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# Turtles

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Month ??, 202?

[illegible]

## Data Structures (2)

dsu.hppf097c2, 31 lines

```
struct DSU
{
    int n;
    VI p, sz;

    DSU(int _n = 0)
    {
        n = _n;
        p.resize(n);
        iota(ALL(p), 0);
        sz.assign(n, 1);
    }
    int find(int v)
    {
        if (v == p[v])
            return v;
        return p[v] = find(p[v]);
    }
    bool unite(int u, int v)
    {
        u = find(u);
        v = find(v);
        if (u == v)
            return false;
        if (sz[u] > sz[v])
            swap(u, v);
        p[u] = v;
        sz[v] += sz[u];
        return true;
    }
};
```

fenwick.hpp6a7a21, 20 lines

```
struct Fenwick
{
    int n;
    VL t;

    Fenwick(int _n = 0): n(_n), t(n) {}

    void upd(int i, LL x)
    {
        for (; i < n; i |= i + 1)
            t[i] += x;
    }
    LL query(int i)
    {
        LL ans = 0;
        for (; i >= 0; i = (i & (i + 1)) - 1)
            ans += t[i];
        return ans;
    }
};
```