

```
1  /*
2    | Fenwick Tree |
3    Desc: Point update range query / Range update point query in  $O(n \log(n))$ 
4    Source: KawakiMeido
5    State: Untested lmao
6  */
7
8  struct Fenwick{
9      vector<int> BIT;
10
11      Fenwick(int _n=0): n(_n){
12          BIT.resize(n+10);
13      }
14
15      void Init (int _n, int val=0){
16          BIT.resize(n+10,0);
17      }
18
19      void update(int idx, int val){
20          while (idx ≤ n){
21              BIT[idx] += val;
22              idx += (idx & (-idx));
23          }
24      }
25
26      int getPoint(int idx){
27          int res = 0;
28          while (idx > 0){
29              res += BIT[idx];
30              idx -= (idx & (-idx));
31          }
32          return res;
33      }
34
35      int getVal(int l, int r){
36          return (getPoint(r) - getPoint(l-1));
37      }
38  }
```