标签 GXOI 下的文章

⌂ 首页 (https://blog.orzsiyuan.com/) / GXOI

「GXOI / GZOI 2019」与或和 (https://blog.orzsiyuan.com/archives/GXOI-GZOI-2019-And-Or/)

> 题目链接：LOJ 3083 (https://loj.ac/problem/3083)

Freda 学习了位运算和矩阵以后，决定对这种简洁而优美的运算，以及蕴含深邃空间的结构进行更加深入的研究。

对于一个由非负整数构成的矩阵，她定义矩阵的 AND 值为矩阵中所有数二进制 AND(&) 的运算结果；定义矩阵的 OR 值为矩阵中所有数二进制 OR(|) 的运算结果。

给定一个 $n \times n$ 的矩阵，她希望求出：

1. 该矩阵的所有子矩阵的 AND 值之和（所有子矩阵 AND 值相加的结果）。
2. 该矩阵的所有子矩阵的 OR 值之和（所有子矩阵 OR 值相加的结果）。

接下来的剧情你应该已经猜到——Freda 并不想花费时间解决如此简单的问题，所以这个问题就交给你了。

由于答案可能非常的大，你只需要输出答案对 $10^9 + 7$ 取模后的结果。

数据范围：$1 \le n \le 10^3$，矩阵中的自然数 $\le 2^{31} - 1$。

 Siyuan (https://blog.orzsiyuan.com/author/1/)   ⌚ 2019 年 04 月 28 日

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