

2. Heaps (9 pts.)

Given the following array numbers: [6, 12, 3, 11, 14, 8, 1, 7, 15, 9, 2] (the number 6 is in position 0 and 2 in position 10), find the **min-heap** that is a result of calling the make-heap (build-heap) algorithm that uses *heapify* on the array and that runs in linear time.

In the area below show the final array contents (similar to the format we showed above). For full credit, you must also show your work at each step in the algorithm by drawing the complete **tree** representation (not array form, but tree form) after each heapify step until the algorithm is complete. **Hint:** You don't need to call heapify on EVERY node but can start a certain location. For each call, you need only show the relevant part of the tree that heapify operates on. Gradescope: Upload a picture or PDF of your work in the file upload area below.

Final array contents after the algorithm completes:

[1, 2, 3, 7, 9, 8, 6, 11, 15, 12, 14]

Diagrams of intermediate trees after each heapify call (**indicate what location you start your heapify call on**).

