

Circles

Winter Workshops, Day 4, Available memory 512 MB

02.01.2020 - 08.01.2020

You're given n circles. The i -th circle is described by three integers: coordinates of the center (x_i, y_i) and the radius r_i .

Find the number of pairs of circles whose intersection has nonzero area.

Constraints

- $1 \leq n \leq 3000$
- $1 \leq r_i \leq 10^9$
- $-10^9 \leq x_i, y_i \leq 10^9$
- All values in the input are integers.

Input

```
n
x1 y1 r1
x2 y2 r2
...
xn yn rn
```

Output

In the first line of output, write down one integer, which indicates the number of such circles.

Examples

Input	Output
2 0 0 1 3 4 4	0
2 0 0 1 3 3 4	1
2 0 0 5 0 0 4	1
6 0 0 2 1 0 2 2 0 2 3 0 2 4 0 2 5 0 2	9

Scoring

Subtask	Constraints	Points
1	$n = 2$	50
2	no additional constraints	50