

SP11 - Implement the expected $O(n)$ algorithm for the k largest elements (select) of an array and compare its performance with the algorithm using priority queues that we designed for the same problem on streams.

Use $k=n/2$ (median), and try large values of n : 16M, 32M, 64M, 128M, 256M.

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Observations (Time Taken):

Algorithm	$O(n)$ select	$O(n \log k)$ using in-built Priority Queue.
$n=16M$	203 msec	10365 msec
$n=32M$	383 msec	21655 msec
$n=64M$	732 msec	51314 msec
$n=128M$	1236 msec	107336 msec
$n=256M$	2069 msec	Out of memory