**CS2302 Data Structures**

**Spring 2020**

**Exercises B-trees**

1. Write the function largestAtDepthD(T,d) that returns the largest item at depth d in B-tree T, or –math.inf if the tree has no nodes at depth d.
2. Write the method findDepth(T,k) that receives a reference to the root of a B-tree T and an item k and returns the depth of the node where k is found in the tree, or -1 if k is not in the tree.
3. Write the function printAtDepthD(T,d) that prints, in ascending order, all the items in B-tree T that have depth d.
4. Write the function numLeaves(T) that returns the number of leaf nodes in B-tree T.
5. Write the function fullNodesAtDepthD(T) that returns the number of nodes in B-tree T that are full (a node is full if it has max\_items items).
6. Write the function printDescending(T) that prints all the items in B-tree T in descending order.
7. Write the function printItemsInNode(T,k) that receives a reference to the root of a B-tree T and an item k and prints all the items that are in the same node as k.