Assignment 05

Submit a text file, Java, Python, C or C++ source file or .ipynb notebook file.
(25 points each)

1. Write a function to get the last item in a complete tree. This is easy to do if the complete tree were implemented using arrays. How would we do this if the tree was implemented using nodes?

2. Write a heap sort function. We've looked at max heap, which will sort our array in reversed order. Therefore, you will need to implement heap sort as a min heap to sort an array in ascending order.

   Try implementing it without looking at the source code for max heap.

3. Write a function that accepts an array of words and returns the longest common prefix. Write it so that it performs efficiently.

For example, given the array
words = ["apple", "appetite", "apparatus", "appliance"]
The function should return
"app"

4. Write a function that accepts an array of words and then returns the shortest unique prefix of each word.
For example:
words = ['apple', 'banana', 'cherry', 'cranberry', 'grape', 'grapefruit']

'apple' returns 'a'
'banana' returns 'b'
'cherry' returns 'ch'
'cranberry' returns 'cr'
'grape' returns 'grape'
'grapefruit' returns 'grapef'
returns:
['a', 'b', 'ch', 'cr', 'grape', 'grapef']