The assignment will be graded out of 100 points.

Due: 11:59pm Monday, August 6, 2018

Submission Guidelines:

Assignment will be submitted via Blackboard. If there are multiple files that you are submitting then you should zip your files into a single file and submit it. The name of this file should be in following format: lastname_firstname_UTANetID. If you are submitting a single file, make sure it is in the following format: word, txt or pdf and it should be named as mentioned above.

Make sure your name and your student ID are listed in your assignments.

If your assignment is not completed by the deadline, send it anyway and review it with the TA for partial credit. Do not take a zero or excessive late penalties just because it isn't working yet. We will make an effort to grade you on the work you have done.

Note: Please do not forget to zip all the files in ONE folder

Example:

Task1.txt
Task2.c
Task3.c
Task4.c
Task5.c
Task6.c

After that, copy all the C files into one folder and compress(zip) the folder. Then, submit the compressed (zipped) folder on Blackboard.

Assignment Specification:

For ALL the Tasks please get the values from user as input.

Task 1 (5 pts.)

In a file called task1.txt, write the differences between array and a linked list.

Task 2 (15 pts.)

In a file called task2.c, write a C program to read name and marks of n number of students from user (**use Structure**) and print them on the screen.

Example:

Enter number of students (n): **7**

Enter 7 records (NAME SCORE):

```
NAME_1   100
NAME_2   98
NAME_3   80
NAME_4   80
NAME_5   75
NAME_6   90
NAME_7   60
```

Expected output:

```
NAME      SCORE
==============
NAME_1      100
NAME_2       98
NAME_3       80
NAME_4       80
NAME_5       75
NAME_6       90
NAME_7       60
```

Task 3 (20 pts.)

In a file called task3.c, write a program in C to create a singly linked list of n nodes and display it in reverse order.

Example:

Enter the number of nodes: **4**
Input for node 1: 3
Input for node 2: 7
Input for node 3: 8
Input for node 4: 11

Expected Output:

Data entered in the list:
Node 1 = 3
Node 2 = 7
Node 3 = 8
Node 4 = 11

The list in reverse order:
Node 4 = 11
Node 3 = 8
Node 2 = 7
Node 1 = 3

Task 4 (20 pts.)

In a file called task4.c, write a program in C to create a singly linked list of n nodes and count the number of nodes and sum of the values of nodes.

Example:

Enter the number of nodes: 5

Input for node 1: 8
Input for node 2: 5
Input for node 3: 3
Input for node 4: 9
Input for node 5: 2

Expected Output:
Data entered in the list:

Node 1 = 8
Node 2 = 5
Node 3 = 3
Node 4 = 9
Node 5 = 2
Total number of nodes = 5

Sum of the values = 27

Task 5 (20 pts.)

In a file called task5.c, write a program in C to delete the **first** and **last** nodes of singly linked list.

Example:
Enter the number of nodes: 4
Input for node 1: 7
Input for node 2: 8
Input for node 3: 9
Input for node 4: 10

Expected Output:

Data entered in the list:
Data = 7
Data = 8
Data = 9
Data = 10

Data, after deletion of first and last nodes:
Data = 8
Data = 9

Task 6 (20 pts.)

In a file called task6.c, write a program in C to search an existing element in a singly linked list.

Example:

Enter the number of nodes: 4
Input for node 1: 7
Input for node 2: 8
Input for node 3: 9
Input for node 4: 10

Data entered in the list:
Input for node 1: 7
Input for node 2: 8
Input for node 3: 9
Input for node 4: 10

Enter the element to be searched: 9
Element found at node 3

Assignment Guidelines:

There will be several programming assignments in this course, typically assigned on a weekly basis. All assignments will have equal weight. No assignment scores will be dropped. The following class policies regarding assignments will be followed:

- All assignments must be submitted via Blackboard.
- No extra credit will be provided.
- If you make multiple submissions to Blackboard for the same assignment, only the latest submission will be graded.

Late submission policy:

- All assignments are graded out of 100 points. Assignments submitted late will be penalized, at a rate of 4 penalty points per hour. The submission time will be the time shown on Blackboard. Any assignment submitted more than 25 hours late will receive no credit.
- Exceptions to late submission penalties will only be made for emergencies documented in writing, in strict adherence to UTA policy. For all such exception requests, the student must demonstrate that he or she made all efforts to notify the instructor as early as possible.

- Computer crashes, network crashes, and software or hardware failure will NOT be accepted as justification for late submissions. If you want to minimize chances of a late submission, aim to submit early. You can always revise your submission till the deadline.
- Sometimes students submit the wrong files on Blackboard. Unfortunately, no credit or waiver of late penalties can be provided in such cases.
- If you find yourself in an emergency situation and cannot deliver homework on time, immediately inform the instructor and teaching assistant. Even if you have a valid reason for delivering late an assignment, you must make a convincing case that you have notified the instructor and teaching assistant as early as possible.

If you want to minimize chances of a late submission, aim to submit early. You can always revise your submission till the deadline (maximum 3 attempts).