Today's announcements:

MP6 available, due 04/14, 11:59p.

ReHashing:

What if the array fills?

Hashing Miscellaneous Discussion –

Which collision resolution strategy is better?

•Big records –

•Structure speed –

What structures do hash tables replace for us?

There is a constraint on Keyspaces for BST that does not affect hashing...

Why do we talk about balanced BST if hashing is so great?

Applications of hashing?

Area of active research in mathematics to develop general purpose hash functions.

Secret Mystery Data Structure

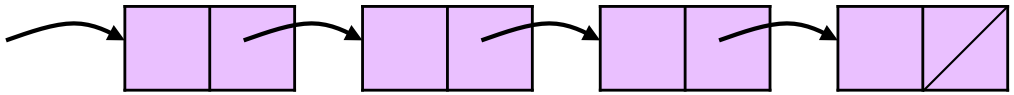
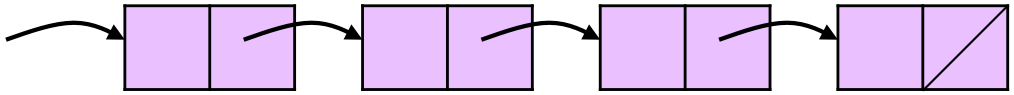
ADT - _____

insert

remove

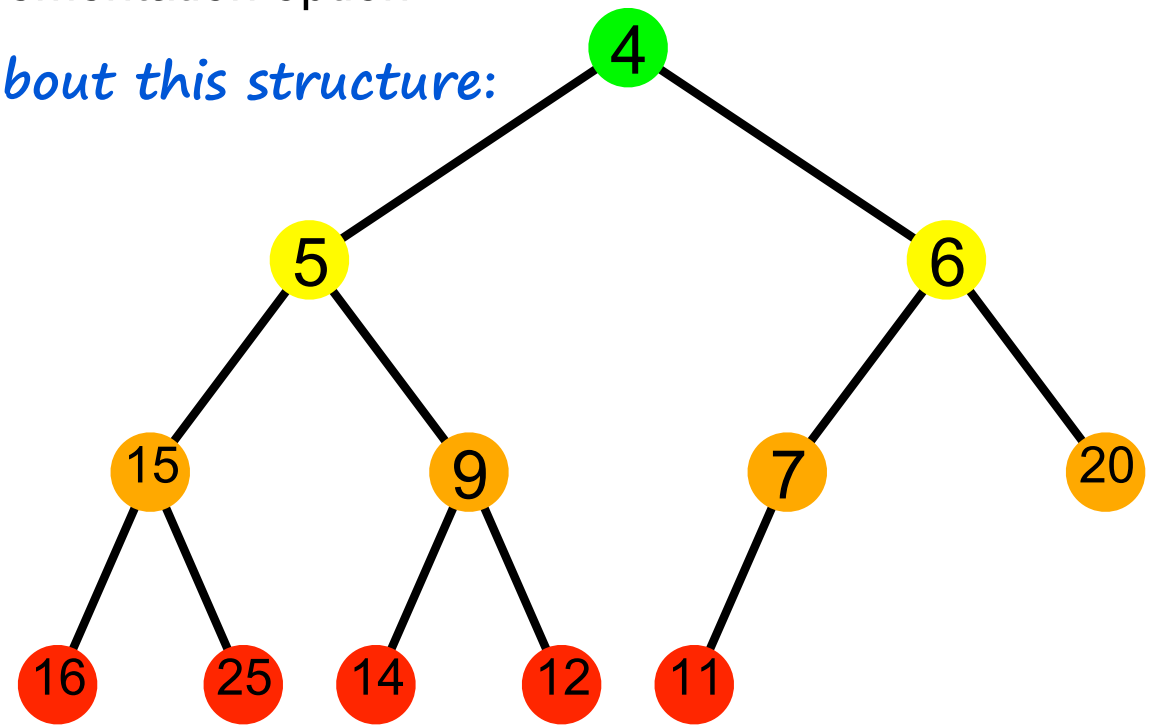
getSize

Priority Queue ADT:

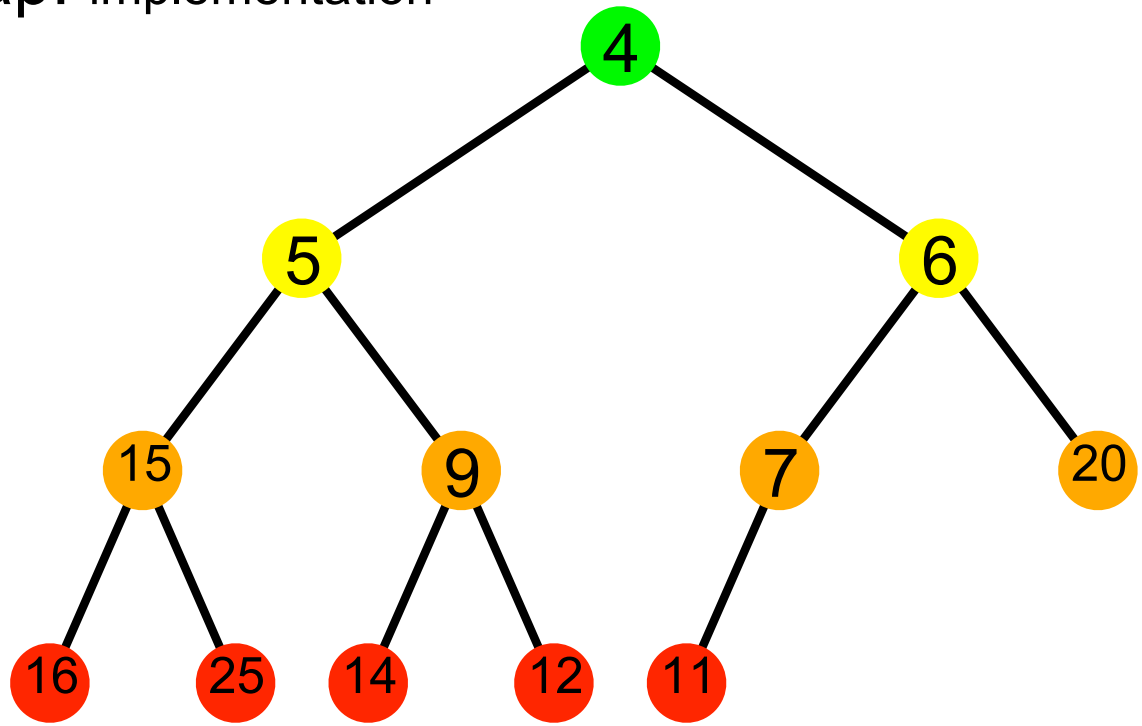
insert	removeMin	implementation
O(n)	O(n)	 unsorted
O(1)	O(n)	
O(log n)	O(1)	 sorted
O(log n)	O(1)	

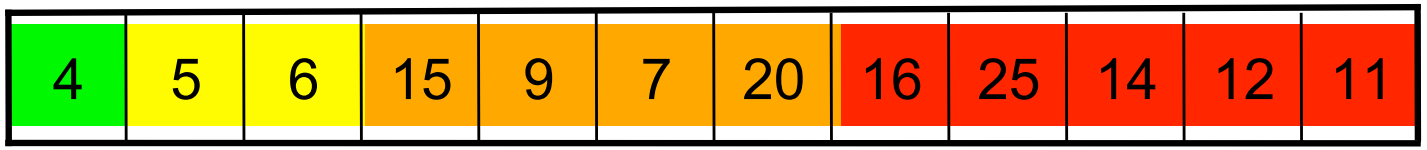
Priority Queue: another implementation option

Tell me everything you can about this structure:

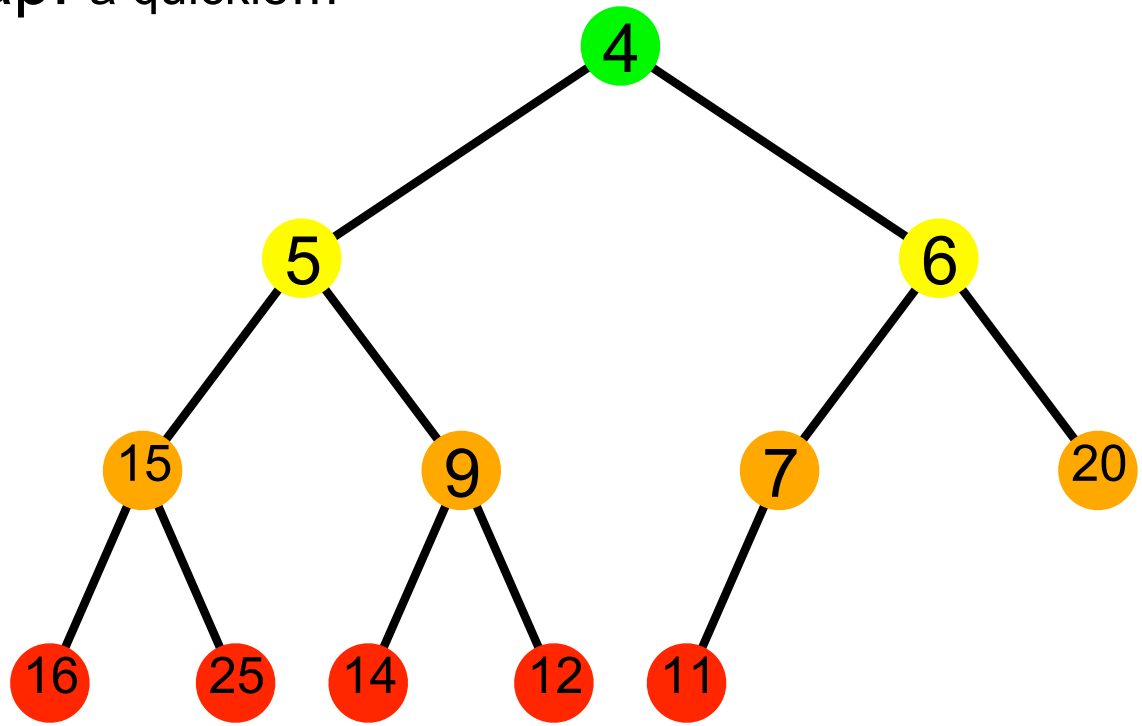


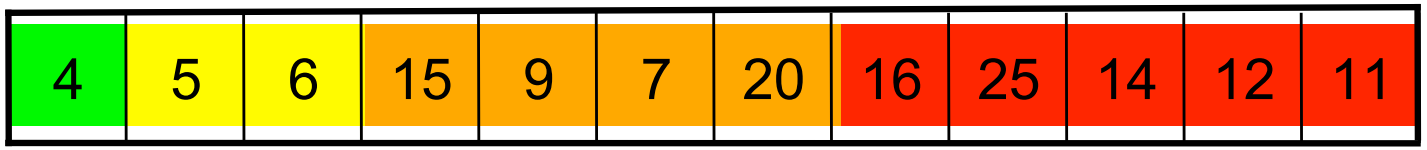
(min)Heap: implementation





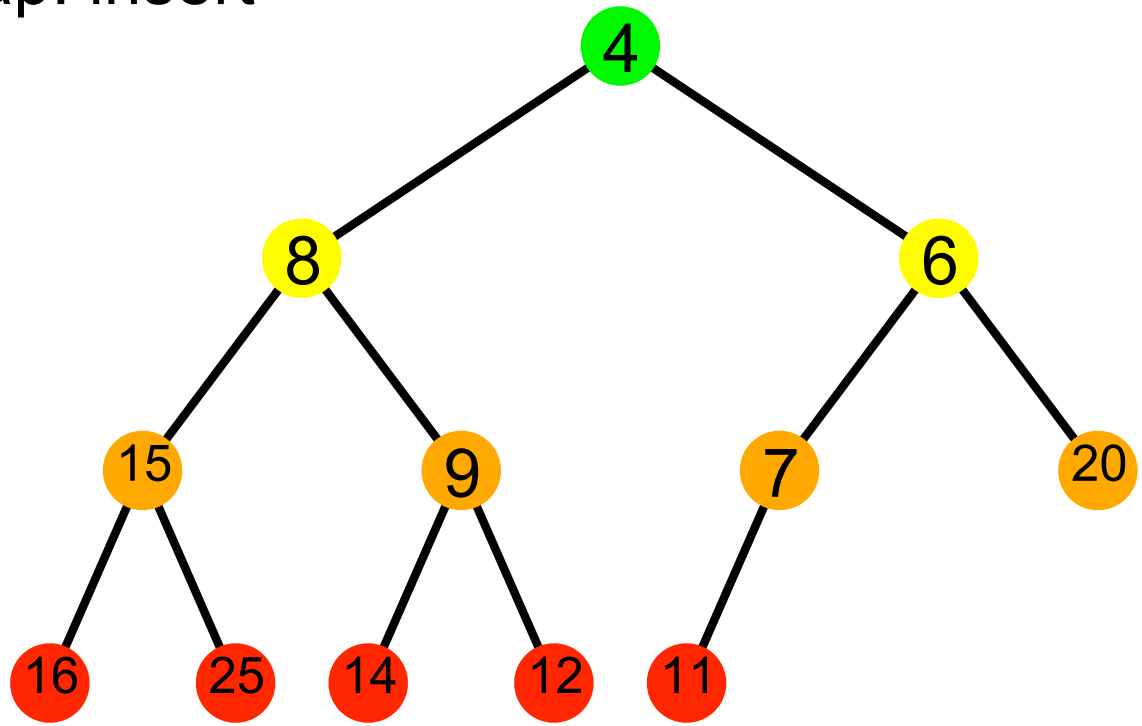
(min)Heap: a quickie…

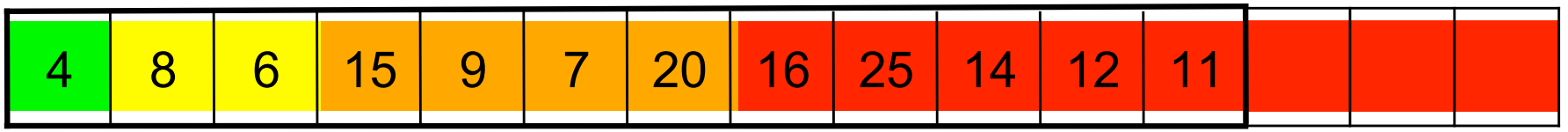




What is the max height of a complete tree containing n nodes?

(min)Heap: insert





http://people.ksp.sk/~kuko/bak/index.html

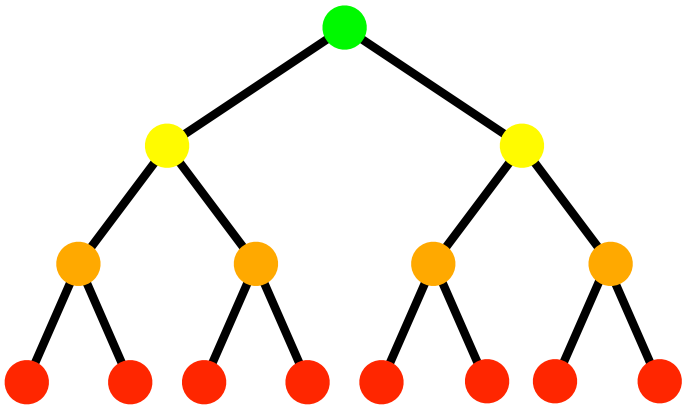
Code:

```
template <class T>
void Heap<T>::insert(const T & key){

   if (size==capacity) growArray();
   size++;
   items[size] = key;
   heapifyUp(size);

}
```

growArray()



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   size++;
   items[size] = key;
   heapifyUp(size);

}
```

```
template <class T>
void Heap<T>::heapifyUp(int cIndex){
   if (cIndex > ___){
      if (items[cIndex] ___ items[parent(cIndex)]{
         swap(_________________,_________________);
         heapifyUp(_________________);
      }
   }
}
```