Kamino Factory

The clone factory in Kamino got another order to clone troops. But this time you are tasked to find **the best DNA** sequence to use in the production.

You will receive the **DNA length** and until you receive the command **"Clone them!"** you will be receiving a **DNA sequences of ones and zeroes, split by "!" (one or several).**

You should select the sequence with the **longest subsequence of ones**. If there are several sequences with **same length of subsequence of ones**, print the one with the **leftmost starting index**, if there are several sequences with same **length and starting index**, select the sequence with the **greater sum** of its elements.

After you receive the last command **"Clone them!"** you should print the collected information in the following format:

"Best DNA sample {bestSequenceIndex} with sum: {bestSequenceSum}."

"{DNA sequence, joined by space}"

Input / Constraints

- The **first line** holds the **length** of the **sequences** – **integer in range [1…100];**
- On the next lines until you receive **"Clone them!"** you will be receiving sequences (at least one) of ones and zeroes, **split by "!"** (one or several).

Output

The output should be printed on the console and consists of two lines in the following format:

"Best DNA sample {bestSequenceIndex} with sum: {bestSequenceSum}."

"{DNA sequence, joined by space}"

Examples

Input	Output	Comments
5 1!0!1!1!0 0!1!1!0!0 Clone them!	Best DNA sample 2 with sum: 2. 0 1 1 0 0	We receive 2 sequences with **same length of subsequence of ones**, but the second is printed, because its subsequence starts at **index[1].**
4 1!1!0!1	Best DNA sample 1 with sum: 3. 1 1 0 1	We receive 3 sequences. Both 1 and 3 **have same**

1!0!0!1 **1!1**!0!0 Clone them!		**length** of subsequence of ones -> 2, **and both start from index[0]**, but the first is printed, because its **sum is greater.**
3 0!0!0 0!0!0 0!0!0 Clone them!	Best DNA sample 1 with sum: 0. 0 0 0	
4 1!1!1!1 1!1!1!1 1!1!1!1 Clone them!	Best DNA sample 1 with sum: 4. 1 1 1 1	
8 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!0!1!1!1!1!1!1 1!1!1!1!1!1!1!1 Clone them!	Best DNA sample 15 with sum: 8. 1 1 1 1 1 1 1 1	
10 1!0!1!1!0!1!1!!1!0!1 1!0!1!1!0!1!1!!1!1!!0 1!1!0!1!1!!1!1!!0!1!0 Clone them!	Best DNA sample 3 with sum: 7. 1 1 0 1 1 1 1 0 1 0	
20 1!0!1!1!0!1!1!!1!0!1!!!1!0!1!1! 0!1!1!!1!0!1 1!0!1!1!0!1!1!!1!1!!0!!!1!0!1!1 !0!1!1!!1!1!!0 1!1!0!1!1!!1!1!!0!1!0!!!1!1!0!1 !1!!1!1!!0!1!0 Clone them!	Best DNA sample 3 with sum: 14. 1 1 0 1 1 1 1 0 1 0 1 1 0 1 1 1 1 0 1 0	
1	Best DNA sample 1 with sum: 1.	

1 1 1 Clone them!	1	
10 1!0!1!1!0!1!1!!1!0!1 Clone them!	Best DNA sample 1 with sum: 7. 1 0 1 1 0 1 1 1 0 1	
100 1!0!1!1!0!1!1!!1!0!1!1!0!1!1!0! 1!1!!1!0!1!1!0!1!1!0!1!1!!1!0!1 !1!0!1!1!0!1!1!!1!0!1!1!0!1!1!0 !1!1!!1!0!1!1!0!1!1!0!1!1!!1!0! 1!1!0!1!1!0!1!1!!1!0!1!1!0!1!1! 0!1!1!!1!0!1!1!0!1!1!0!1!1!!1!0 !1!1!0!1!1!0!1!1!!1!0!1 Clone them!	Best DNA sample 1 with sum: 70. 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 0 1	