Lab Report for CSE-1315(Data Structure)

Submission Deadline: 19 Feb

Lab Exam Date: 22 Feb

Instructions:

Follow the sample attached in the last page to see how you should present your lab task.

Remember you need to submit hand written lab report along with your source codes. Hand written version should be written in an A4 size offset paper and then covert all the pages to a pdf file (Neat and clear). The name of the pdf file will be same as your student id. Finally keep all the source codes and pdf file in a folder and covert the folder as .zip or .rar. This final .zip or .rar file sould be uploaded in the google classroom task. Again,the name of the pdf file will be same as your student id.

Tasks:

1. Write a program that uses functions to perform the following operations on singly linked list i) Creation ii) Insertion iii) Deletion iv) Traversal.

2. Write a program that uses functions to perform the following operations on doubly linked list i) Creation ii) Insertion iii) Deletion iv) Traversal.

3. Write a program that uses functions to perform the following operations on circular linked List i) Creation ii) Insertion iii) Deletion iv) Traversal.

4. Write a program that implement stack (its operations) using i) Arrays ii) Linked list (Pointers).

5. Write a program that implement Queue (its operations) using i) Arrays ii) Linked list (Pointers).

6. i) Write a program that implement Circular Queue using arrays.

ii) Write a program that uses both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers: a) Linear search b) Binary search.\

Example of a Lab task (How it should be written):

Title:

Write a program to take input of name, rollno and marks obtained by a student in 5 subjects each have its 100 full marks and display the name, rollno with percentage score secured.

Problem Analysis:

Based on the problem, it is required to get the input of name, roll number and marks in 5 subjects of a student. The program should display the name; roll number and percentage of marks secured by that student as output. The input variables shall be: name, rollno, msub1, msub2, msub3, msub4, msub5. We need to calculate percentage of marks obtained. So the variable 'score' holds the percentage to be displayed.

$$\text{Percentage of marks obtained} = \frac{\text{total marks on 5 subjects}}{\text{total full marks}} \times 100$$

$$\text{Hence, msum} = \text{msub1} + \text{msub2} + \text{msub3} + \text{msub4} + \text{msub5;}\quad \text{Score} = \frac{\text{msum}}{500} \times 100$$

Input variables	Processing variables/calculations	Output variables	Necessary header files/functions/macros

`Name (char type)`
`rollno (int)`
`msub1, msub2,`
`msub3, msub4,`
`msub5 (float)`
	`msum (float)`	`name (char type)`
		`rollno (int)`
		`score(float)`
			`stdio.h`
			`conio.h`
			`scanf()`
			`&printf() for`
			`formatted i/o.`

After the above steps you should write your program.