Homework 7 – Due Nov. 16th 23:59, KST

Instructions: Complete the implementation and turn it in before the due date. Any deviations from the instructed deliverable format will result in a deduction of grade. DO NOT COPY OTHER'S WORKS!

For this assignment, you are to implement Huffman encoding using priority queues. I have demonstrated the algorithm in class, so you won't have to think too much about the overall process. In the file Huffman.java, you'll find two main methods to implement: encode() and decode(). These are the only two methods that you are required to implement, but you will need to prepare supplementary codes to complete your implementation. Carefully read all comments given in the file Huffman.java and submit an error-free code.

Rubric: Grading will be based on, but not limited to, the following criteria.

- Documentation (40 points): For each of the required methods, you should provide extensive descriptions in the header comments. In particular, the descriptions should include the outline of your algorithm in a paragraph. Also provide time and space complexity analyses of your algorithm.
- Correctness (60 points): Your implementation should behave as specified above in an error-free manner. The two main sub-criteria for correctness can be found in the two 'assert' statements in Huffman.java's main() method. Two or more unexpected exceptions will result in a zero (0) for correctness.
- Miscellaneous: Do not change the method and class names or declare a new package. Deviating from a priority queue-based solution is grounds for significant deduction.

Deliverable: A single Huffman.java file not part of any package structures. Do NOT rename the file.