Assignment 2

Do the following problems and exercises from the book. Note that the ordering reflects the order in which the relevant material is being covered by the course. Always *justify* your answers.

1. Do exercises 2.1.7, 2.1.8, 2.1.20
   Recommended exercises: 2.1.6, 2.1.14
   Hints:

   2.1.8 *Assume that if $a < b < c$ are the three possible key values, about a third of the N keys are a's, a third b's, and a third c's.*

   2.1.14 *Try to simulate selection sort.*

2. Do exercises 2.2.21, 2.2.22
   Recommended exercise: 2.2.19
   Hints:

   2.2.19 *As a warm-up, count the inversions between the two halves of an N-element array in linear ($O(N)$) time, if each half has been sorted; you may find an algorithm like the merging used in merge sort helpful.*

3. Do exercises 2.3.13, 2.3.15
   Recommended exercise: 2.3.20 (it would be enough to just justify why the method proposed in the exercise will guarantee logarithmic stack size)

4. Do exercises 2.4.23 (without Floyd's method), 2.4.32, 2.5.20
   Recommended exercise: 2.4.30