Problem 1710: Maximum Units on a Truck

Problem Information

Difficulty: Easy
Acceptance Rate: 74.54%
Paid Only: No
Tags: Array, Greedy, Sorting

Problem Description

You are assigned to put some amount of boxes onto **one truck**. You are given a 2D array `boxTypes`, where `boxTypes[i] = [numberOfBoxesi, numberOfUnitsPerBoxi]`:

* `numberOfBoxesi` is the number of boxes of type `i`. * `numberOfUnitsPerBoxi` is the number of units in each box of the type `i`.

You are also given an integer `truckSize`, which is the **maximum** number of **boxes** that can be put on the truck. You can choose any boxes to put on the truck as long as the number of boxes does not exceed `truckSize`.

Return _the**maximum** total number of **units** that can be put on the truck._

Example 1:

Input: boxTypes = [[1,3],[2,2],[3,1]], truckSize = 4 **Output:** 8 **Explanation:** There are: - 1 box of the first type that contains 3 units. - 2 boxes of the second type that contain 2 units each. - 3 boxes of the third type that contain 1 unit each. You can take all the boxes of the first and second types, and one box of the third type. The total number of units will be = (1 * 3) + (2 * 2) + (1 * 1) = 8.

Example 2:

Input: boxTypes = [[5,10],[2,5],[4,7],[3,9]], truckSize = 10 **Output:** 91

Constraints:

* `1 <= boxTypes.length <= 1000` * `1 <= numberOfBoxesi, numberOfUnitsPerBoxi <= 1000` * `1 <= truckSize <= 106`

Code Snippets

C++:

```
class Solution {
public:
int maximumUnits(vector<vector<int>>& boxTypes, int truckSize) {

}
};
```

Java:

```
class Solution {
public int maximumUnits(int[][] boxTypes, int truckSize) {

}
}
```

Python3:

```
class Solution:
def maximumUnits(self, boxTypes: List[List[int]], truckSize: int) -> int:
```