1889. Minimum Space Wasted From Packaging

Description

You have `n` packages that you are trying to place in boxes, **one package in each box**. There are `m` suppliers that each produce boxes of **different sizes** (with infinite supply). A package can be placed in a box if the size of the package is **less than or equal to** the size of the box.

The package sizes are given as an integer array `packages`, where `packages[i]` is the **size** of the `i` th package. The suppliers are given as a 2D integer array `boxes`, where `boxes[j]` is an array of **box sizes** that the `j` th supplier produces.

You want to choose a **single supplier** and use boxes from them such that the **total wasted space** is **minimized**. For each package in a box, we define the space **wasted** to be `size of the box - size of the package`. The **total wasted space** is the sum of the space wasted in **all** the boxes.

- For example, if you have to fit packages with sizes `[2,3,5]` and the supplier offers boxes of sizes `[4,8]`, you can fit the packages of size-`2` and size-`3` into two boxes of size-`4` and the package with size-`5` into a box of size-`8`. This would result in a waste of `(4-2) + (4-3) + (8-5) = 6`.

Return *the **minimum total wasted space** by choosing the box supplier **optimally**, or* `-1` *if it is **impossible** to fit all the packages inside boxes.* Since the answer may be **large**, return it **modulo** $10^9 + 7$.

Example 1:

```
Input: packages = [2,3,5], boxes = [[4,8],[2,8]]
Output: 6
Explanation: It is optimal to choose the first supplier, using two size-4 boxes and one size-8 box.
The total waste is (4-2) + (4-3) + (8-5) = 6.
```

Example 2:

```
Input: packages = [2,3,5], boxes = [[1,4],[2,3],[3,4]]
Output: -1
Explanation: There is no box that the package of size 5 can fit in.
```

Example 3:

```
Input: packages = [3,5,8,10,11,12], boxes = [[12],[11,9],[10,5,14]]
Output: 9
Explanation: It is optimal to choose the third supplier, using two size-5 boxes, two size-10 boxes, and two size-14 boxes.
The total waste is (5-3) + (5-5) + (10-8) + (10-10) + (14-11) + (14-12) = 9.
```

Constraints:

- `n == packages.length`
- `m == boxes.length`
- $1 <= n <= 10^5$
- $1 <= m <= 10^5$
- $1 <= packages[i] <= 10^5$
- $1 <= boxes[j].length <= 10^5$
- $1 <= boxes[j][k] <= 10^5$
- $sum(boxes[j].length) <= 10^5$
- The elements in `boxes[j]` are **distinct**.