

Nails

In long wooden lath have hammered some nails. Some nails' pairs connect by cords so that the following conditions are satisfying:

- 1) each nail has to connect even one cord;
- 2) the total cords' length would be minimal.

To write the program which connects nails' pairs by cords how it is described above.

Input

The entrance data are number of nails (no more than 1000 and not less 2) and their coordinates (integers in a range from 0 up to 1000000000),

Output

The output should contain the minimal total cords' length and numbers' pairs of connected nails.

Sample input

```
5
11
12
13
16
17
```

Sample output

```
3
1 2
2 3
4 5
```