

## 11. Travel Expense

Timelimit: 1000MS Memorylimit: 64M

### Problem Description:

Huanhuan is always working on fancy programming questions. However, today he decided to give himself a break and travel to a beautiful country. Therefore, another problem arose.

There are totally  $n$  cities in the country. There are  $m$  two-way roads, each of them directly connects two different cities. As the country has a solid transportation system, there is always a path connects every two cities.

Huanhuan arrives at city  $S$  and wants to carry as many items as possible to city  $T$ . Everyday he will go through exactly one road. For every road he pass, a fee is to pay. Due to the policy, the fee depends on number of items you carry and the number of days you enter the country. More exactly, the fee for each road is  $k^d$ , where  $k$  is the number of the items Huanghuan is to carry and  $d$  is the number of days he enter the country.

For example, Huanghuan arrives at city 1, and aim to city 3. The path he chooses is  $1 \rightarrow 2 \rightarrow 3$  carrying 2 items. Then the fee of road  $1 \rightarrow 2$  will be  $2^1$  and the fee of road  $2 \rightarrow 3$  will be  $2^2$ . So the total expense is  $2^1 + 2^2 = 6$

Now, you are tasked to help him to decide the maximum number of items he can carry since he only have limited budget.

However, Huanhuan is prepared to travel multiple times in the future. There will be totally  $Q$  query for you.

### Input requirements:

The first line contains two interger  $n, m (1 \leq n \leq 100, m \leq \frac{n(n+1)}{2})$ , where  $n$  is number of cities and  $m$  is the number of road. (It's guaranteed that every two cities are connected, and there are no two roads directly connects the same two cities.)

Then,  $m$  lines follow, the  $i^{\text{th}}$  lines contains two integer  $u_i, v_i (1 \leq u_i, v_i \leq n, u_i \neq v_i)$ , denoting the  $i^{\text{th}}$  roads connects city  $u_i$  and  $v_i$ .

The next lines contains one integer  $Q (1 \leq Q \leq 10^5)$ , denoting the number of query.

Then follows  $Q$  lines, each line contains 3 integers  $S, T, B (1 \leq S, T \leq n, 0 \leq B \leq 10^9)$ , denoting the city arrived, the city aimed and the budget.

### Output requirements:

For each query, print one integer as the maximum item Huanhuan can carry from city  $S$  to  $T$ .

### Sample input:

```
3 2
1 2
2 3
3
1 2 5
1 3 5
2 3 2
```

### Sample output:

```
5
1
2
```