

Tutorial 4

Question 1 <https://drive.google.com/drive/folders/1J2GADewc15PPEjm8GEUPX5jMdqlytcpW>

Show in the style of the example trace with selection sort, how selection sort sorts the array

E A S Y Q U E S T I O N

Note: An example of a trace is given in the appendix.

An example trace of selection sort

Iteration	Array	
	S O R T E X A M P L E	this will be stupidly long, just refer to my notes
0	A O R T E X S M P L E	
1	A E R T O X S M P L E	
2	A E E T O X S M P L R	
3	A E E L O X S M P T R	
...		

Question 2

What is the maximum number of exchanges involving any particular item during selection sort? What is the average number of exchanges involving an item?

On average, 1
And on max, 1

This is each element at most, is switch once

Question 3

Show in the style of the example trace with insertion sort, how insertion sort sorts the array

E A S Y Q U E S T I O N

again, stupidly long, just refer to my notes

Question 4

Give traces, in the style of the trace given in the appendix, showing how the keys E A S Y Q U E S T I O N are sorted with merge sort.

again, stupidly long, just refer to my notes

Question 5

Show, in the style of the quicksort trace, how quicksort sorts the array

E A S Y Q U E S T I O N

again, stupidly long, just refer to my notes

Note that the first element is chosen as the pivot. In the trace, only show the output of partition. You do not need to show the trace for the partition process.