

# Binomial - Heap Writeup

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1) Delete (H, x):

```
Node * binomialHeapDelete (Node *h, int key)
{
    if (h == NULL)
        return NULL;
    decreaseKey (h, key, INT_MIN);
    return extractMin (h);
}
```

2) decreaseKey():

```
void decreaseKey (Node *h, int x, int k)
{
    Node * node = findNode (h, x);
    if (node == NULL)
        return;
    node -> val = k;
    Node parent = node -> parent;
    while (parent != NULL && node -> val < parent -> val)
    {
        swap (node -> val, parent -> val);
        node &= parent;
        parent = parent -> parent;
    }
}

Node * findNode (Node *h, int val) {
    if (h == NULL) return NULL;
    if (h -> val == val) return h;
    Node * res = findNode (h -> child, val);
    if (res != NULL) return res;
    return findNode (h -> sibling, val);
}
```