



Selection sort

A better sort of sort



Selection sort

- The selection sort goes through the list looking for the largest element left to sort and switching it to the back of the list.
 - Each time through is called a 'pass'
 - NOTE: It is equally good to select the smallest element and swap it to the front of the list.
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Selection Example – Pass 1

- **h n a b d** is our list
 - compare **h n**, n is the largest so far
 - compare **n a**, n is the largest so far
 - compare **n b**, n is the largest so far
 - compare **n d**, n is the largest
 - Switch n and d.
 - **h n a b d** → **h d a b n**
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Selection Example – Pass 2

- **h d a b n** is our list
 - compare **h d**, h is the largest so far
 - compare **h a**, h is the largest so far
 - compare **h b**, h is the largest
 - Switch h and b.
 - **h d a b n** → **b d a h n**
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Selection Example – Pass 3

- **b d a h n** is our list
 - compare **b d**, d is the largest so far
 - compare **d a**, d is the largest.
 - Switch d and a.
 - **b d a h n** → **b a d h n**
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Selection Example – Pass 4

- **b a d h n** is our list
 - compare **b a**, b is the largest.
 - Switch b and a.
 - **b a d h n** → **a b d h n**
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Efficiency

- We want to minimize the number of comparisons and swaps.
 - So we count them to see how efficient our sort was.
 - In this case, our 4 passes required **10 comparisons**, and we made only 4 swaps.
 - So clearly better than bubble sort in this case.
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