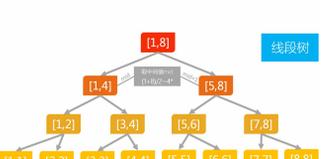
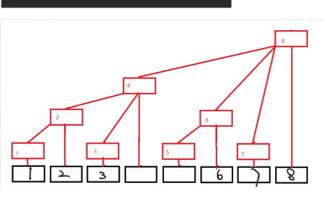


```
int main()
{
    scanf("%d", &n);
    for (int i = 1; i <= n; i++) scanf("%d", &a[i]);
    for (int i = 1; i <= n; i++) {
        while (tp && st[tp] >= a[i]) tp--;
        if (tp) res[i] = st[tp];
        else res[i] = -1;
        st[++tp] = a[i];
    }
    for (int i = 1; i <= n; i++) printf("%d ", res[i]);
    puts("");
    return 0;
}
```

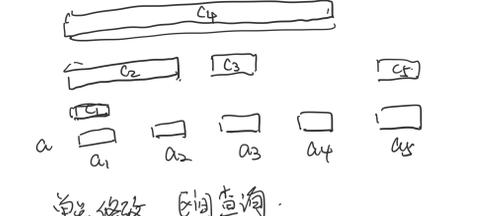
```
int l = 1, r = 0;
for (int i = 1; i <= n; i++) {
    while (l <= r && i - q[1] + 1 > k) l++;
    while (l <= r && a[q[r]] >= a[i]) r--;
    q[++r] = i;
    if (i >= k) printf("%d ", a[q[1]]);
}
printf("\n");
```

```
int a[N], c[N];
int lowbit(int x)
{
    return x & (-x);
}
void update(int x, int t)
{
    while (x <= n) {
        c[x] += t;
        x += lowbit(x);
    }
}
int ask(int x)
{
    int res = 0;
    while (x > 0) {
        res += c[x];
        x -= lowbit(x);
    }
    return res;
}
```



树状数组 $n \log a_1 \dots a_n$ $q \log$

- 把 a_i 加上 x . i, x $\text{lowbit}(3)=1$
 - 求 $a_l + \dots + a_r$. l, r $\text{lowbit}(4)=4$
- $1: 1 \quad c[1] = a[1] + \dots + a[1 - \text{lowbit}(1) + 1]$
 $2: 10 \quad c[2] = a[2] + \dots + a[2 - \text{lowbit}(2) + 1]$
 $3: 11 \quad c[3] = a[3]$
 $4: 100 \quad c[4] = a[4] + a[3] + a[2] + a[1]$
 $5: 1000 \quad c[5] = a[5]$
- $(i-x) \rightarrow S[i] = c[i] + c[i-x]$
 $\leftarrow +1 \quad 100 \quad \leftarrow 0 \quad \rightarrow 1-0 \quad x$
 $\rightarrow \log n$

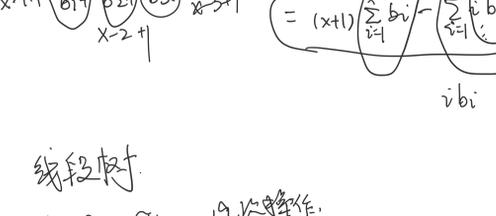


单点修改 [l,r] 查询
 $a_i + x$ [L,R] 查询
 [l,r] 修改 [l,r] 查询

$a: a_1 a_2 a_3 a_4 a_5$
 $b: a_1 a_2 - a_1 a_3 - a_2 a_4 - a_3 a_5 - a_4$
 $a': a_1 a_2 + x a_3 + x a_4 + x a_5$

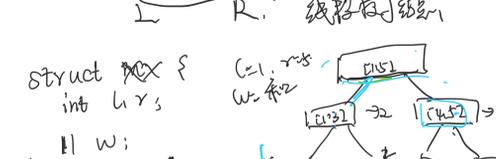
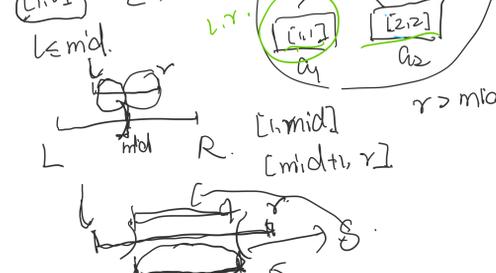
$b': a_1 a_2 - a_1 + x a_3 - a_2 a_4 - a_3 a_5 - a_4 + x$
 $\uparrow b_2 + x \quad \uparrow b_5 + x$

$a_x = \sum_{i=1}^x b_i$ [1,x] $a_1 \dots a_x$
 $S[1,x] = \sum_{i=1}^x a_i = \sum_{i=1}^x \sum_{j=1}^i b_j$



线段树

- a_i 加 x $a_1 \dots a_5$ $\text{mid} = \lfloor \frac{l+r}{2} \rfloor$
- 求 $a_l + \dots + a_r$



$\text{struct Node } f$
 $\text{int } l, r, s;$
 $\text{int } w;$
 $\text{build(int } l, \text{int } r, \text{int } w)$



$\text{mid} = 3$
 $l \leq \text{mid} \rightarrow [1,3]$
 $r > \text{mid} \rightarrow [4,5]$

$\text{struct Node } f$
 $\text{int } l, r, s;$
 $\text{int } w;$
 $\text{build(int } l, \text{int } r, \text{int } w)$



$\text{lazy: 对当前节点已经加上 } x, \text{ 但对其子节点没有加上.}$

$\text{lazy: 对当前节点已经加上 } x, \text{ 但对其子节点没有加上.}$