

JakeMate14

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1 Estructuras de Datos

1.1 Segment tree

```
1 struct segtree {
2     int size;
3     vector<ll> vv;
4
5     void build(vector<int> &nums) {
6         size = 1;
7         while (size < nums.size()) size *= 2;
8         vv.assign(2 * size, 0);
9         build(nums, 0, 0, size);
10    }
11
12    void build(vector<int> &nums, int x, int lx, int rx) {
13        if (rx - lx == 1) {
14            if (lx < nums.size()) {
15                vv[x] = nums[lx];
16            }
17        } else {
18            int m = (lx + rx) / 2;
19            build(nums, 2 * x + 1, lx, m);
20            build(nums, 2 * x + 2, m, rx);
21            vv[x] = vv[2 * x + 1] + vv[2 * x + 2];
22        }
23    }
24
25    void set(int i, int v) {
26        set(i, v, 0, 0, size);
27    }
28
29    void set(int i, int v, int x, int lx, int rx) {
30        if (rx - lx == 1) {
31            vv[x] = v;
32        } else {
33            int m = (lx + rx) / 2;
34            if (i < m) {
35                set(i, v, 2*x+1, lx, m);
36            } else {
37                set(i, v, 2*x+2, m, rx);
38            }
39            vv[x] = vv[2*x+1] + vv[2*x+2];
40        }
41    }
42 }
```

```

40     }
41 }
42
43 ll sum(int l, int r) {
44     return sum(l, r, 0, 0, size);
45 }
46
47 ll sum(int l, int r, int x, int lx, int rx) {
48     if (r <= lx) return 0;
49     if (l >= rx) return 0;
50     if (lx >= l && rx <= r) return vv[x];
51     int m = (lx + rx) / 2;
52     ll s1 = sum(l, r, 2*x+1, lx, m);
53     ll s2 = sum(l, r, 2*x+2, m, rx);
54     return s1 + s2;
55 }
56 };

```

## 2 Graphs

## 3 Math

## 4 Geometry

## 5 Strings

## 6 Flow

## 7 Other

### 7.1 Template

```

1 #include<bits/stdc++.h>
2
3 #define endl '\n'
4 #define IO ios::sync_with_stdio(false); cin.tie(0); cout.tie(0);
5 #define YES cout<<"Yes\n";
6 #define NO cout<<"No\n";
7 #define pb push_back
8 #define all(v) v.begin(), v.end()
9 #define sortall(f) sort(all(f))

```

```

10 #define forn(i,n) for(ll i=0;i<n;i++)
11
12 const int MX = 0;
13
14 using namespace std;
15
16 typedef long long ll;
17
18 void sol(){
19 }
20
21 int main(){
22     IO
23     int t=1;//cin>>t;
24
25     while(t--){
26         sol();
27     }

```