You have $n$ marbles of different colors which are distributed in 2 boxes. In each move you can move one marble from one box into another. You have to move the marbles in such a way that first box contains each combination of marble sets exactly once. There are $2^n$ combinations of marbles.

For example you have 4 marbles. Box 1 has marbles of color 1 and 3. And Box 2 has marbles of color 2 and 4. Then the solution can be as follows.

| Steps | Box 1 marbles | Move | Box 2 marbles |
|---|---|---|---|
| 1 | 1,3 | | 2,4 |
| 2 | 1,2,3 | Move 2 from B2 to B1 | 4 |
| 3 | 1,2,3,4 | Move 4 from B2 to B1 | |
| 4 | 1,2,4 | Move 3 from B1 to B2 | 3 |
| 5 | 2,4 | Move 1 from B1 to B2 | 1,3 |
| 6 | 2,3,4 | Move 3 from B2 to B1 | 1 |
| 7 | 3,4 | Move 2 from B1 to B2 | 1,2 |
| 8 | 4 | Move 3 from B1 to B2 | 1,2,3 |
| 9 | | Move 4 from B1 to B2 | 1,2,3,4 |
| 10 | 3 | Move 3 from B2 to B1 | 1,2,4 |
| 11 | 2,3 | Move 2 from B2 to B1 | 1,4 |
| 12 | 2 | Move 3 from B1 to B2 | 1,3,4 |
| 13 | 1,2 | Move 1 from B2 to B1 | 3,4 |
| 14 | 1 | Move 2 from B1 to B2 | 2,3,4 |
| 15 | 1,4 | Move 4 from B2 to B1 | 2,3 |
| 16 | 1,3,4 | Move 3 from B2 to B1 | 2 |

## Input

Input contains multiple test cases. The first line of the input contains $T$ ($1 \leq T \leq 20$) the number of test cases. Each test case consists of 2 lines. The first line contains $n$ ($1 \leq n \leq 10$) and $b_1$ ($0 \leq b_1 \leq n$). $n$ is the number of marbles and $b_1$ is the number of marbles in the first box. The next line contains $b_1$ integer the indices of the marbles which are in the first box. All of these numbers are distinct and between 1 and $n$ inclusive. The rest of the $n - b_1$ marbles are in 2-nd box.

## Output

For each test case output contains $2^n$ lines. The first $2^n - 1$ lines contains the moves (see the sample output for formatting). The last line is blank. In case there are multiple solutions any valid solution is acceptable.

## Sample Input

```
2
2 1
1
4 2
1 3
```

## Sample Output

```
Move 2 from B2 to B1
Move 1 from B1 to B2
Move 2 from B1 to B2

Move 2 from B2 to B1
Move 4 from B2 to B1
Move 3 from B1 to B2
Move 1 from B1 to B2
Move 3 from B2 to B1
Move 2 from B1 to B2
Move 3 from B1 to B2
Move 4 from B1 to B2
Move 3 from B2 to B1
Move 2 from B2 to B1
Move 3 from B1 to B2
Move 1 from B2 to B1
Move 2 from B1 to B2
Move 4 from B2 to B1
Move 3 from B2 to B1
```