Homework Assignments 9
Do Not Hand In.

You do not have to write the actual programs for any of the problems, but you may want to experiment with some code to verify your own answers.

Problem 1

Suppose that the text consists of characters a, b, c, d, e, f, g, h and frequency of these characters in the text is as follows:

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>25</td>
<td>40</td>
<td>9</td>
<td>20</td>
<td>3</td>
<td>12</td>
<td>23</td>
</tr>
</tbody>
</table>

Draw a Huffman tree to obtain the code for these characters.

Problem 2

A priority queue containing characters is implemented using max-heap and stored as an array. The capacity of the array used is 10 elements and the first 7 locations are occupied (indexes 0 through 6). Show the array after the following operations are performed (each operation should be modifying the array resulting from the previous step).

<table>
<thead>
<tr>
<th>index</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>value</td>
<td>'Z'</td>
<td>'F'</td>
<td>'J'</td>
<td>'E'</td>
<td>'B'</td>
<td>'G'</td>
<td>'H'</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The name of the priority queue is pq.

A. pq.enqueue('W');
B. pq.dequeue();
C. pq.enqueue('C');
D. pq.enqueue('K');
E. pq.dequeue();
F. pq.dequeue();
Problem 3

Given the following binary search tree, show the structure of the tree after a balancing operation has been performed on it.

How and what to submit

Do not submit these problems.