

主席树_昆明M

主席树_区间第k小

主席树_区间前K大的和

```
1  #include <bits/stdc++.h>
2
3  #define fi first
4  #define se second
5  #define mp make_pair
6  #define lowbit(x) ((x) & -(x))
7  #define ls (p << 1)
8  #define rs (ls | 1)
9  #define tm ((tl + tr) >> 1)
10
11 using namespace std;
12 using ll = long long;
13 using ull = unsigned long long;
14 using pii = pair<int, int>;
15
16 constexpr double eps = 1e-8;
17 constexpr int NINF = 0xc0c0c0c0;
18 constexpr int INF = 0x3f3f3f3f;
19 constexpr ll LNINF = 0xc0c0c0c0c0c0c0c0;
20 constexpr ll LINF = 0x3f3f3f3f3f3f3f3f;
21 constexpr ll mod = 1e9 + 7;
22 constexpr ll N = 2e6 + 5;
23
24 struct line {
25     int l, r, h, op;
26
27     inline bool operator<(const line &T) const {
28         return h == T.h ? op > T.op : h < T.h;
29     }
30 } a[N];
31
32 int n, m, x[N], cnt[N << 2], len[N << 2];
33
34 void push_up(int p, int tl, int tr) {
35     if (cnt[p]) {
36         len[p] = x[tr] - x[tl];
37     } else {
38         len[p] = len[ls] + len[rs];
39     }
40 }
41
```

```

42 void modify(int p, int tl, int tr, int L, int R, int v) {
43     if (x[tr] <= L || R <= x[tl]) return;
44     if (L <= x[tl] && x[tr] <= R) {
45         cnt[p] += v;
46         push_up(p, tl, tr);
47         return;
48     }
49     if (L <= x[tm]) modify(ls, tl, tm, L, R, v);
50     if (R > x[tm]) modify(rs, tm, tr, L, R, v);
51     push_up(p, tl, tr);
52 }
53
54 int main() {
55     ios::sync_with_stdio(false);
56     cin.tie(nullptr);
57
58     cin >> n;
59     for (int i = 0; i < n; i++) {
60         int x1, y1, x2, y2;
61         cin >> x1 >> y1 >> x2 >> y2;
62         a[++m] = {x1, x2, y1, 1};
63         x[m] = x1;
64         a[++m] = {x1, x2, y2, -1};
65         x[m] = x2;
66     }
67     n = m;
68     sort(a + 1, a + 1 + n);
69     sort(x + 1, x + 1 + n);
70     m = unique(x + 1, x + 1 + n) - (x + 1);
71     ll ans = 0;
72     for (int i = 1; i < n; i++) {
73         modify(1, 1, m, a[i].l, a[i].r, a[i].op);
74         ans += 1ll * len[1] * (a[i + 1].h - a[i].h);
75     }
76     cout << ans << '\n';
77
78     return 0;
79 }

```

```

1  #include <bits/stdc++.h>
2
3  #define fi first
4  #define se second
5  #define mp make_pair
6  #define pb push_back
7  #define ls (p << 1)

```

```

8  #define rs (ls | 1)
9  #define tm ((tl + tr) >> 1)
10 #define lowbit(x) ((x) & -(x))
11
12 using namespace std;
13 using db = double;
14 using ll = long long;
15 using ull = unsigned long long;
16 using pii = pair<int, int>;
17
18 const db PI = acos(-1.0);
19 constexpr db EPS = 1e-8;
20 constexpr int NINF = 0xc0c0c0c0;
21 constexpr int INF = 0x3f3f3f3f;
22 constexpr ll LNINF = 0xc0c0c0c0c0c0c0c0;
23 constexpr ll LINF = 0x3f3f3f3f3f3f3f3f;
24 constexpr ll MOD = 1e9 + 7;
25 constexpr ll N = 1e6 + 5;
26
27 int tot, rt[N];
28
29 struct node {
30     int l, r;
31     ll sum;
32 } t[N << 5];
33
34 void modify(int &x, int l, int r, int v) {
35     t[++tot] = t[x];
36     x = tot;
37     t[x].sum += v;
38     if (l == r) return;
39     int mid = (l + r) >> 1;
40     if (v <= mid) modify(t[x].l, l, mid, v);
41     else modify(t[x].r, mid + 1, r, v);
42 }
43
44 ll query(int x, int y, int l, int r, ll v) {
45     if (l == r) return t[y].sum - t[x].sum;
46     int mid = (l + r) >> 1;
47     if (v <= mid) return query(t[x].l, t[y].l, l, mid, v);
48     else return query(t[x].r, t[y].r, mid + 1, r, v) + t[t[y].l].sum -
49     t[t[x].l].sum;
50 }
51
52 int main() {
53     ios::sync_with_stdio(false);
54     cin.tie(nullptr);
55     cout << fixed << setprecision(20);

```

```

56     int n, m;
57     cin >> n >> m;
58     for (int i = 1; i <= n; i++) {
59         int x;
60         cin >> x;
61         modify(rt[i] = rt[i - 1], 1, 1000000000, x);
62     }
63     int l, r;
64     ll ans = 0;
65     while (m--) {
66         cin >> l >> r;
67         l = (l + ans) % n + 1;
68         r = (r + ans) % n + 1;
69         if (l > r) swap(l, r);
70         ans = 0;
71         while (true) {
72             ll res = query(rt[l - 1], rt[r], 1, 1000000000, ans + 1);
73             if (res == ans) break;
74             ans = res;
75         }
76         cout << ++ans << '\n';
77     }
78
79     return 0;
80 }

```

```

1  #include <bits/stdc++.h>
2
3  #define fi first
4  #define se second
5  #define mp make_pair
6  #define pb push_back
7  #define ls (p << 1)
8  #define rs (ls | 1)
9  #define tm ((tl + tr) >> 1)
10 #define lowbit(x) ((x) & -(x))
11
12 using namespace std;
13 using db = double;
14 using ll = long long;
15 using ull = unsigned long long;
16 using pii = pair<int, int>;
17
18 const db PI = acos(-1.0);
19 constexpr db EPS = 1e-8;
20 constexpr int NINF = 0xc0c0c0c0;
21 constexpr int INF = 1e9;
22 constexpr ll LNINF = 0xc0c0c0c0c0c0c0c0;

```

```

23 constexpr ll LINF = 0x3f3f3f3f3f3f3f3f;
24 constexpr ll MOD = 1e9 + 7;
25 constexpr ll N = 1e6 + 5;
26
27 int rt[N], a[N], tot;
28
29 struct node {
30     int l, r, cnt;
31 } t[N << 5];
32
33 void modify(int &x, int l, int r, int v) {
34     t[++tot] = t[x];
35     x = tot;
36     t[x].cnt++;
37     if (l == r) return;
38     int mid = (l + r) >> 1;
39     if (v <= mid) modify(t[x].l, l, mid, v);
40     else modify(t[x].r, mid + 1, r, v);
41 }
42
43 int query(int x, int y, int l, int r, int v) {
44     if (l == r) return l;
45     int mid = (l + r) >> 1, cnt = t[t[y].l].cnt - t[t[x].l].cnt;
46     if (v <= cnt) return query(t[x].l, t[y].l, l, mid, v);
47     else return query(t[x].r, t[y].r, mid + 1, r, v - cnt);
48 }
49
50 int main() {
51     ios::sync_with_stdio(false);
52     cin.tie(nullptr);
53     cout << fixed << setprecision(20);
54
55     int n, m;
56     cin >> n >> m;
57     for (int i = 1; i <= n; i++) {
58         cin >> a[i];
59         modify(rt[i] = rt[i - 1], -INF, INF, a[i]);
60     }
61     while (m--) {
62         int l, r, k;
63         cin >> l >> r >> k;
64         cout << query(rt[l - 1], rt[r], -INF, INF, k) << '\n';
65     }
66
67     return 0;
68 }

```

```
1 #include <bits/stdc++.h>
```

```

2
3 #define fi first
4 #define se second
5 #define mp make_pair
6 #define pb push_back
7 #define ls (p << 1)
8 #define rs (ls | 1)
9 #define tm ((tl + tr) >> 1)
10 #define lowbit(x) ((x) & -(x))
11
12 using namespace std;
13 using db = double;
14 using ll = long long;
15 using ull = unsigned long long;
16 using pii = pair<int, int>;
17
18 const db PI = acos(-1.0);
19 constexpr db EPS = 1e-8;
20 constexpr int NINF = 0xc0c0c0c0;
21 constexpr int INF = 1000000;
22 constexpr ll LNINF = 0xc0c0c0c0c0c0c0c0;
23 constexpr ll LINF = 0x3f3f3f3f3f3f3f3f;
24 constexpr ll MOD = 1e9 + 7;
25 constexpr ll N = 1e5 + 5;
26
27 struct node {
28     int l, r, cnt;
29     ll sum;
30 } t[N << 5];
31
32 int tot, rt[N];
33
34 void modify(int &x, int l, int r, int v) {
35     t[++tot] = t[x];
36     x = tot;
37     t[x].cnt++;
38     t[x].sum += v;
39     if (l == r) return;
40     int mid = (l + r) >> 1;
41     if (v <= mid) modify(t[x].l, l, mid, v);
42     else modify(t[x].r, mid + 1, r, v);
43 }
44
45 ll query(int x, int y, int l, int r, int v) {
46     if (l == r) return 1ll * v * l;
47     int mid = (l + r) >> 1, cnt = t[t[y].r].cnt - t[t[x].r].cnt;
48     if (v <= cnt) return query(t[x].r, t[y].r, mid + 1, r, v);
49     else return query(t[x].l, t[y].l, l, mid, v - cnt) + t[t[y].r].sum -
t[t[x].r].sum;

```

```

50 }
51
52 int main() {
53     ios::sync_with_stdio(false);
54     cin.tie(nullptr);
55     cout << fixed << setprecision(20);
56
57     int T;
58     cin >> T;
59     while (T--) {
60         tot = 0;
61         int n;
62         cin >> n;
63         for (int i = 1; i <= n; i++) {
64             int x;
65             cin >> x;
66             modify(rt[i] = rt[i - 1], 1, 1000000, x);
67         }
68         int m;
69         cin >> m;
70         while (m--) {
71             int l, r, k;
72             cin >> l >> r >> k;
73             int x = r - l + 1;
74             cout << 1ll * x * (x + 1) * (2 * x + 1) / 6 + query(rt[l - 1],
rt[r], 1, 1000000, k) << '\n';
75         }
76     }
77
78     return 0;
79 }

```