5 Or

时间限制：6000ms 空间限制：512MB

5.1 题目描述

DDOSvoid is learning about bitwise operations and has come across an interesting problem.

You are given two sequences, a_i and b_i, both of length n. Additionally, there are m queries. In each query, you are given an interval $[l, r]$. Your task is to calculate the bitwise OR operation on the following integers:$a_l, a_l + b_{l+1}, a_l + b_{l+1} + b_{l+2}, \cdots, a_{l+1} + b_{l+2}, a_{l+1} + b_{l+2} + b_{l+3}, \cdots, a_r$. In other words, you need to evaluate $\bigoplus_{i=l}^{r} \bigoplus_{j=i}^{r} (a_i + \sum_{k=i+1}^{j} b_k)$. The symbol $\oplus$ represents the bitwise OR operation.

5.2 输入格式

The first line of the input contains a single integer T, indicating the number of test cases.

In each test case:

The first line contains to integers $n, m (1 \leq n \leq 10^5, 1 \leq m \leq 10^6)$.

The second line contains n integers $a_i (0 \leq a_i \leq 5 \times 10^8)$.

The third line contains n integers $b_i (0 \leq b_i \leq 5000)$.

The next m lines, each line contains two integers $l, r (1 \leq l \leq r \leq n)$.

It is guaranteed that in all test cases, $\sum n \leq 10^5, \sum m \leq 10^6$.

5.3 输出格式

To simply the output, we use ans_i to represent the answer to the i-th query and $base = 233, P = 998244353$.

In each test case you just need to output an integer $(\sum_{i=1}^{m} ans_i \times base^i) \bmod P$.

5.4 输入输出样例

输入样例：

```
1
5 1
1 2 3 4 5
1 1 1 1 1
2 4
```

输出样例：

```
1631
```

Hint：

For query $[2, 4]$, you need to calculate the bitwise OR operation on the following integers, $a_2, a_2 + b_3, a_2 + b_3 + b_4, a_3, a_3 + b_4, a_4$