

Practice Problem PA

Golden Tickets

There are N teams participating in INC 2024. The team ranked in the i^{th} position is team S_i , representing institution T_i . It is known that the top M teams in INC 2024 are eligible to participate in The ICPC Asia Jakarta 2024.

Apart from the top M teams, *Golden Tickets* are given to at most top K teams for which their institutions are not in the top M of INC 2024. However, only **at most one** Golden Ticket will be given to each institution, and only the team with the highest rank in INC 2024 from each institution qualifies for the Golden Ticket. These Golden Tickets will allow them to participate in The ICPC Asia Jakarta 2024.

Determine the number of teams that will receive the Golden Tickets. Then, output the name of the teams that receive those Golden Tickets, sorted by the rank of the teams.

Input

The first line consists of three integers $N M K$ ($1 \leq M, K \leq N \leq 100$).

Each of the next N lines consists of two string $S_i T_i$ ($1 \leq |S_i|, |T_i| \leq 10$) separated by a whitespace. All strings consist of upper case letters. There are no teams with the same name. Formally, $S_i \neq S_j$ for $1 \leq i < j \leq N$.

Output

The first line consists of an integer, representing the number of teams that will receive the Golden Tickets. Denote this number as X .

Then, output X lines, each consisting of the name of the teams that receive those Golden Tickets, sorted by their rank. If $X = 0$, then you do not need to print any names.

Sample Input #1

```
3 1 2
ARUA UOGX
NOIHS UHOLO
IKUBUF UHOLO
```

Sample Output #1

```
1
NOIHS
```

Explanation for the sample input/output #1

Teams from institutions UOGX cannot receive Golden Tickets. The only institution that receives the Golden Ticket is UHOLO, represented by team NOIHS at rank 2.

Sample Input #2

```
3 2 1
ARUA UOGX
NOIHS UHOLO
IKUBUF UHOLO
```

Sample Output #2

```
0
```

Explanation for the sample input/output #2

Teams from institutions UOGX and UHOLO cannot receive Golden Tickets. There are no institutions that receive a Golden Tickets.

Sample Input #3

```
5 1 2
ARUA UOGX
NOIHS UHOLO
IKUBUF UHOLO
IHCIM UVSH
LAMLA UNIJI
```

Sample Output #3

```
2
NOIHS
IHCIM
```

Explanation for the sample input/output #3

The first institution that receives the Golden Ticket is UHOLO, represented by team NOIHS at rank 2. The second institution that receives a Golden Ticket is UVSH, represented by team IHCIM at rank 4.

Sample Input #4

```
9 3 3
ARUA UOGX
IHCIM UVSH
NOIHS UHOLO
IKUBUF UHOLO
LAMLA UNIJI
IKASAS UNIJI
ESUOMNORI UVSH
AIHSUR URIP
AYNEH UVSH
```

Sample Output #4

```
2
LAMLA
AIHSUR
```

Explanation for the sample input/output #4

Teams from institutions UOGX, UVSH, and UHOLO cannot receive Golden Tickets. The first institution that receives the Golden Ticket is UNIJI, represented by team LAMLA at rank 6. The second institution that receives a Golden Ticket is URIP, represented by team AIHSUR at rank 8. It is impossible to give 3 Golden Tickets.

Disclaimer

All team names and institution names in the samples are fictional. Any similarities with actual participants in INC 2024 are purely coincidental.