

1. $\text{delete}(H)$: Like Binary Heap, delete operation first reduces the key to minus infinite, then call $\text{extractMin}()$
2. $\text{decreaseKey}(H)$: $\text{decreaseKey}()$ is also similar to Binary Heap. We compare the decreased key with its parent and if parent's key is more, we swap keys and recur for parent. We stop when we either reach a node whose parent has smaller key or we hit the root node.

struct Node

```
{ int val, degree  
  Node *parent, *child, *sibling  
}
```

Node *root \leftarrow NULL

int binomialLink(Node *h1, Node *h2)

```
{ h1  $\rightarrow$  parent  $\leftarrow$  h2  
  h2  $\rightarrow$  sibling  $\leftarrow$  h2  $\rightarrow$  child  
  h2  $\rightarrow$  child  $\leftarrow$  h1  
  h2  $\rightarrow$  degree  $\leftarrow$  h2  $\rightarrow$  degree + 1  
}
```

```

Node *createNode(int n)
{
    Node *new_node ← new Node
    new_node → val ← n
    new_node → parent ← NULL
    new_node → sibling ← NULL
    new_node → child ← NULL
    new_node → degree ← 0
    return new_node
}

```

```

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
    }
}

```

```

Node *binomialHeapDelete(Node *h, int val)
{
    if (h ← NULL)
        return NULL
    decreaseKeyBHeap(h, val, INT_MIN)
    return extractMinBHeap(h)
}

```