

3186. Maximum Total Damage With Spell Casting

Solved 

Medium Topics Companies Hint

A magician has various spells.

You are given an array `power`, where each element represents the damage of a spell. Multiple spells can have the same damage value.

It is a known fact that if a magician decides to cast a spell with a damage of `power[i]`, they **cannot** cast any spell with a damage of `power[i] - 2`, `power[i] - 1`, `power[i] + 1`, or `power[i] + 2`.

Each spell can be cast **only once**.

Return the **maximum** possible *total damage* that a magician can cast.

Example 1:

```
Python3  ▾ • Auto
18         print(i, vec[i][0], temp, f[i])
19
20     return f[-1]
21     '''
22     count = Counter(power)
23     vec = sorted((k, count[k]) for k in count)
24     n = len(vec)
25     f = [0] * n
26     temp = 0
27     j = 0
28
29     for i in range(n):
30         while j < i and vec[j][0] < vec[i][0] - 2:
31             temp = max(temp, f[j])
32             j += 1
33         f[i] = max(f[i - 1] if i > 0 else 0, temp + vec[i][0] * vec[i][1])
34
35     return f[-1]
36
37
```

basic, use a temp to loop through all possibilities each time

Python

```
from collections import Counter
class Solution:
    def maximumTotalDamage(self, power: List[int]) -> int:
        cnt = Counter(power)
        a = sorted(cnt.keys())
        f = [0] * (len(a)+1)
        j = 0
        for i, x in enumerate(a):
            while a[j]<x-2:
                j += 1
            f[i+1] = max(f[i], f[j]+x*cnt[x])
        return f[-1]
```

use enumerate to automatically fetch every possibilities