

# Summer Trip

In this hot summer AIUB students decided to go on a trip to Cox's Bazaar sea beach. Every student has some amount of money to spend in this trip. Each student belongs to some group. If student A knows student B, B knows C then A, B and C belong to the same group. In order to utilize the budget properly students hired a travel agency to get an optimal travel plan. They submitted the information about all the student's money and relations among them. Now the agency wants to figure out the number of groups and the total budget of each group. Total budget of a group is the summation of all the student's money in that group.

## Input

The first line contains an integer  $T$  ( $1 \leq T \leq 50$ ), denoting the number of test cases.

Each case starts with two integers  $N$   $M$ .  $N$  ( $1 \leq N \leq 1000$ ), denotes the number of students and  $M$  ( $0 \leq M \leq (N*(N-1)/2)$ ), denotes the number of relationships. In the next line  $N$  integers are given. The  $i$ th ( $1 \leq i \leq N$ ) integer  $a_i$  ( $1 \leq a_i \leq 100$ ) denotes the money  $i$ th student has. Next  $M$  lines each contains two integers  $u$   $v$ , ( $1 \leq u, v \leq N$  and  $u \neq v$ ) denoting that  $u$  knows  $v$  and vice versa.

## Output

For each test case output "Case X: K" where X is the case number starting from 1 and K is the number of groups. In the next line output K integers, the total budget of all the groups in ascending order of budget.

## Example

### Input:

```
1
5 3
5 7 4 6 8
1 2
1 3
4 5
```

### Output:

```
Case 1: 2
14 16
```