

# FLOOD

## Introduction

In a distant part of the Universum, on one of the extreme planets of galaxy B-32, beetlejumpers have already not only managed to make themselves at home but even to become completely indolent. The times of colonization of the planet have well gone by. Hardly anybody knows what engagement was needed to build the presently functioning extensive network of roads. There is a certain set of connections from each inhabited location, which enable transportation to every other location on this planet.

However, there came the trying time for beetlejumpers. Meteorologists are sounding the alarm. For the coming days there are expected torrential rains which can cause significant damages to the roads. In connection with this news the Highest Emergency Council decided to establish which roads on the planet are of particular importance for the efficiency of the traffic connections network. For this purpose, the weight of a road was defined, which denotes the number of all pairs of the cities which will not be interconnected if this (and only this) road becomes damaged.

Cities on the hapless planet are marked according to the system applicable in the B-32 galaxy. Each city has its own number (from 1 to  $N$ ) given in the base-32 positional system, in which the notation consists of strings composed of letters from the set  $\{a,b,c,d,e,f,g,h,i,j,k,l,m,n,p,q,r,s,A,B,C,D,E,F,G,H,K,L,M,N,P,Q,R,S\}$ , corresponding to the values from 0 to 31, respectively. And so for example the city number 65 is denoted as "cb", and the city number 700 as "FP".

## Problem

Having the description of the network of road connections on the planet, determine the roads of the greatest  $P$  weights, so as to be able to localize the most critical transport sections.

## Input data

Test sets are given in flood\*.in files.

The first line in the test set consists of three numbers:  $N$ ,  $K$  and  $P$ , which denote respectively:

$N$  – number of cities on the planet,

$K$  – number of roads between the cities,

$P$  – number of greatest weights (different in value), to be included in the answer.

In the following  $K$  lines you can find descriptions of road connections on the planet. In each line there are included denotations – separated with a space character – of two cities, between which there is a road. Between each two cities there is not more than one road and each road is mentioned only once.

$$1 < N \leq 2000$$

$$1 \leq K \leq 10000$$

$$1 \leq P \leq 10$$

## Output data

The first line should include  $C$  – number of roads of the greatest  $P$  weights. The following  $C$  lines should describe roads of the greatest weights. Each line has a form of three values separated with a

space character: two first ones are denotations of connected cities, the third one is the weight of the road between them.

Roads should always be presented with the smaller number of the city first and in such an order as they appeared in the input file. If the number of distinct road weights is not greater than  $P$ , then all the roads should be presented in the output file

## Example

For a given input data:

```
9 11 2
b c
d b
d c
d e
e f
e h
e k
f g
h f
h g
h l
```

The correct answer is:

```
3
d e 18
e k 8
h l 8
```

## Score

If the answer for the given set is correct, then the score for the set is 1; otherwise the score is 0.