

EECS 281, Week 4: Monday

Disjoint Set

Definition:

Operations:

List-based disjoint sets and the **Quick-Find** Algorithm

Tree-based disjoint sets and the **Quick-Union** Algorithm

EECS 281, Week 4: Monday

Optimizing disjoint sets and Quick Union

EECS 281, Week 4: Monday

Bubble sort

Selection sort

Insertion sort

Heapsort

EECS 281, Week 4: Monday

Merge sort

Quicksort

EECS 281, Week 4: Monday

Sorting Summary

Algorithm	Best	Average	Worst	Memory	Stable	Notes
Bubble sort						
Selection sort						
Insertion sort						
Heapsort						
Merge sort						
Quicksort						
Random Quicksort						

EECS 281, Week 4: Monday

3-way Sort

Implement `threeWaySort`, a function that sorts a vector of integers whose values are 0, 1 and 2. Time complexity should be $\Theta(n)$ and space complexity should be $\Theta(1)$.

```
void threeWaySort(vector<int> &v) {
```

```
}
```

Challenge: implement this function using STL iterators instead of passing a vector by reference. When finished, take a picture of your implementation and email it to Maxim