

09/12/20

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18M18CS093
Lab 10 - Prgm 9
Heap

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```
# include <bits/stdc++.h>
```

```
using namespace std;
```

```
Insert
```

```
list < node * > insertATreeInHeap (list < node * > heap, node * tree)
```

```
{ list < node * > temp;
```

```
temp.push_back (tree);
```

```
temp = Union Binomial Heap (- heap, temp);
```

```
return adjust (temp);
```

```
}
```

```
list < node * > removeMinFromTreeReturnsBHeap (node * tree) {
```

```
list < node * > heap;
```

```
node * temp = tree -> child;
```

```
node * lo;
```

```
while (temp) {
```

```
lo = temp;
```

```
temp = temp -> Sibling;
```

```
lo -> Sibling = node;
```

```
heap.push_front (lo);
```

```
}
```

```
return heap;
```

```
}
```

```
list < node * > insert (list < node * > heap, int Key)
```

```
node * temp = newnode (Key);
```

```
return insertATreeHeap (- heap, temp); }
```

```
node * getmin (list < node * > heap) {
```

```
list < node * > :: iterator it = - heap.begin();
```

```
node * temp = * it;
```

```
while (it != - heap.end()) {
```

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```
if ((it) -> data < temp -> data)
```

```
temp = *it,
```

```
it++;
```

```
}
```

```
return temp;
```

```
}
```

```
temp = get_min(-heap);
```

```
list.erase(it); // remove it;
```

```
it = -heap.begin();
```

```
while (it != -heap.end()) {
```

```
if (*it != temp) {
```

```
heap.push_back(*it);
```

```
it++;
```

```
}
```

```
do = remove_min_from_Tree(heap, temp);
```

```
newHeap = Union_Binomial_Heap(heap, do);
```

```
newHeap = adjust(newHeap);
```

```
return newHeap;
```

```
}
```