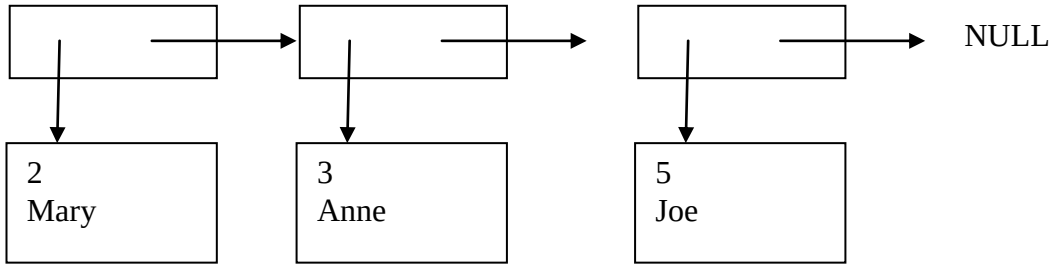
Algorithms and Data Structures 2

Laboratory Sheet 6

1. Using the linked list example from last week, extend the program by adding a second attribute to the *data* struct. This should be a string name with at most 30 characters. Update the program so it now incorporates and includes this new attribute. Then add the following functions.

   a. Add a new function to the program called *displaySmallest* which searches the linked list for the smallest number and displays the smallest value. There are a couple of ways of doing this so you need to firstly work out the logic of how you can do it and then see if you can convert it into code.

   b. Create a new version of the *addNodes* function that adds the nodes to the linked list based on ascending order of their number attribute. This will involve asking the user to input a number, and a name, creating the node and then searching the existing elements in the list to find the correct place to insert the values. This means if you insert values
      5 Joe, 2 Mary, 3 Anne then they will be stored as



   You will need to firstly work out the logic of how you can do it and then see if you can convert it into code.

   c. Now based on the consequence of the new add function adding the elements in sorted order, rewrite the *displaySmallest* function.