Sorting Data

Selection sort Part 2

By the end of this video you will be able to…

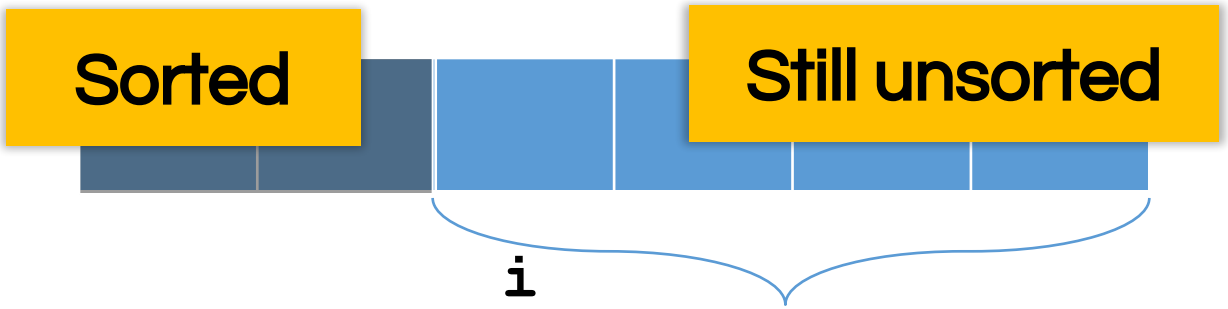
- Explain the selection sort algorithm
- Write code to perform selection sort

- Find smallest element, swap it with element in location 0
- Find next smallest element swap it with element in location 1
- etc.

Selection Sort

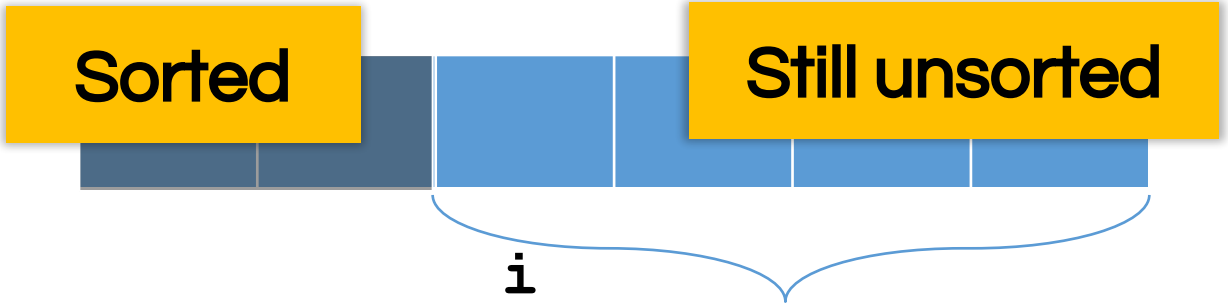
Selection Sort: Basic Algorithm

For each **position** `i` from `0` to `length-2`



Selection Sort: Basic Algorithm

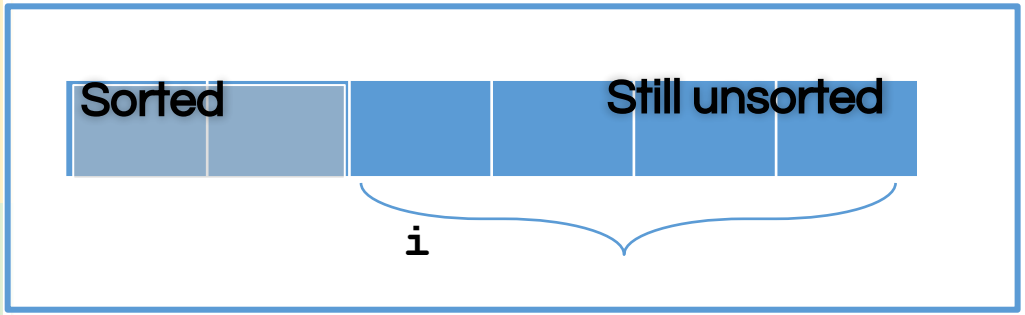
For each **position** `i` from `0` to `length-2`



Selection Sort: Basic Algorithm

For each **position `i`** from `0` to **`length-2`**

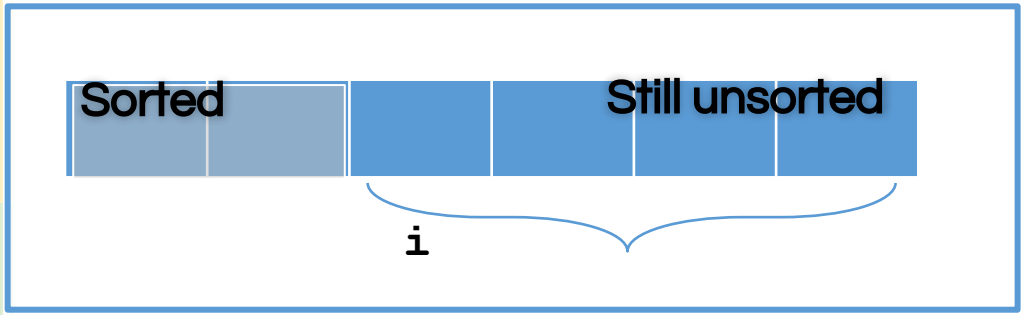
Find smallest element in "still unsorted"
Swap it with element in **position `i`**



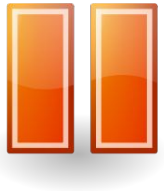
Selection Sort: Basic Algorithm

For each **position `i`** from `0` to **`length-2`**

Find smallest element in **positions `i` to `length-1`**
Swap it with element in **position `i`**

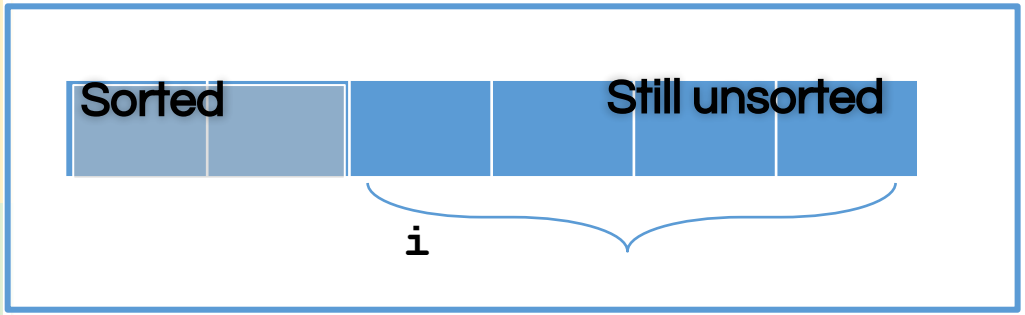


Selection Sort: Basic Algorithm



For each **position `i`** from `0` to **`length-2`**

Find smallest element in **positions `i` to `length-1`**
Swap it with element in **position `i`**



```
public static void selectionSort( int[] vals )     {









}
```

```
public static void selectionSort( int[] vals )     {


   for ( int i=0; i < vals.length-1 ; i++ ) {









   }
}
```

```
public static void selectionSort( int[] vals )     {

   int indexMin;

   for ( int i=0; i < vals.length-1 ; i++ ) {

     indexMin = i ;
     for ( int j=i+1; j < vals.length; j++ ) {
       if ( vals[j] < vals[indexMin] ) {
         indexMin = j ;
       }
     }


   }
}
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       if ( vals[j] < vals[indexMin] ) {
         indexMin = j ;
       }
     }

     swap ( vals, indexMin , i );
   }
}
```

Thought questions

- How do we know this algorithm **always** works?
- How well does it work?
- Can we do better?