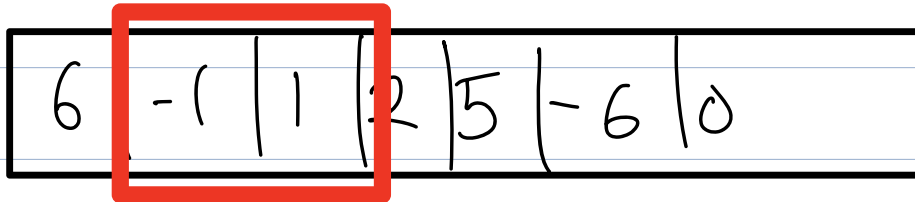
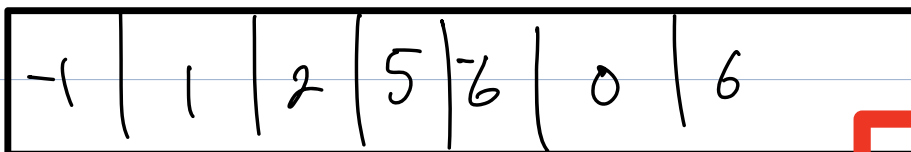
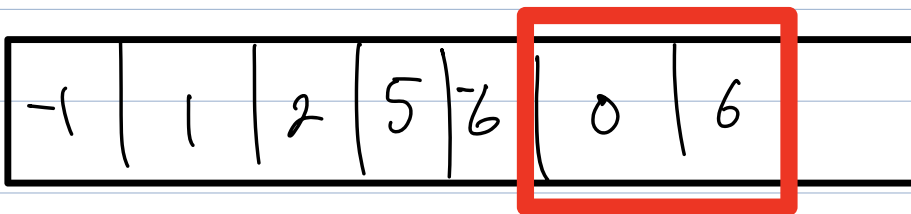
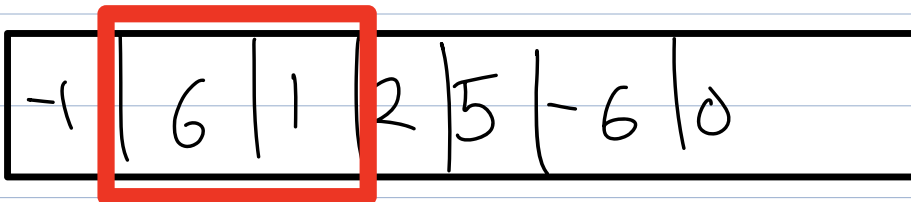


- "Simple" sorts

- Bubble Sort



-1 6



-1 1 2 -6 5 0 6

0 5 6

-6 { 2 0 }



-6 -1 0 1 2 | 6 5
-6 -1 0 1 2 5 6

Insertion Sort

6	-1	1	2	5	-6	0
---	----	---	---	---	----	---

↑ ↑
unsorted

6	-1	1	2	5	-6	0
---	----	---	---	---	----	---

└─┘ └─┘
S V

-1	6	1	2	5	-6	0
----	---	---	---	---	----	---

└─┘ └─┘
S V

-1	1	6	2	5	-6	0
----	---	---	---	---	----	---

└─┘ └─┘
S V

-1 1 2 6 | 5 -6 0
 S ↑

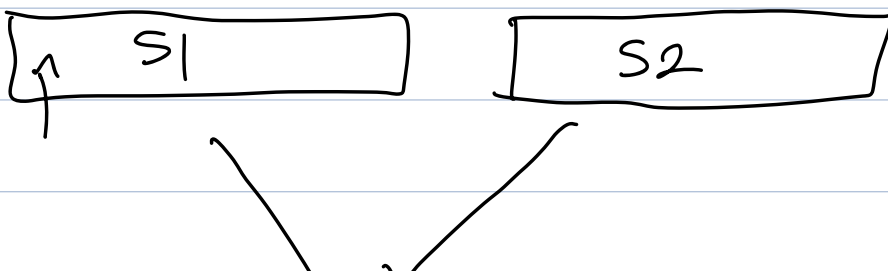
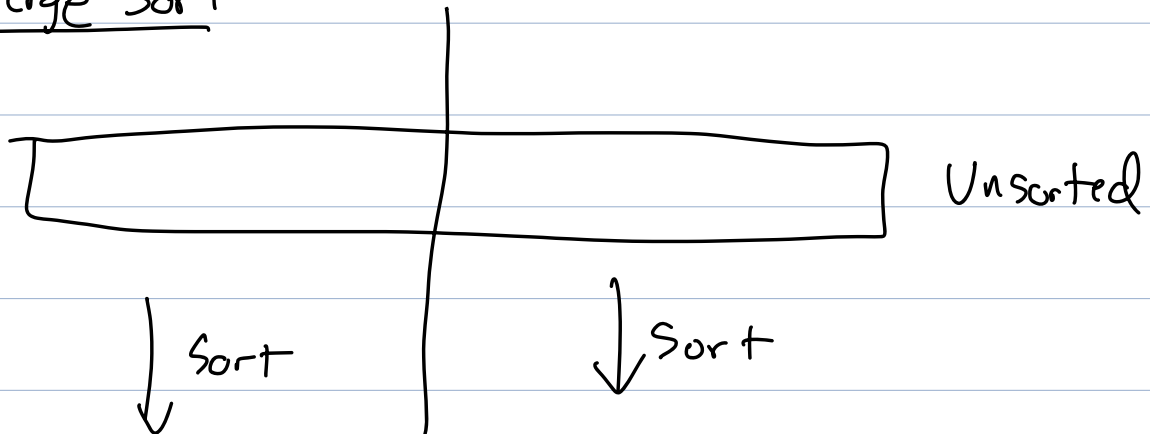
-1 1 2 5 6 | -6 0

 ↓ ↑
 -6 -1 1 2 5 6 | 0

-6 -1 0 1 2 5 6

"Smart" Sorting / Divide-and-Conquer

Merge Sort



↘ ↙

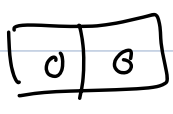
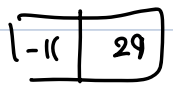
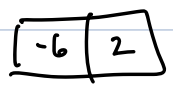
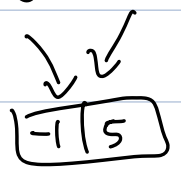
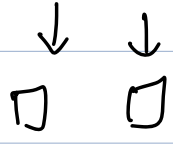
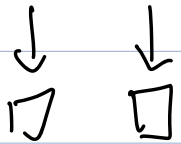
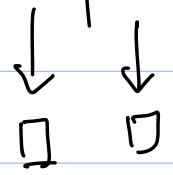
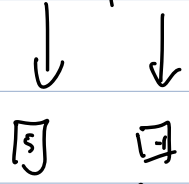
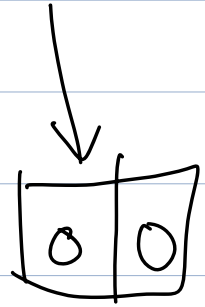
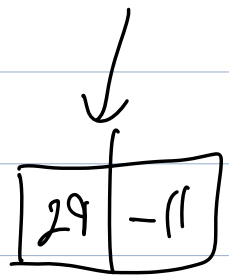
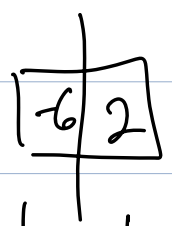
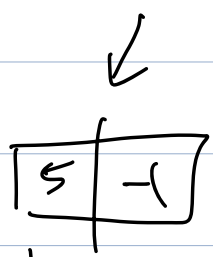
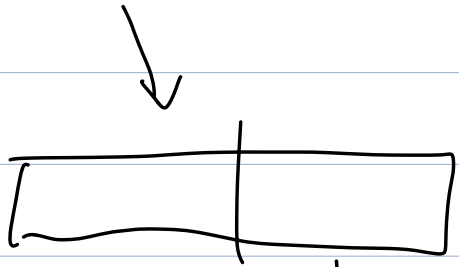
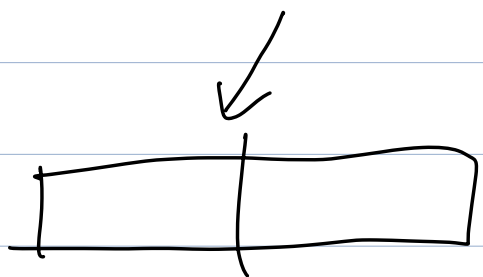
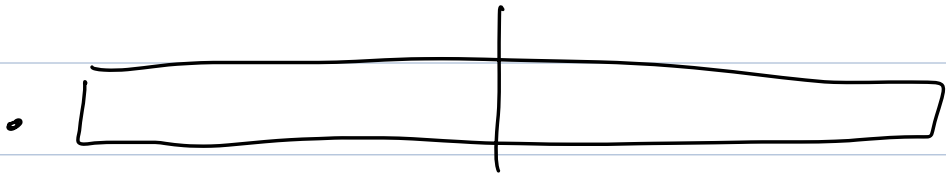
002 4 68

↑↑↑

-1 1 3 5 7 9

↑↑

-1 0 0 1 2 3 4 5 6 7 8 9



↘ ↙

$[-6 \ -1 \ 2 \ 5]$



$[-11 \ 0 \ 0 \ 29]$



$-11 \ -6 \ -1 \ 0 \ 0 \ 2 \ 5 \ 29$

$\begin{array}{cc|ccc} 2 & -5 & -7 & 0 & 1 \end{array}$

$\begin{array}{c|c} 2 & -5 \end{array}$

$\begin{array}{|c|} \hline 2 \\ \hline \end{array} \quad \begin{array}{|c|} \hline -5 \\ \hline \end{array}$

$\begin{array}{|c|} \hline -5 \ 2 \\ \hline \end{array}$

$\begin{array}{c|cc} -7 & 0 & 1 \end{array}$

$\begin{array}{|c|} \hline -7 \\ \hline \end{array} \quad \begin{array}{|c|c|} \hline 0 & 1 \\ \hline \end{array}$

$\begin{array}{|c|} \hline 0 \\ \hline \end{array} \quad \begin{array}{|c|} \hline 1 \\ \hline \end{array}$

$\begin{array}{|c|} \hline 0 \ 1 \\ \hline \end{array}$

$\begin{array}{|c|} \hline -7 \ 0 \ 1 \\ \hline \end{array}$

$\begin{array}{|c|} \hline -7 \ -5 \ 0 \ 1 \ 2 \\ \hline \end{array}$

Quicksort

0 1 2 3 4 5 6 7

3	-1	6	1	2	5	-6	0
↑	↑	↑	↑		↑	↑	↑

randomly pick a "pivot"

-1 | -6 | 0 2 | 3 | 6 | 5

↓

-6 | -1 | 0

↓

-6 | -1 | 0