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CC Ex 4

(a) Approach

(1) Check for 32 bits, numbers were in integer range.
(2) For ith bit we will count the number of elements which has their i bit set and unset, then sum += currBitSum/setCount * unsetCount)
(3) We will do this for all bits
(4) As order matters
return sum * 2

Code :-

```
public static int ~~Set~~ Ex4(int[] arr) {
    int a = (int) 1e9 + 7;
    int b = 0
for (int i=0; i<32; i++){
    int c = 0;   // set count
    int d = 0;   // unset count
for (int j=0; j< arr.length(); j++) {
    if (arr[j] & (1 << i)) != 0){
        ~~set~~ c++;
    } else{
        d++; }
```

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```
    b = (((c % a) * (d % a)) % a + b) % a
  }
  return b * 2;
}
```

Test Case 1 :- {1, 3, 5}

1 = 001
3 = 011
5 = 101

1st bit, setlount = 3, unset = 0
Sum = 3 x 0 + Sum = 0 +

Ist bit, set Cout = 1, unset = 2
∴ Sum = 2

2nd bit, Set Cout = 1, unsetlount = 2
Sum = 4

Todat = 4 x 2 = 8