Homework 8 – Due May. 21st 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 probably need to prepare supplementary codes to complete your implementation. You must use a heap-based priority queue to complete this task.
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, 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.