1. Written assignment: Printed textbook 2.17 and 2.22.

2. Coding assignment: Given an *unordered* array A of n `int`'s and an `int` k, $0 \le k < n$, find the k-th smallest value in A, where k is 0-indexed.

   For example if $A = \{3, 2, 1, 4\}$ and $k = 0$, then the k-th smallest value is 1. If $A = \{5, 7, 2, 8\}$ and $k = 2$, then the k-th smallest value is 7.

   Solve this problem using two different algorithms and compare their performance. Do the following:

   (a) Implement a simple algorithm that sorts all elements in A and returns the value at index k.

   (b) Implement a more efficient divide-and-conquer selection algorithm that is discussed in class and in Section 2.4 of the textbook.

   (c) Analyze the running time of both algorithms. Create a line plot that compares the observed running time of both algorithms on inputs of different sizes. Does the observed running time of both algorithms match your analysis?

   Download a template file `Selection.java` from Moodle and add your code to methods `select1` and `select2`. You should only modify the variable n in the main method to conduct your experiments. Do not change other code in the main method.