

COMP20005 Week 8

- Selection sort
 - ▶ Iterative
 - ▶ Recursive
- calculate change revisited
- Project.

Selection sort

find_max(int A[], int i)

Find the index of the largest element in A
among $A[0]$ to $A[i]$

A =

| | | | |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 2 | 3 | 1 | 4 |

 find_max(A, 2)
 ↑ ⇒ 1
 i

max_index = 0

for j = 1 to i

if $A[j] > A[\text{max_index}]$

max_index = j

return j

Selection sort

$i = 3$, $\text{max_index} = 3$

| | | | |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 2 | 3 | 1 | 4 |

→

| | | | |
|---|---|---|---|
| 2 | 3 | 1 | 4 |
|---|---|---|---|

$i = 2$, $\text{max_index} = 1$

| | | | |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 2 | 3 | 1 | 4 |

→

| | | | |
|---|---|---|---|
| 2 | 1 | 3 | 4 |
|---|---|---|---|

$i = 1$, $\text{max_index} = 0$

| | | | |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 2 | 1 | 3 | 4 |

$i = 0 \Rightarrow \text{DONE.}$

→

| | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|