CMCS 341

Homework #5

Assigned Wed. Nov. 14
Due (hard copy in class) Mon Nov. 26 / Tue Nov 27

1. (5 points) Insert the following characters with their respective priorities (shown as ordered pairs) into an empty treap:
   (K, 17), (F, 22), (P, 29), (M, 10), (N, 15), (L, 26), (G, 13), (X, 20), (A, 44), (P, 19), (Q, 30).
   Show the result after each insertion.

2. (5 points) Given a Skiplist with probability p and maximum node size M that contains N nodes, show the expected distribution of node sizes (how many nodes of each size).

3. (5 points) How would choosing a large value (close to 1) of p or a small value (close to 0) affect the performance of a skiplist? Justify your answer.

4. (5 points) Insert the values 89, 19, 50, 59, 76 and 26 into an empty hash table of size 11 that uses f(k) = k mod 11 for its hash function and linear probing using f(i) = i for collision resolution.

5. (5 points) Is a hash table a good choice to implement a priority queue? Justify your answer..