



Segment

Time Limit: 2000/1000 MS (Java/Others) Memory Limit: 32768/32768 K (Java/Others)
 Total Submission(s): 0 Accepted Submission(s): 0

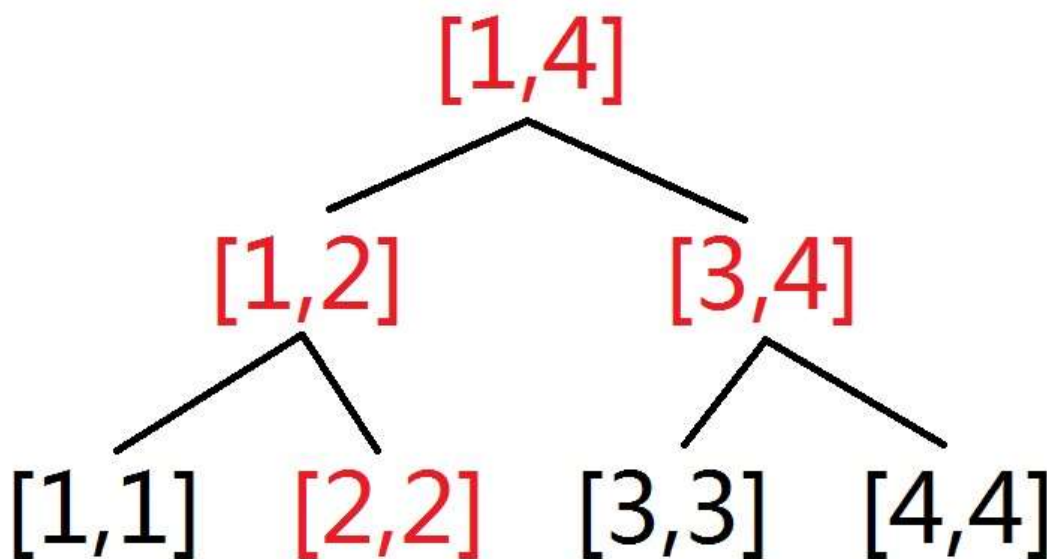
Problem Description

ZY found a weird segment tree with range $[1, n]$.

For one node $[a, b]$ ($a < b$) we choose a random integer x in range $[a, b]$, separate the segment into $[a, x]$ and $[x+1, b]$.

While doing query on this segment tree, bad thing happens. For one query $[l, r]$. If we want to obtain the information of the range $[l, r]$, what is the expected number of nodes in the segment tree that would be visited?

For example, when querying range $[2, 4]$ in this segment tree, we will visit nodes in red.



Input

The first line contains two integer n, q .

The following q lines each contain a query interval $[l, r]$.

$1 \leq n, q \leq 10^6$.

Output

For each query, output the expected number of visited nodes in a line, modulo 998244353.

Sample Input

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

Sample Output

```
2
2
1
```

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Hangzhou Dianzi University Online Judge 3.0
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Total 0.000000(s) query 0, Server time : 2018-07-25 12:03:40, Gzip enabled

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