

## 372. Super Pow

The screenshot shows the LeetCode interface for problem 372, 'Super Pow'. The problem description states: 'Your task is to calculate  $a^b \bmod 1337$  where  $a$  is a positive integer and  $b$  is an extremely large positive integer given in the form of an array.' Examples provided are: Example 1: Input: a = 2, b = [3], Output: 8; Example 2: Input: a = 2, b = [1,0], Output: 1024; Example 3: Input: a = 1, b = [4,3,3,8,5,2], Output: 1. The code editor shows a C++ solution with a powmod function and a superPow method. The test result shows 'Accepted' with a runtime of 0 ms.

**372. Super Pow**

Medium Topics Companies

Your task is to calculate  $a^b \bmod 1337$  where  $a$  is a positive integer and  $b$  is an extremely large positive integer given in the form of an array.

**Example 1:**  
Input: a = 2, b = [3]  
Output: 8

**Example 2:**  
Input: a = 2, b = [1,0]  
Output: 1024

**Example 3:**  
Input: a = 1, b = [4,3,3,8,5,2]  
Output: 1

**Constraints:**

```
1 class Solution {
2     const int base = 1337;
3     int powmod(int a, int k)
4     {
5         a %= base;
6         int result = 1;
7         for (int i = 0; i < k; ++i)
8             result = (result * a) % base;
9         return result;
10    }
11
12 public:
```

Testcase Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input

a =

2

Code:

```
class Solution {
    const int base = 1337;
    int powmod(int a, int k)
    {
        a %= base;
        int result = 1;
        for (int i = 0; i < k; ++i)
            result = (result * a) % base;
        return result;
    }

public:
    int superPow(int a, vector<int>& b) {
        if (b.empty())
            return 1;
        int last_digit = b.back();
        b.pop_back();
        return powmod(superPow(a, b), 10) * powmod(a, last_digit) % base;
    }
};
```

