



Greetings From Globussoft

- ❖ Given below are 5 Programming questions, you have to solve any 3 out of 5 questions.
- ❖ These 5 questions you can attempt in any technology like C/C++, java, .Net, PHP
- ❖ To solve these 3 questions you've max. 3 hours.
- ❖ While Solving these questions you are not allowed to use any **Search Engine** like Google, Yahoo, Bing ...

All the best for your test

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QUESTION - 1

Young people spend a lot of money on things like sweets, music CDs, mobile phones and so on. But most young girls/boys have one problem: Their pocket money is not enough for all these jolly things. Little Lisa Listig is one of these poor girls with a small pocket money budget. Last month her pocket money lasted only one week. So she decided to enter into negotiations with her father. Her father Tomm - a mathematician - had an incredibly ingenious idea: He wrote down some fancy digits with operators (+,*) in between them on a sheet of paper and allowed Lisa to insert brackets. Then he declared that the result of that arithmetic expression is Lisa's new pocket money. Now it's Lisa's task to maximize her pocket money. As her father was surprised what a huge sum of money Lisa got for her result, he decided to minimize the result of the expression for his son Manfred. Now it's your task to calculate the results obtained by Lisa and her father.

Input

The first line of input contains the number of testcases k ($k < 5000$). Each of the following k lines consists of an arithmetic expression. This expression consists of numbers (0-9) separated by one of the two operators '*' and '+'. There are no spaces between the characters. Each line contains less than 100 characters.

Output

For each expression output the result obtained by Lisa and the result obtained by her father separated by one space. The results of the calculations are smaller than 2^{64} .

Example

Input:

```
1
1+2*3+4*5
```

Output:

```
105 27
```

QUESTION – 2

You are given a tree (an acyclic undirected connected graph) with N nodes, and edges numbered 1, 2, 3... $N-1$.

We will ask you to perform some instructions of the following form:

- **CHANGE i t_i** : change the cost of the i -th edge to t_i
or
- **QUERY a b** : ask for the maximum edge cost on the path from node a to node b

Input

The first line of input contains an integer **t**, the number of test cases ($t \leq 20$). **t** test cases follow.

For each test case:

- In the first line there is an integer **N** ($N \leq 10000$),
- In the next **N-1** lines, the *i*-th line describes the *i*-th edge: a line with three integers **a b c** denotes an edge between **a, b** of cost **c** ($c \leq 1000000$),
- The next lines contain instructions "**CHANGE i ti**" or "**QUERY a b**",
- The end of each test case is signified by the string "**DONE**".

There is one blank line between successive tests.

Output

For each "**QUERY**" operation, write one integer representing its result.

Example

Input:

```
1
3
1 2 1
2 3 2
QUERY 1 2
CHANGE 1 3
QUERY 1 2
DONE
```

Output:

```
1
3
```

QUESTION – 3

You are given a matrix **M** of type 1234x5678. It is initially filled with integers 1...1234x5678 in row major order. Your task is to process a list of commands manipulating **M**. There are 4 types of commands:

"**R x y**" swap the *x*-th and *y*-th row of **M** ;

"**C x y**" swap the *x*-th and *y*-th column of **M** ;

"**Q x y**" write out **M**(*x*,*y*) ;

"**W z**" write out *x* and *y* where $z = M(x,y)$.

Input

A list of valid commands. Input terminated by EOF.

Output

For each "Q x y" write out one line with the current value of $M(x,y)$, for each "W z" write out one line with the value of x and y (interpreted as above) separated by a space.

Input:

```
R 1 2
Q 1 1
Q 2 1
W 1
W 5679
C 1 2
Q 1 1
Q 2 1
W 1
W 5679
```

Output:

```
5679
1
2 1
1 1
5680
2
2 2
1 2
```

QUESTION – 4

In the movie "Blues Brothers", the orphanage where Elwood and Jake were raised may be sold to the Board of Education if they do not pay 5000 dollars in taxes at the Cook County Assessor's Office in Chicago. After playing a gig in the Palace Hotel ballroom to earn these 5000 dollars, they have to find a way to Chicago. However, this is not so easy as it sounds, since they are chased by the Police, a country band and a group of Nazis. Moreover, it is 106 miles to Chicago, it is dark and they are wearing sunglasses.

As they are on a mission from God, you should help them find the safest way to Chicago. In this problem, the safest way is considered to be the route which maximises the probability that they are not caught.

Input Specification

The input file contains several test cases.

Each test case starts with two integers n and m ($2 \leq n \leq 100$, $1 \leq m \leq n*(n-1)/2$). n is the number of intersections, m is the number of streets to be considered.

The next m lines contain the description of the streets. Each street is described by a line containing 3 integers a , b and p ($1 \leq a, b \leq n$, $a \neq b$, $1 \leq p \leq 100$): a and b are the two end points of the street and p is the probability in percent that the Blues Brothers will manage to use this street without being caught. Each street can be used in both directions. You may assume that there is at most one street between two end points. The last test case is followed by a zero.

Output Specification

For each test case, calculate the probability of the safest path from intersection 1 (the Palace Hotel) to intersection n (the Honorable Richard J. Daley Plaza in Chicago). You can assume that there is at least one path between intersection 1 and n . Print the probability as a percentage with exactly 6 digits after the decimal point. The percentage value is considered correct if it differs by at most 10^{-6} from the judge output. Adhere to the format shown below and print one line for each test case.

Sample Input

```
5 7
5 2 100
3 5 80
2 3 70
2 1 50
3 4 90
4 1 85
3 1 70
0
```

Sample Output

```
61.200000 percent
```

QUESTION – 5

In Hanoi, there are N beauty-spots ($2 \leq N \leq 200$), connected by M one-way streets. The length of each street does not exceed 10000. You are the director of a travel agency, and you want to create some tours around the city which satisfy the following conditions:

- Each of the N beauty-spots belongs to exactly one tour.
- Each tour is a cycle which consists of at least 2 places and visits each place once (except for the place we start from which is visited twice).
- The total length of all the streets we use is minimal.

Input

The first line of input contains the number of testcases t ($t \leq 15$). The first line of each testcase contains the numbers N, M . The next M lines contain three integers $U V W$ which mean that there is one street from U to V of length W .

Output

For each test case you should output the minimal total length of all tours.

Example

Input:

```
2
6 9
1 2 5
2 3 5
3 1 10
3 4 12
4 1 8
4 6 11
5 4 7
5 6 9
6 5 4
5 8
1 2 4
2 1 7
1 3 10
3 2 10
3 4 10
4 5 10
5 3 10
5 4 3
```

Output:

```
42
40
```