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Advanced Data Structures & Algorithms Lab (MTCSE1106)					

Course Objectives:

From the course the student will learn

- Knowing about oops concepts for a specific problem.
- Various advanced data structures concepts like arrays, stacks, queues, linked lists, graphs and trees.

Course Outcomes:

After the completion of the course, student will be able to

- Identify classes, objects, members of a class and relationships among them needed for a specific problem.
- Examine algorithms performance using Prior analysis and asymptotic notations.
- Organize and apply to solve the complex problems using advanced data structures (like arrays, stacks, queues, linked lists, graphs and trees.)
- Apply and analyze functions of Dictionary

Experiment 1:

Write a java program to perform various operations on single linked list

Experiment 2:

Write a java program for the following

- Reverse a linked list
- Sort the data in a linked list
- Remove duplicates
- Merge two linked lists

Experiment 3:

Write a java program to perform various operations on doubly linked list.

Experiment 4:

Write a java program to perform various operations on circular linked list.

Experiment 5:

Write a java program for performing various operations on stack using linked list.

Experiment 6:

Write a java program for performing various operations on queue using linked list.

Experiment 7:

Write a java program for the following using stack

- Infix to postfix conversion.
- Expression evaluation.
- Obtain the binary number for a given decimal number.

Experiment 8:

Write a java program to implement various operations on Binary Search Tree
Using Recursive and Non-Recursive methods.

Experiment 9:

Write a java program to implement the following for a graph.

- BFS
- DFS

Experiment 10:

Write a java program to implement Merge & Heap Sort of given elements.

Experiment 11:

Write a java program to implement Quick Sort of given elements.

Experiment 12:

Write a java program to implement various operations on AVL trees.

Experiment 13:

Write a java program to perform the following operations:

- a) Insertion into a B-tree
- b) Searching in a B-tree

Experiment 14:

Write a java program to implementation of recursive and non-recursive functions to Binary tree Traversals

Experiment 15:

Write a java program to implement all the functions of Dictionary (ADT) using Hashing.