1 to i_2 inclusive.
3. Even range "i_1%i_2". Here, both i_1 and i_2 should be even. This token asks to print the pages with even indices from i_1 to i_2 inclusive.
4. Odd range "i_1#i_2". Here, both i_1 and i_2 should be odd. This token asks to print the pages with odd indices from i_1 to i_2 inclusive.

Printing instruction is composed using any number of tokens of any types, separated by commas. Note that each page is printed any time it matches a token, but Helen wants each page from her list to be printed only once, and she doesn't want to print any page not from her list. As Helen also wants to save some space on her screen, she asks you to find the correct printing instruction of minimum possible length. The length of the instruction is equal to the **total number of characters** that are used to write it down.

Input

The first line of the input contains a single integer n ($1 \le n \le 200\,000$) — the number of pages Helen wants to print.

The second line contains a list of n distinct indices of pages p_i ($1 \le p_i \le 10^9$).

Output

Print one line containing the shortest possible instruction which will print all the pages from the list exactly once and won't print any other pages. If there are several optimal answers, print any one of them.

Example

standard input	standard output
15 1 18 20 5 14 11 3 16 17 8 4 10 6 15 21	11,21,20,14-18,4%10,1#5

Note

The length of the answer to the given example is 23.