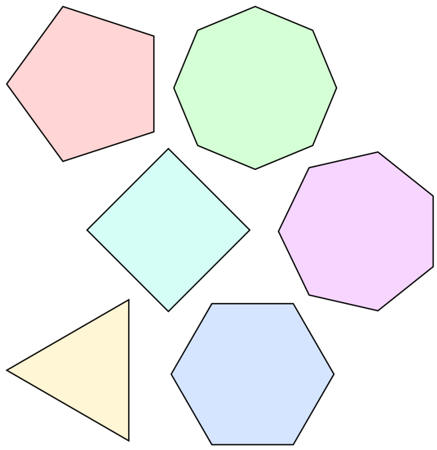
Alice in Geometryland

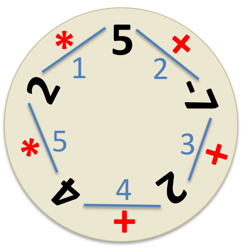


Polygon Clipart

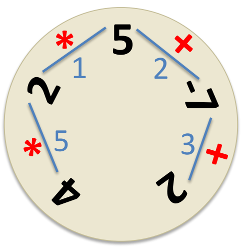
Once upon a time, in the mystical Geometryland, there was a young and curious girl named Alice. One day, she stumbled upon a forgotten ancient polygon. Each vertex held an integer and the edges connecting them were adorned with either the symbol '+' for addition or '$*$' for multiplication.

As Alice gazed at this peculiar polygon, a mischievous wizard appeared and challenged her to play a game. The rules were simple but intriguing: Alice should remove one edge of the polygon at a time, in whatever order she wanted. The removal of the first edge would open a hole in the polygon. Then, for each subsequent removal, the two vertices connected by the edge would join and the emerged vertex would hold the result of performing the operation indicated on the edge with the numbers at its endpoints. Therefore, after removing all edges, a single vertex would remain. Alice's score would be the number at that vertex. The wizard ended with an advice: Alice should choose the order in which the edges would be removed very carefully, because she would win the game only if she got the highest possible score.

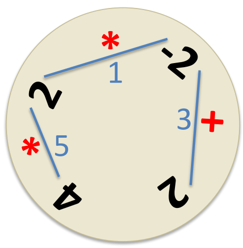
Consider the pentagon depicted in Figure (a), where vertices hold the black numbers, edges are drawn and numbered in blue and their operations are in red. Figures (b) – (f) show the result of removing edges 4, 2, 5, 3, and 1 (in this order). Notice that, after the first removal (Figure (b)), there are still five vertices. This sequence of removals leads to a score of zero (c.f. Figure (f)).



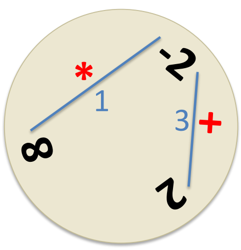
(a) Initial polygon



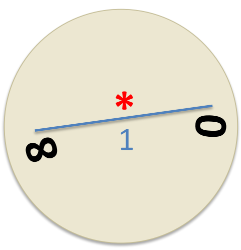
(b) Removal of edge 4



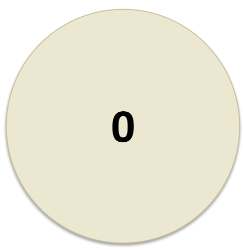
(c) Removal of edge 2



(d) Removal of edge 5



(e) Removal of edge 3



(f) Removal of edge 1

It is not very difficult to verify that Alice would not be able to win this game if she started by removing edge 4. So, edge 4 is not a "good start". An edge is a *good start* if the highest score is achievable when the edge is the first to be removed.

Task

Write a program that, given a polygon, computes the highest possible score and all good starts. It is guaranteed that, for the given inputs, any value held by a vertex obtained by the process described above fits in a normal signed 64 bit integer.

Input

The input first line has a positive integer, V, which represents the number of vertices of the polygon. The second line contains $2V$ elements, $s_1, n_1, s_2, n_2, \ldots, s_V, n_V$, separated by a single space, where s_i denotes the symbol on the i^{th} edge, which is '+' or '*', and n_i denotes the number at the i^{th} vertex (for every $i = 1, 2, \ldots, V$). The first vertex is an endpoint of the first and the second edges, the second vertex is an endpoint of the second and the third edges, so on and so forth, until the last vertex, which is an endpoint of the last and the first edges.

Constraints

$3 \leq V \leq 100$	Number of vertices
$-9 \leq n_i \leq 9$	Number at a vertex (for every $i = 1, 2, \ldots, V$)

Output

The output consists of two lines. The first line contains an integer representing the highest possible score Alice could get for the input polygon. The second line has the order numbers of all good starts, written in increasing order and separated by a single space.

Sample Input 1

```
5
* 5 + -7 + 2 + 4 * 2
```

Sample Output 1

```
53
2 3
```

Sample Input 2

```
10
* -3 * -3 + 9 + -2 + 0 * 0 * -2 + 2 * -8 + 9
```

Sample Output 2

```
4455
10
```