HW Assignment 4 (Due date: Mar 17, 9:00am)

1. [Decision Trees, 5 points] Exercise 8.1-1, page 193.
2. [Counting Sort, 10 points] Exercise 8.2-4, page 197.
3. [Radix Sort, 10 points] Exercise 8.3-4, page 200.
4. [Selection, 15 points] Exercise 9.3-5, page 223.
5. [Selection, 15 points] Exercise 9.3-7, page 223.
6. [Selection, 15 points] Problem 9.3-8, page 223.
7. [Matrix Multiplication, 10 points] Exercise 4.2-6, page 83.
8. (*) [Lower Bounds, 10 points] Prove that the worst-case number of comparisons needed to find the median of a set of $n = 2k + 1$ numbers is at least:
$$\left\lceil \lg \left[(k+1) \binom{2k+1}{k} \right] \right\rceil$$