CSE108 – Computer Programming Laboratory
(Spring 2021)
Lab #11

May 28, 2021.

Hand-in Policy: Via Teams. No late submissions will be accepted. File name that you submit should be as following: *StudentNo.c*
Collaboration Policy: No collaboration is permitted.
Grading: This lab will be graded on the scale of 100.

In this lab, you are going to construct a node structure named node containing an integer variable, a float variable, and a char pointer. You will use stdio.h, stdlib.h, stdbool.h and string.h. You can see code template in Lab11.c. You fill empty functions. You are not allowed change function names and parameters.You will run main function to test, not need additional test conditions in main function.

insert_end function provided ready. You can use it. You will only fill the functions.

1. **void printList_withLoop(struct node *head):** Write a function that takes dynamically created linked list and print linked list elements. It will not return any value. You must use **array**.

2. **void printList_withRecursive(struct node *list):** Write a function that takes dynamically created linked list and print linked list elements. It will not return any value. You must use **recursive function call** .

3. **void sortedInsert(struct node** head_ref, struct node* new_node)**: Write a function takes pointer to pointer linked list head reference and new node. You will add according to sort with using string in the struct. This string variable name is “name” which defined in the “node” struct. You will sort ascending order.

4. **struct node* newNode(int new_data, float num, char* name_):** Write a function takes integer, float and char pointer values to create new node. You will allocate node with using “node” struct.

5. **bool search(struct node* head, int x):** Write a function takes linked list head and integer value. Search according to “data” which defined in node struct. You will control x number comparision with “data” which struct element.

Your program will be gave output like this:

```
Print List with Loop:
10->5.500000->hello1,
20->5.500000->hello2,
30->5.500000->hello3,
NULL
Print List with Recursive:
[1->5.500000->a, 2->5.500000->b, 3->5.500000->c, 2->5.500000->d, 10->5.500000->hello1,
    20->5.500000->hello2, 30->5.500000->hello3]
Is 20 belong this linked list?: YES

Is 18 belong this linked list?: NO
```