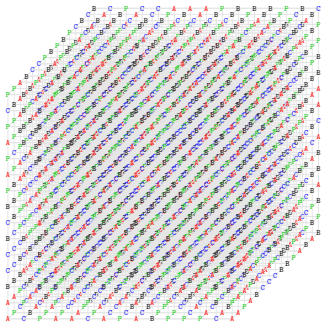# L Linguistic Labyrinth

Time limit: 15s

It is the 25th of December, 2025. As a Christmas tradition, you gather a group of friends to solve a puzzle. Among your friends are *wordcels* and *shape rotators*, who are respectively better at thinking with words and with mental images. This puzzle challenges even the smartest wordcel and the most brilliant shape rotator:

Spoiler alert: this is one of the secret test cases.

There is a 3-dimensional grid with points at all integer coordinates (x, y, z) with $1 \leq x, y, z \leq n$, and each point has a label associated with it, which is either 'B', 'A', 'P', or 'C'. In this grid, you need to find occurrences of the curly word "BAPC". A curly word "BAPC" is a collection of four points in the grid such that:

- The labels spell out "BAPC" (in this order).

- The angle that the triplet "BAP" makes is 90 degrees: the vectors from B → A and from A → P form a 90-degree angle.

- The angle that the triplet "APC" makes is 90 degrees: the vectors from A → P and from P → C form a 90-degree angle.

Note that the two angles do not need to be axis-aligned. As an example, see the third sample case, visualized in Figure L.1.

How many occurrences of the curly word "BAPC" are in the given grid?

Input

The input consists of:

- One line with an integer n ($1 \leq n \leq 22$), the size of the grid.

- n blocks of $n + 1$ lines. Each block of $n + 1$ lines consists of:

  - One line with a hyphen (−), to make the input more human-readable.
  - n lines with n characters, each character being either 'B', 'A', 'P', or 'C', representing all labels of one horizontal layer of the 3-dimensional grid.

Output

Output the number of curly words "BAPC" in the 3-dimensional grid.

Sample Input 1	Sample Output 1
1 − B	0

Sample Input 2

```
2
–
PA
PB
–
CC
PB
```

Sample Output 2

```
2
```

Sample Input 3

```
3
–
BBB
BCB
BCB
–
BBC
CBA
BBB
–
BBB
BPB
BBB
```
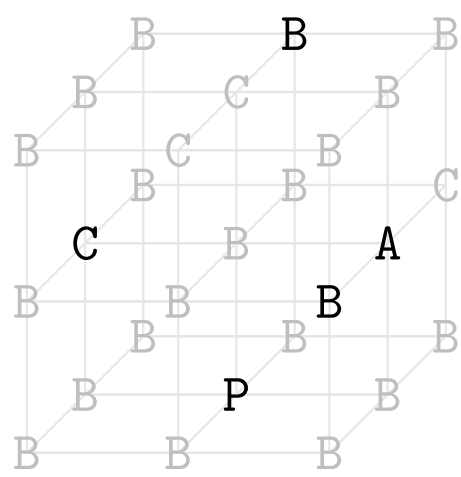
Sample Output 3

```
2
```


Figure L.1: Visualization of the third sample input. In this grid, there are two curly words "BAPC", using the highlighted letters.