Median of Median-3s General Selection Algorithm
Partial Walk-Through Example

list: 1, 2, 5, 4, 9, 6, 7, 8, 3

the median would be the 5th smallest in this list of 9 values, so we call Select(list,5);

stage 1: the algorithm clusters them 3 at a time

1, 2, 5       4, 9, 6      7, 8, 3

and finds the median of those groups of 3, which gives candidates: 2, 6, 7

stage 2: the algorithm does a recursive call with that median of median-3s list to find the median of those median-3 values, Select(candidates, 2);

which in this case returns the value 6

stage 3: it partitions the entire original list around this median of median-3s

LessThan: 1, 2, 5, 4, 3       GreaterThan: 9, 7, 8

stage 4: since 6 was not the 5th largest, the algorithm needs to find it in one of the two buckets – in this case, it knows that it is in the larger bucket, and can then compute that in this particular case the value for which it is searching will be the 5th largest thing contained in that LessThan bucket, so the algorithm does a recursive call to find that position in that bucket Select(LessThan, 5);