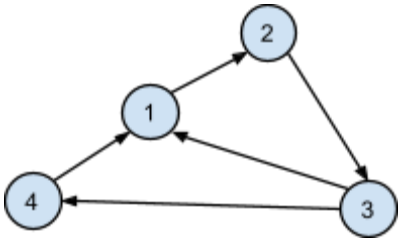
American Computer Science League

2020-2021 ● Contest 4: Graphs ● Intermediate Division

PROBLEM: Given a directed graph, find all simple paths of length 2 and report the sum of the paths.

For example, in the graph below, the one path of length 2 starting at vertex 1 which is 123. From vertex 2, the paths are 231 and 234. From vertex 3, the paths are 341 and 312. And from vertex 4, the path is 412. The sum is 123+231+234+341+312+412=1653.



INPUT: There will be 5 lines of input. Each line will contain a list of 2-character strings giving all of the directed edges in the graph. For example, the string "31" says there is a directed edge from vertex 3 to vertex 1. Graphs will have no more than 9 vertices, numbered consecutively.

OUTPUT: Print the sum of all of the paths of length 2, each of which is represented by a 3-digit string.

SAMPLE INPUT:

```
12 23 34 41 31
12 23 34 41 13 32
76 75 12 13 23 31 34 41 56
34 45 56 63 64 61 13
12 21 13 15 53 33
```

SAMPLE OUTPUT:

```
1. 1653
2. 1789
3. 2956
4. 4515
5. 581
```

TEST INPUT:

```
12 31 41 42 43 45 51 63 64 56 16
12 13 22 23 24 34 42 98 71 87 17 96 67
12 14 21 24 25 32 41 43 59 65 91 87 76 95
11 12 14 15 23 25 31 43 45 51 52 68 79 87 89
55 77 45 54
```

TEST OUTPUT:

1. 8478
2. 6301
3. 7880
4. 7249
5. 0