Assignment 6

Foundations of Algorithms

1. [20 pts, Huffman coding]
   Solve exercise 16.3-3 (Cormen page 436).

2. [20 pts, algorithms]
   Consider evaluating a polynomial, e.g. given $f(x)=x^5+3x^2-x+2$, $f(2) = 44$

   Considering the general case, where the degree of the polynomial is n, state (i) a naive algorithm, and (ii) a linear algorithm to evaluate polynomials for a given real valued input. What is the type of this linear algorithm?

3. [40 pts, DFS and BFS]
   Using the DFS and BFS pseudocode/Python scripts in the lecture notes, empirically show that both DFS and BFS can be completed in $O(|V|+|E|)$.

4. [10 pts, DFS]
   Solve exercise 22.3-8 (Cormen page 611).

5. [10 pts, DFS]
   Solve exercise 22.3-9 (Cormen page 612).