# Problem 1 – Medenka

You are given a medenka with nuts inside. Calculate the number of ways you can break the medenka so that each piece contains exactly one nut. For example, the medenka **1 0 1 0 1** can be broken into:

10|10|1, 1|010|1, 10|1|01, 1|01|01

### Input

On the first input line you are given the medenka - a sequence of integers separated by a single space.

### Output

Print all ways the medenka can be cut.Display the cuts with **"|"**.

The order of printing does not matter.

### Constraints

* The length of the sequence will be in the range [1…30].
* The sequence will always end with **1**.
* Time limit: **100 ms**. Allowed memory: **16 MB**.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 1 0 1 0 1 | 1|01|01  1|010|1  10|1|01  10|10|1 |  | 0 0 1 | 001 |