# 2020 Canadian Computing Olympiad
## Day 2, Problem 3
### Shopping Plans

**Time Limit: 2 seconds**

**Problem Description**
You are shopping from a store that sells a total of $N$ items. The $i$-th item has a *type* $a_i$ which is an integer between $1$ and $M$. A feasible shopping plan is a subset of these items such that for all types $j$, the number of items of type $j$ is in the interval $[x_j, y_j]$.

The $i$-th item in the store has a cost of $c_i$, and the cost of a shopping plan is the sum of the costs of items in the plan. You are interested in the possible costs of feasible shopping plans. Find the costs of the $K$ cheapest feasible shopping plans. Note that if there are two different shopping plans with the same cost, they should be counted separately in the output.

**Input Specification**
The first line consists of three space-separated integers $N$, $M$, and $K$ ($1 \leq N, M, K \leq 200\,000$). $N$ lines follow, the $i$-th of which contains two space-separated integers $a_i$ and $c_i$ ($1 \leq a_i \leq M$, $1 \leq c_i \leq 10^9$). $M$ lines follow, the $j$-th of which contains two space-separated integers $x_j$ and $y_j$ ($0 \leq x_j \leq y_j \leq N$).

For 5 of the 25 marks available, $x_j = y_j = 1$ and $N, M, K \leq 4000$.

For an additional 5 of the 25 marks available, $x_j = y_j = 1$ and $N, M, c_i \leq 4000$.

For an additional 5 of the 25 marks available, $x_j = y_j = 1$.

For an additional 5 of the 25 marks available, $x_j = 0$.

**Output Specification**
Output $K$ lines. On the $i$-th line, output the cost of the $i$-th cheapest feasible shopping plan, if one exists, or $-1$ if there are fewer than $i$ feasible shopping plans.

**Sample Input 1**
```
5 2 7
1 5
1 3
2 3
1 6
2 1
1 1
1 1
```

**Output for Sample Input 1**

```
4
6
6
7
8
9
-1
```

**Explanation of Output for Sample Input 1**

A feasible shopping plan must combine exactly one item with a cost in $\{5, 3, 6\}$ with exactly one item with a cost in $\{3, 1\}$.