SORTING PROPERTIES

Sorting Properties	
Property	**Description**
Adaptive	A sort is adaptive if it runs faster on a partially sorted array.
Stable	A sort is stable if it preserves the relative order of equal keys in the database.
In Situ	An *in situ* ("in place") sort moves the items within the array itself and, thus, requires only a small O(1) amount of extra storage.
Online	An online sort can process its data piece-by-piece in serial fashion without having the entire array available from the beginning of the algorithm.

Properties Of Sorting Algorithms				
	Adaptive	**Stable**	**In Situ**	**Online**
Linear Insertion	Yes	Yes	Yes	Yes
Mergesort	No	Yes	No	Yes
Quicksort	No†	No	Yes	No
†Quicksort actually runs more slowly on a partially sorted array.				

Runtime Properties Of Sorting Algorithms	
Linear Insertion	o Average case O(n^2) o Worst-case O(n^2) o Runs in O(n) time on a sorted array
Mergesort	o Average case O(n lg n) o Worst-case O(n lg n) o Runtime is not affected by the array contents, only the array size
Quicksort	o Average case O(n lg n) o Worst-case O(n^2) on a sorted array o Median-of-three partitioning guarantees O(n lg n) runtime