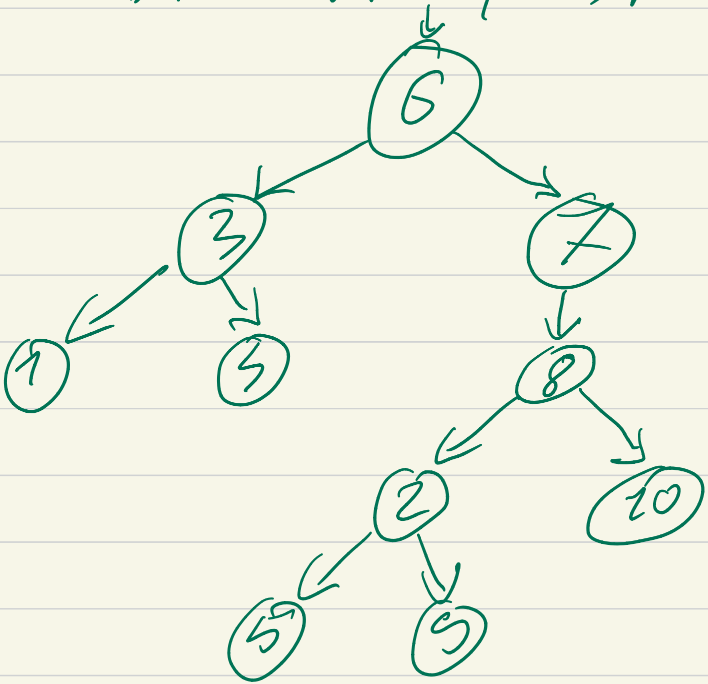
The breadth-first tree:



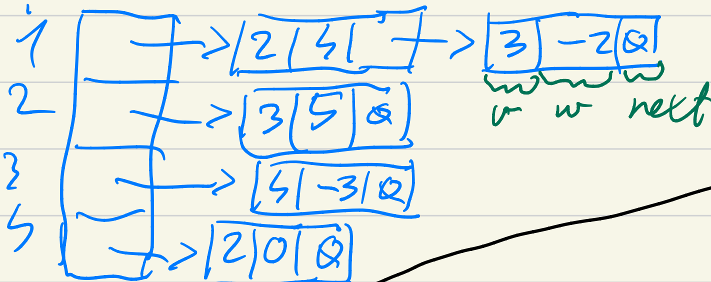
Surely, this tree is part of the graph, but it cannot be recreated from these data.

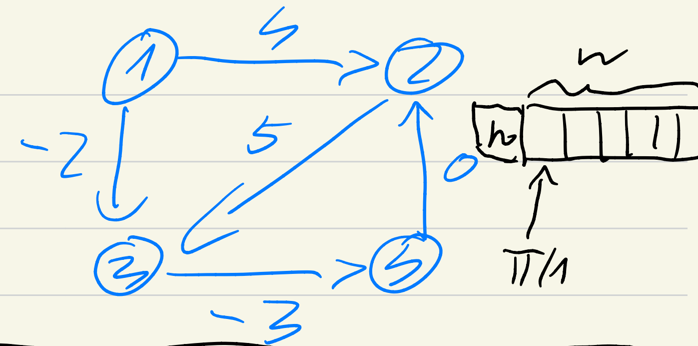
```
Queue-based_Bellman_Ford(A/1:ℝ∞[n,n]; s:1..n;
                         d/1:ℝ∞[n]; π/1:ℕ[n]):ℕ

inQ/1:𝔹[n]; Q:Queue; e/1:ℕ[n];
i := 1 to n
    d[i] := ∞; π[i] := 0; inQ[i] := false
Q.add(s); d[s] := 0; e[s] := 0
¬Q.isEmpty()
    u := Q.rem(); inQ[u] := false
    v := 1 to n
        v ≠ u ∧ A[u,v] < ∞ ∧ d[v] > d[u] + A[u,v]
            d[v] := d[u] + A[u,v]; π[v] := u; e[v] := e[u]+1
            e[v] < n
                ¬inQ[v]
                    Q.add(v); inQ[v] := true
                else
                    X
            else
                return findNegLoop(v, π)
        else
            X
return 0
```

$\boxed{MT(n) \in O(n^3)}$

Adj. list

$MT(n,m) \in O(n*m)$





Adj. mtx

A	1	2	3	4
1	0	4	-2	∞
2	∞	0	5	∞
3	∞	∞	0	-3
4	∞	0	∞	0

$findNegLoop(v:\mathbb{N};\ \pi/1:\mathbb{N}[n]):\mathbb{N}$

```
B/1 : B[n]
i := 1 to n
    B[i] := false
B[v] := true ; u := π[v]
¬B[u]
    B[u] := true ; u := π[u]
return u
```