Problem SEWAGEPLAN: Sewage Planning

Tim, a local engineer, has to plan the new sewage connection between two remote villages. As the two villages are located in the Great Plains, they are connected by a straight, flat street. Tim wisely decided to lay the sewage pipeline in parallel to the street to minimize the total length. To cover the whole distance, he got several quotes from tube producers including prices and lengths. Due to the extreme distance that must be covered, each tube variant is quite lengthy. Therefore, each distinct tube can only be delivered once. Now Tim has to select some of the quoted tubes such that the total price is minimal. The total length of all ordered tubes can match the total covered length, but it does not have to. On rare occasions, the total length of all tubes might not suffice to cover the whole distance and Tim admits defeat.

Input

The first line denotes the number of test cases t ($1 \leq t \leq 20$). Each test case starts with a line containing two integers d and n ($0 < d \leq 2\,000$; $0 < n \leq 2\,000$), where d denotes the total distance to be covered and n the number of tube models. Each of the following n lines contains a distinct tube t_i represented by its length l_i and its price p_i (both integers) ($0 < l_i \leq 999$; $0 < p_i \leq 100\,000$).

Output

For each test case, print one line. If the tubes cannot cover the whole distance at all, print "`IMPOSSIBLE`". Otherwise, first print the total cost of the solution, followed by a sequence of 0s and 1s where a 1 denotes that the corresponding tube (in the order of the input) is used for that solution while a 0 denotes that it is not used. If there are multiple solutions that minimize the total cost, any will be accepted.

Sample Input 1

```
3
50 4
10 20
5 5
30 90
5 10
20 4
5 5
10 10
15 20
5 10
999 2
555 1
443 1
```

Sample Output 1

```
125 1111
25 1010
IMPOSSIBLE
```