1618. Maximum Font to Fit a Sentence in a Screen Premium

Medium | Topics | Companies | Hint

You are given a string `text`. We want to display `text` on a screen of width `w` and height `h`. You can choose any font size from array `fonts`, which contains the available font sizes **in ascending order**.

You can use the `FontInfo` interface to get the width and height of any character at any available font size.

The `FontInfo` interface is defined as such:

```
interface FontInfo {
  // Returns the width of character ch on the screen using font size fontSize.
  // O(1) per call
  public int getWidth(int fontSize, char ch);

  // Returns the height of any character on the screen using font size fontSize.
  // O(1) per call
  public int getHeight(int fontSize);
}
```

The calculated width of `text` for some `fontSize` is the **sum** of every `getWidth(fontSize, text[i])` call for each `0 <= i < text.length` (**0-indexed**). The calculated height of `text` for some `fontSize` is `getHeight(fontSize)`. Note that `text` is displayed on a **single line**.

It is guaranteed that `FontInfo` will return the same value if you call `getHeight` or `getWidth` with the same parameters.

It is also guaranteed that for any font size `fontSize` and any character `ch`:

- `getHeight(fontSize) <= getHeight(fontSize+1)`
- `getWidth(fontSize, ch) <= getWidth(fontSize+1, ch)`

Return *the maximum font size you can use to display* `text` *on the screen*. If `text` cannot fit on the display with any font size, return `-1`.

Example 1:

```
Input: text = "helloworld", w = 80, h = 20, fonts = [6,8,10,12,14,16,18,24,36]
Output: 6
```

Example 2:

```
Input: text = "leetcode", w = 1000, h = 50, fonts = [1,2,4]
Output: 4
```

Example 3:

```
Input: text = "easyquestion", w = 100, h = 100, fonts = [10,15,20,25]
Output: -1
```

Constraints:

- `1 <= text.length <= 50000`
- `text` contains only lowercase English letters.
- `1 <= w <= 10^7`
- `1 <= h <= 10^4`
- `1 <= fonts.length <= 10^5`
- `1 <= fonts[i] <= 10^5`
- `fonts` is sorted in ascending order and does not contain duplicates.

Seen this question in a real interview before? 1/5

Yes No

Accepted **7K** | Submissions **11.5K** | Acceptance Rate **61.0%**

Topics

Array String Binary Search Interactive

Companies

0 - 6 months

Google 2

Hint 1

Use *binary search* to find the last valid font.

Discussion (1)