

Sumanth K.V.

IBM18CS112

5th C

ADS

16/12/2020

```
Node *binomialHeapDelete(Node *h, int val) {
```

```
    if (h == NULL)
        return NULL;
```

```
    decreaseKeyBHeap(h, val, INT_MIN);
```

```
    return extractMinBHeap(h);
```

```
}
```

```
void decreaseKeyBHeap(Node *H, int old_val,
                      int new_val)
```

```
{
```

```
    Node *node = findNode(H, old_val);
```

```
    if (node == NULL)
        return;
```

```
    node->val = new_val;
```

```
    Node *parent = node->parent;
```

```
    while (parent != NULL && node->val <
           parent->val)
```

```
    {
```

```
        swap(node->val, parent->val);
```

```
        node = parent;
```

```
        parent = parent->parent;
```

```
    }
```

```
}
```

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Node *extractMinBHeap(Node *h)

if (h == NULL)
return NULL;

Node *min_node_prev = NULL;

Node *min_node = h;

int min = h->val; Node *curr = h;

while (curr->sibling != NULL)

{
if ((curr->sibling)->val < min)

{
min = (curr->sibling)->val;

min_node_prev = curr;

min_node = curr->sibling;

}

curr = curr->sibling;

}

if (min_node_prev == NULL && min_node->
sibling == NULL)
h = NULL;

else if (min_node_prev == NULL)
h = min_node->sibling;

else

min_node_prev->sibling = min_node->sibling;

if (min_node->child != NULL) {

revertList(min_node->child);

(min_node->child)->sibling = NULL;

}

}

return unionBHeaps(h, root);

@amanth