3 Climate Conference Confrontation

Climate Conventions are an excellent place to discuss about environmental issues. Politicians are known to be vicious. There are many conflicts between individual representatives. Thus, the seat plan for a banquet dinner requires careful planning. Luckily, there are two big round tables ordered for the dinner.

Your task is to split the politicians into two conflict-free groups, so that each of the two tables enjoys a peaceful dinner. All conflicts between politicians are captured in a square symmetric matrix M. If the entry in row i and column j is 1, then politicians i and j have a dispute and should not sit at the same table. This also means that the entry in row j and column i is 1, since a dispute is always symmetric. All other entries of the matrix are 0. A conflict-free table is a set of politicians $a_1, \ldots, a_k$ such that $M(a_i, a_j) = 0$ for all $i, j \in \{0, \ldots, k\}$.

Thus the following matrix of conflicts between politicians results in a split with politicians 0, 2, 4 at one table and athletes 1, 3 at the other.

```
0 1 0 1 0      Politician 0 is in dispute with politician 1 and 3.
1 0 1 0 1      Politician 1 is in dispute with politician 1, 2 and 4.
0 1 0 1 0      Politician 2 is in dispute with politician 1 and 3.
1 0 1 0 1      Politician 1 is in dispute with politician 1, 2 and 4.
0 1 0 1 0      Politician 4 is in dispute with politician 1 and 3.
```

Input The input consists of a single integer N in the first line such that $1 \leq N \leq 2000$ which corresponds to the number of politicians present for dinner. The next N lines contain N space separated integers with value 0 or 1 providing the conflicts. This corresponds to the conflict matrix M as defined above. Note that every input of conflicts will have a possible solution of splitting politicians into two (non-empty) tables.

Output The output should consist of two lines providing the index of athletes sitting at the first and second table, respectively.

The first line corresponds to the table at which politician 0 is seated and thus starts with integer 0. The second line contains the indices of athletes sitting at the other table.

All values on each of the lines should be given in ascending order and space-separated.

Sample Input 1

```
5
0 1 0 1 0
1 0 1 0 1
0 1 0 1 0
1 0 1 0 1
0 1 0 1 0
```

Sample Output 1

```
0 2 4
1 3
```

Sample Input 2

```
6
0 0 1 0 0 0
0 0 1 0 1 0
1 1 0 1 0 1
0 0 1 0 0 0
0 1 0 0 0 0
0 0 1 0 0 0
```

Sample Output 2

```
0 1 3 5
2 4
```