PW - I // Negotiating for the Future

Mrs. Mohan is quite happy today as Vincent Massey Secondary School won both the first and second place at the UWindsor Science Olympiad, a feat that has not been accomplished in many years. Using this opportunity, Anish decides that it is time to negotiate. Since many students need their Grade 12 Physics mark for Engineering, Anish goes to Mrs. Mohan and tells her that he thinks she should inflate the marks. Mrs. Mohan agrees but gives Anish a task he must fulfill. She has several categories from which her Killer Mohan Problems come from. Each category has an unlimited arsenal of problems as Mrs. Mohan has saved them up for many years. Each category has problems that require the same amount of time to solve and deserve the same number of marks. Your task is to write a program that tells Mrs. Mohan how many problems of each category she should include in order to maximize the total number of marks students can get while keeping the total solution time within the length of the test time given.

The input includes the test time, M ($1 <= M <= 10,000$) and N, the number of problem categories, where $1 <= N <= 10,000$.

Each of the subsequent N lines contains two integers describing a category: the first integer tells the number of marks a problem from that category is worth ($1 <= points <= 10000$); the second tells the number of minutes a problem from that category takes to solve ($1 <= minutes <= 10,000$).

Your program should determine the number of problems that should be taken from each category to make the highest-marked test solvable within the length of the contest. Remember, the number from any category can be any non-negative integer (0, one, or many). Calculate the maximum number of possible marks.

Sample Input 1:

```
300 4
100 60
250 120
120 100
35 20
```

Sample Output 1:

```
605
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*Two from Category #2 and 3 from Category #4