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6864758982@goog...

End test

Question 1

Max. score 30.00



A super matrix

A super matrix is a square matrix M of size $N \times N$ that is defined on a sequence of positive integers A_1, A_2, \dots, A_N as:

$$M_{ij} = A_i \& A_j \quad (1 \leq i, j \leq N)$$

Bob has a sequence of positive integers A_1, A_2, \dots, A_N .

Bob wants to calculate the **beauty of numbers** that is defined as the **bitwise XOR** of all the elements present in the submatrix with the top-left corner as (X, Y) and bottom-right corner as (Z, T) , that is, **bitwise XOR** for all the elements in cell (i, j) (such that $X \leq i \leq Z, Y \leq j \leq T$) in the Super matrix defined on the sequence A_1, A_2, \dots, A_N .

As Bob is busy, can you help Bob in calculating the beauty?

Note: $A \& B$ is equal to bitwise AND of numbers A and B .

Input format

- The first line contains five space-separated integers N, X, Y, Z, T .
- The second line contains N space-separated integers A_1, A_2, \dots, A_N .

Output format

As Bob is busy, can you help Bob in calculating the beauty?

Note: $A \& B$ is equal to bitwise AND of numbers A and B .

Input format

- The first line contains five space-separated integers N, X, Y, Z, T .
- The second line contains N space-separated integers A_1, A_2, \dots, A_N .

Output format

Print an integer denoting the beauty.

Constraints

$$1 \leq N \leq 4 \times 10^5$$

$$1 \leq X \leq Z \leq N$$

$$1 \leq Y \leq T \leq N$$

$$1 \leq A_i \leq 10^9$$

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Total score: 60.0

+ 30.0

+ 30.0

$$1 \leq N \leq 4 \times 10^5$$

$$1 \leq X \leq Z \leq N$$

$$1 \leq Y \leq T \leq N$$

$$1 \leq A_i \leq 10^9$$

Sample input 1

```
3 1 2 2 3
1 2 3
```

Copy

Sample output 1

1

Explanation

1	0	1
0	2	2
1	2	3

The Super Matrix M for the sequence 1, 2, 3 is as shown above. The beauty of sub-matrix with top-left corner as (1, 2) and bottom right corner as (2, 3) is $(M_{12} \text{ xor } M_{13} \text{ xor } M_{22} \text{ xor } M_{23}) = (0 \text{ xor } 1 \text{ xor } 2 \text{ xor } 2) = 1$.

Total score: 60.0

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+ 30.0

The Super Matrix M for the sequence 1, 2, 3 is as shown above, The **beauty** of sub-matrix with top-left corner as (1, 2) and right corner as (2, 3) is $(M_{12} \text{ xor } M_{13} \text{ xor } M_{22} \text{ xor } M_{23}) = (0 \text{ xor } 1 \text{ xor } 2 \text{ xor } 2) = 1$.

ⓘ The following test cases are the actual test cases of this question that may be used to evaluate your submission.

Sample input 2

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Sample output 2

```
5 3 1 3 4
2 29 67 50 47
```

66

Sample input 3

Copy

Sample output 3

```
5 3 4 4 4
24 38 18 57 79
```

41

Sample input 4

Copy

Sample output 4

```
1 1 1 1 1
1
```

1