Problem 2525: Categorize Box According to Criteria

Problem Information

Difficulty: Easy
Acceptance Rate: 38.28%
Paid Only: No
Tags: Math

Problem Description

Given four integers `length`, `width`, `height`, and `mass`, representing the dimensions and mass of a box, respectively, return _a string representing the**category** of the box_.

* The box is `"Bulky"` if: * **Any** of the dimensions of the box is greater or equal to `104`. * Or, the **volume** of the box is greater or equal to `109`. * If the mass of the box is greater or equal to `100`, it is `"Heavy".` * If the box is both `"Bulky"` and `"Heavy"`, then its category is `"Both"`. * If the box is neither `"Bulky"` nor `"Heavy"`, then its category is `"Neither"`. * If the box is `"Bulky"` but not `"Heavy"`, then its category is `"Bulky"`. * If the box is `"Heavy"` but not `"Bulky"`, then its category is `"Heavy"`.

Note that the volume of the box is the product of its length, width and height.

Example 1:

Input: length = 1000, width = 35, height = 700, mass = 300 **Output:** "Heavy" **Explanation:** None of the dimensions of the box is greater or equal to 104. Its volume = 24500000 <= 109. So it cannot be categorized as "Bulky". However mass >= 100, so the box is "Heavy". Since the box is not "Bulky" but "Heavy", we return "Heavy".

Example 2:

Input: length = 200, width = 50, height = 800, mass = 50 **Output:** "Neither" **Explanation:** None of the dimensions of the box is greater or equal to 104. Its volume = 8 * 106 <= 109. So it cannot be categorized as "Bulky". Its mass is also less than 100, so it cannot be categorized as "Heavy" either. Since its neither of the two above categories, we

return "Neither".

Constraints:

* `1 <= length, width, height <= 105` * `1 <= mass <= 103`

Code Snippets

C++:

```
class Solution {
public:
string categorizeBox(int length, int width, int height, int mass) {

}
};
```

Java:

```
class Solution {
public String categorizeBox(int length, int width, int height, int mass) {

}
}
```

Python3:

```
class Solution:
def categorizeBox(self, length: int, width: int, height: int, mass: int) ->
str:
```