Test Case: {1, 2, 3, 2}

Brute Force:

1. {1 2 2 3} D : 2

2. {1 2 3 2 } D : 3

3. {1 2 2 3 } D : 2

4. {1 2 3 2 } D : 3

5. {1 3 2 2 } D : 2

6. {1 3 2 2 } D : 2

7. {2 1 2 3 } D : 2

8. {2 1 3 2 } D : 3

9. {2 2 1 3 } D : 1

10. {2 2 3 1 } D : 3

11. {2 3 1 2 } D : 3

12. {2 3 2 1 } D : 3

13. {2 1 2 3 } D : 2

14. {2 1 3 2 } D : 3

15. {2 2 1 3 } D : 1

16. {2 2 3 1 } D : 3

17. {2 3 1 2 } D : 3

18. {2 3 2 1 } D : 3

19. {3 1 2 2 } D : 2

20. {3 1 2 2 } D : 2

21. {3 2 1 2 } D : 2

22. {3 2 2 1 } D : 2

23. {3 2 1 2 } D : 2

24. {3 2 2 1 } D : 2

No of deciding votes by [1] : 2

No of deciding votes by [2] : 12 ct[2] = 2 => deciding votes by voter with 2 votes = 6

No of deciding votes by [3] : 10

Voting Power

Vote\_Power[1] : 2/24 = 0.0833

Vote\_Power[2] 6/24 = 0.25

Vote\_Power[3] : 10/24 = 0.41667

By Algorithm:

Count [1] : 1  
Count [2] : 2  
Count [3] : 1

Total votes =8, Total voters = 4

**Voter with Power 1:**

For Voter with Power 1, No of cases where voter with power 1 is the deciding vote:

(a, b, c), where a: no of voters with 1 vote voting before the to be calculated vote (deciding).  
 b: no of voters with 2 vote voting before the to be calculated vote (deciding).  
 c: no of voters with 3 vote voting before the to be calculated vote (deciding).

Cases:  
---------------------------------------------------------------------  
(0, 2, 0) (Sum 4) => after vote : 5  
---------------------------------------------------------------------

=> Cases where 1 is deciding is (2C2\*2!\*(3-1-2)!)  
=> Voting Power is : (2!\*0!)/4! = **0.0833**

**Voter with Power 2:**

For Voter with Power 2, No of cases where voter with power 2 is the deciding vote:

(a, b, c), where a: no of voters with 1 vote voting before the to be calculated vote (deciding).  
 b: no of voters with 2 vote voting before the to be calculated vote (deciding).  
 c: no of voters with 3 vote voting before the to be calculated vote (deciding).

Cases:  
----------------------------------------------------------------------  
(0, 0, 1) (Sum 3) => after vote : 5  
(1, 0, 1) (Sum 4) => after vote : 6   
(1, 1, 0) (Sum 3) => after vote : 5  
----------------------------------------------------------------------

=> Cases where 2 is deciding is (1!\*2! + 2!\*1! + 2!\*1!) = 6

=> Voting Power is : (6)/4! = **0.25**

**Voter with Power 3:**

For Voter with Power 3, No of cases where voter with power 3 is the deciding vote:

(a, b, c), where a: no of voters with 1 vote voting before the to be calculated vote (deciding).  
 b: no of voters with 2 vote voting before the to be calculated vote (deciding).  
 c: no of voters with 3 vote voting before the to be calculated vote (deciding).

Cases:   
----------------------------------------------------------------------  
(0, 1, 0) (Sum 2) => after vote : 5  
(0, 2, 0) (Sum 4) => after vote : 7   
(1, 1, 0) (Sum 3) => after vote : 6  
----------------------------------------------------------------------

=> Cases where 2 is deciding is (((2C1\*1)!\*2!) + ((2C2\*2!)\*1!) + ((2C1\*2!)\*1!)) = 10

=> Voting Power is : (10)/4! = **0.41667**