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~~Abstract:-~~

Algorithm:-

- i) Input number of elements and the elements in an array.
- ii) Run a loop from i to 32 to check all 32 bits of an integer.
- iii) Run another loop inside that will check how many numbers in the array has the current bit set as 1.
- iv) Count the number of elements that has current bit set as 1.
- v) Subtract the number of elements with one from total no. of elements.
- vi) Multiply the two and store in a variable.
- vii) Repeat step iii) to vi) for upto 32 bits.
- viii) Return $(\text{answer} \times 2) \% (10^9 + 7)$.

Code:-

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```
int main() {  
    int n;  
    cin >> n;  
    int arr[n];
```

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```
for (int i=0; i<n; i++)  
    cin >> arr[i];
```

```
long long one {0};  
for (int i=0; i<32; i++) {  
    long long count {0};  
    for (int j=0; j<n; j++) {  
        if (arr[j] & 1<<i)  
            ++count;  
    }  
}
```

```
long long zero = n - count;  
one = 2 2 * count * zero;  
}
```

```
cout << one % (10^9+7) << endl;  
}
```

input :- [1, 3, 8]

output :- [8]