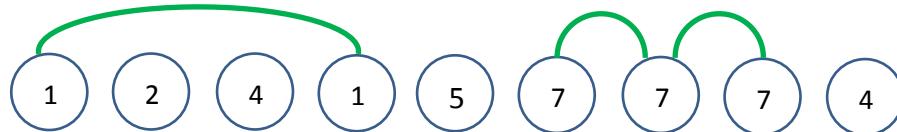


## Problem 2 – Non-Crossing Bridges

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.

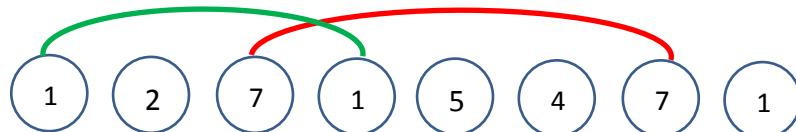
Bridges should be **non-crossing**: they **cannot overlap** and **cannot be inside one another**. It is allowed, however, that one number is shared between two bridges.

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



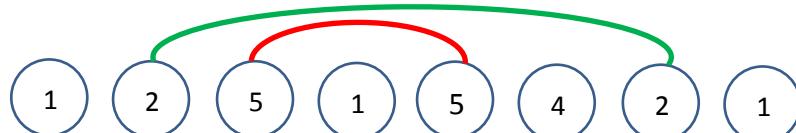
Connected bridges: {1 - 1}, {7 - 7}, {7 - 7}

**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 <b>3</b> 4 5 <b>3</b> <b>6</b> 7 2 4 5 <b>6</b> 8 <b>6</b> 8	3 bridges found X <b>3</b> X X <b>3</b> <b>6</b> X X X X <b>6</b> X <b>6</b> X
2 <b>1</b> 3 <b>1</b> 2 3 <b>4</b> 5 <b>4</b> 5	2 bridges found X 1 X 1 X X 4 X 4 X
<b>1</b> 2 3 <b>1</b> 2 3	1 bridge found <b>1</b> X X <b>1</b> X X
1 2 <b>3</b> <b>3</b> 2 1	1 bridge found X X <b>3</b> <b>3</b> X X
42 3 2 1	No bridges found X X X X