Replace

给定一个长为 n 的序列 $a_1,\ldots,a_n$，其中对于任意的 i 满足 $1\le a_i\le n$。

定义一个二元组函数如下：
$f((l,r))=(\min\{a_l,\ldots,a_r\},\max\{a_l,\ldots,a_r\})(l\le r)$

你需要回答 q 次询问，每次给定 (l_i,r_i)，问其最少经过多少次 f 的调用（即 $(l,r)\to f((l,r))$）使得 (l_i,r_i) 变成 $(1,n)$，若无解请输出 `-1`。$n,q\le 2\times 10^5$。

首先 $f(l,r)=\cup_{i\in[l,r)}f(i,i+1)$，设 $f_{k,i}$ 表示 2^k 步后 $(i,i+1)$ 能走到哪里，直接 rmq 在 f_{k-1} 上查询就能转移。

Summation By Construction

> There is a graph with N vertices $v_1,\ldots,v_N$ on the left, and $N+1$ vertices $u_1,\ldots,u_{N+1}$ on the right. Each vertex v_i $(1\le i\le N)$ is connected to each vertex u_j $(1\le j\le N+1)$, that is, the graph contains $N(N+1)$ edges.
>
> We color every edge with one of the N colors $1,\ldots,N$. A coloring is **suitable** if for each $k=1,\ldots,N$ there are exactly $2k$ edges of color k, and those edges form a simple path.
>
> Formally, for each $k=1,\ldots,N$ there should exist a sequence of distinct vertices $w_0,\ldots,w_{2k}$ such that all of the following is true:
>
> - For each $i=0,\ldots,2k-1$, vertices w_i and w_{i+1} are connected with an edge of color k,
> - No other edges of color k exist.
>
> Find any suitable coloring, or determine that it doesn't exist.
>
> For each input file, solve T test cases.

虽然但是，场切铜牌题，好帅啊。

对于 n 是奇数，$n+1$ 就是偶数！所以我们提取其 $\frac{n+1}{2}$ 条轨道：

```
x x
  x x
    x x
      x x
```

这样的轨道长度为 n，所以我们可以将其分成 i 和 $n-i$ 两部分。

对于 n 是偶数，我们考虑这样一些轨道：

```
x       x x
x x       x
  x x
    x x
      x x
```

这个轨道可以放下两个数 $i,n+1-i$，但是问题在于 n 的这个会成环，我们在右上角上交换一下就好。

First Come First Serve

There are N customers named $1, \ldots, N$ visiting a shop. Customer i arrives at time A_i and leaves at time B_i. The queue order is *first in-first out*, so A_i are increasing, and B_i are increasing. Additionally, all A_i and B_i are pairwise distinct.

At the entrance there's a list of visitors to put their names in. Each customer will write down their name next in the list exactly once, either when they arrive or when they leave. How many different orders of names can there be in the end? Find the count modulo $998\,244\,353$.

Constraints

- $1 \leq N \leq 5 \cdot 10^5$

对于一种方案，我们把所有右括号改成左括号不影响方案的右括号都改成左括号，这样得出的结果我猜和不同的方案一一对应，充分性显然，必要性我看着就对吧。然后容斥一个括号集合，它选了右括号，并且左括号到右括号之间没有任何别的括号。而一个容斥元素会控制一个区间，我们求出每个括号对控制的区间，然后从左往右 dp 就好了。