v3 - Tölv 2

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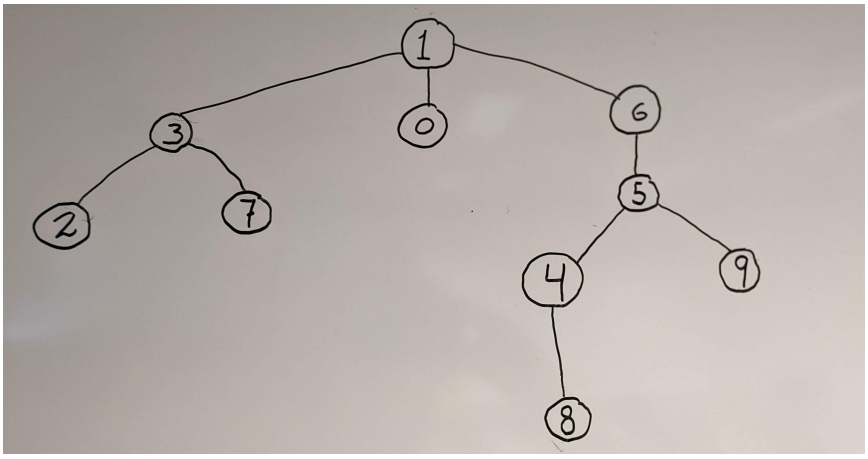
3. febrúar 2022

Dæmi 2

```
public static void skilarRod(int[] a, int[] b) {
        int n = (a.length + b.length) ;
        int indexA = 0;
        int indexB = 0;

        boolean aBuid = false;
        boolean bBuid = false;

        String out = "";

        for (int i = 0; i < n; i++) {

            if ((!aBuid && a[indexA] < b[indexB]) || bBuid) {
                if (indexA == a.length-1) aBuid = true;
                out += Integer.toString(a[indexA])+", ";
                if (indexA < a.length-1) indexA++;
            }

            else {
                if (indexB == b.length-1) bBuid = true;
                out += Integer.toString(b[indexB])+", ";
                if (indexB < b.length-1) indexB++;
            }
        }

        System.out.println(out);
    }
```

Dæmi 3



þetta er ekki tré er ekki hægt að búa til með *WQU* vegna þess, eins og sést á myndinni fyrir ofan, hefur 5 sem er barn 6 fleiri börn en 6 og getur þessvegna ekki verið barn þess. **Réttari mynd væri með enga tengingu á milli 5 og 6.**

5.1.12

```
public class WeightedQuickUnionUF {
private int[] id; // parent link (site indexed)
private int[] sz; // size of component for roots (site indexed)
private int count; // number of components

public WeightedQuickUnionUF(int N) {
    count = N;
    id = new int[N];
    for (int i = 0; i < N; i++)
        id[i] = i;
    sz = new int[N];
    for (int i = 0; i < N; i++)
        sz[i] = 1;
}

public int count() {
    return count;
}

/**
 * athugar hvort p se gild rot
 *
```

```
 * @param p rot til ad athuga
 * @return skilar true ef rotin er gild
 */
private boolean isRoot(int p) {
    int n = id.length;
    if (p >= n || p < 0)
        return false;
    return true;
}

public boolean connected(int p, int q) {
    return find(p) == find(q);
}

private int find(int p) { // Follow links to find a root.
    if (!isRoot(p))
        throw new IllegalArgumentException("Ekki gild rot");

    // geymir upprunalega p
    int root = p;
    while (p != id[p]) {
        p = id[p];
    }

    // tekur p og faerir thad upp i efstu rot
    while (root != p) {
        int temp = id[root];
        id[root] = p;
        root = temp;
    }
    return p;
}

public void union(int p, int q) {
    int i = find(p);
    int j = find(q);
    if (i == j)
        return;
    // Make smaller root point to larger one.
    if (sz[i] < sz[j]) {
        id[i] = j;
        sz[j] += sz[i];
    } else {
        id[j] = i;
        sz[i] += sz[j];
    }
    count--;
}

public static void main(String[] args) {
```

```
        int n = StdIn.readInt();
        WeightedQuickUnionUF uf = new WeightedQuickUnionUF(n);
        while (!StdIn.isEmpty()) {
            int p = StdIn.readInt();
            int q = StdIn.readInt();
            if (uf.find(p) == uf.find(q)) {
                continue;
            }
            uf.union(p, q);
            StdOut.println(p + " " + q);
        }
        StdOut.println(uf.count() + " components");
    }
}
```