

Build a Heap

BUILD A HEAP

Another way to build a heap out a set of values, vals, is to insert the items one at a time into the heap.

```
1 heap = []
2 for v in vals:
3     insert_heap(heap, v)
```

What is the running time?

- $\theta(1)$
- $\theta(\log n)$
- $\theta(n)$
- $\theta(n \log n)$
- $\theta(n^2)$

Minimize Sum of Absolute Value

```
9 def minimize_absolute(L):
10     L2 = L[:]
11     L2.sort()
12     if len(L2) % 2 == 0:
13         return (L2[(len(L2) - 1) / 2] + L2[(len(L2) - 1) / 2]) / 2.
14     else:
15         return L2[(len(L2) - 1) / 2]
16
```

Minimize Sum of Squares

```
7 #
8 def minimize_square(L):
9     return sum(L) * 1. / len(L)
```

Mode

```
9 def mode(L):
10     counts = {}
11     for each in L:
12         if each not in counts:
13             counts[each] = 0
14             counts[each] += 1
15     x = 0
16     y = 0
17     for each in counts:
18         if counts[each] > x:
19             x = counts[each]
20             y = each
21     return y
```

Up Heapify

```
9 def up_heapify(L, i):
10     while i > 0 and L[i] < L[parent(i)]:
11         L[parent(i)], L[i] = L[i], L[parent(i)]
12         i = parent(i)
```

Actor Centrality

Actor Centrality

Using the supplied file 'imdb-1.tsv' calculate the top 20 central actors, using the average centrality measurement given in Unit 3. The top central actor is *Tatasciore, Fred*. Who is the 20th?

- ☐ Jackson, Samuel L.
- ☒ Hoffman, Dustin
- ☐ De Niro, Robert
- ☐ Morrison, Rana

What is his/her centrality?