# Problem 4 – Couples Frequency

|  |  |  |
| --- | --- | --- |
| **Couple** | **Occurrences** | **Percentage** |
| 3 4 | 3 times | 30.00% |
| 4 2 | 2 times | 20.00% |
| 2 3 | 2 times | 20.00% |
| 2 1 | 1 times | 10.00% |
| 1 12 | 1 times | 10.00% |
| 12 2 | 1 times | 10.00% |

Write a program that reads a sequence of **n integers** and calculates and prints the **frequencies of all couples** of two consecutive numbers. For example, for the input sequence **{ 3 4 2 3 4 2 1 12 2 3 4 }**, we have 10 couples (6 distinct), shown on the right with their occurrence counts and frequencies (in percentage).

### Input

The input data should be read from the console. At the first line, we have the **input sequence of integers**, separated by a space.

The input data will always be valid and in the format described. There is no need to check it explicitly.

### Output

Print all **distinct couples** of two consecutive numbers (without duplicates) found in the input sequence (from left to right) along with their **frequency of appearance** in the input sequence (in **percentages**, with two decimal digits, with traditional rounding). Use the format: "**couple -> percentage**" (see the examples below). Beware of **formatting**!

### Constraints

* All input numbers will be integers in the range [-100 000 … 100 000].
* The **count** of the numbers will be in the range [2..1000].
* Time limit: 0.5 sec. Memory limit: 16 MB.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** |  | **Input** |  | **Input** |
| 3 4 2 3 4 2 1 12 2 3 4 | 5 10 5 10 10 5 5 10 5 10 10 5 | 10 20 10 10 10 |
| **Output** | **Output** | **Output** |
| 3 4 -> 30.00%  4 2 -> 20.00%  2 3 -> 20.00%  2 1 -> 10.00%  1 12 -> 10.00%  12 2 -> 10.00% | 5 10 -> 36.36%  10 5 -> 36.36%  10 10 -> 18.18%  5 5 -> 9.09% | 10 20 -> 25.00%  20 10 -> 25.00%  10 10 -> 50.00% |