# Problem 2 – Non-Crossing Bridges

You are given a sequence **seq** of integer numbers. Any two equal numbers can be connected by a **bridge**. Your task is to place as many **non-crossing bridges** as possible between the numbers.

Bridges should be **non-crossing**: they **cannot overlap** and **cannot be** **inside one another**. It is allowed, however, that one number is shared between two bridges.

**Valid (non-crossing) bridges:**

Connected bridges: {1 - 1}, {7 - 7}, {7 - 7}

**Invalid bridges (crossing each other):**

Connected bridges: {1 - 1}. Bridge {7 - 7} is not allowed.

**Invalid bridges (one inside the other):**

Connected bridges: {2 - 2}. Bridge {5 - 5} is not allowed.

### Input

On the single input line you are given the sequence **seq** holding integers separated by space.

### Output

* At the **first line** print the **maximal number of non-crossing bridges**.
  + If no bridges can be placed in the sequence, print “**No bridges found**”.
  + Print “**X bridge(s) found**” at the **first line** where **X** is the maximal number of bridges.
  + Print “**bridge**” for one bridge and “**bridges**” (plural) for more than one bridge.
* Print **the bridges** that form the best solution at the **second line**.
  + In the input sequence replace with “**X**” all numbers that do not take part in the solution and leave the numbers that take part in bridges.
  + If **several maximal solutions** exist, print the **bridges that end as early as possible**.
  + **Example**: the sequence {2 **1** 3 **1** 2 3 **4** 5 **4** 5} we have multiple configurations having the same maximal number of 2 bridges. We first print the **bridge that ends as early as possible** {1 - 1}, then the next bridge on the right **that ends as early as possible** {4 - 4}. The expected result is: {X **1** X **1** X X **4** X **4** X}.

### Constraints

* The length of **seq** is in the range **[1 … 10 000]**. All numbers are integers in range [**-100 000 … 100 000**].
* Time limit: **100 ms**. Allowed memory: **16 MB**.

### Sample Input / Output

|  |  |
| --- | --- |
| **Input** | **Output** |
| 7 **3** 4 5 **3** **6** 7 2 4 5 **6** 8 **6** 8 | 3 bridges found  X **3** X X **3** **6** X X X X **6** X **6** X |
| 2 **1** 3 **1** 2 3 **4** 5 **4** 5 | 2 bridges found  X 1 X 1 X X 4 X 4 X |
| **1** 2 3 **1** 2 3 | 1 bridge found  **1** X X **1** X X |
| 1 2 **3 3** 2 1 | 1 bridge found  X X **3 3** X X |
| 42 3 2 1 | No bridges found  X X X X |