**Practical File**

of

**Data Structure and Algorithms Lab**

**(PCC-CS-303)**

submitted in partial fulfillment of the requirement for the award of degree of

**Bachelor of Technology (B.Tech)**

in

**Computer Engineering**

by

**Name**

**(Roll No.)**

Under the guidance of

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| --- | --- | --- | --- |
| **Sr. No.** | **Problem** | **List of Programs** | **Date** |
|  | Searching | Given an array of integers *nums* and an integer *target*, write a function to search *target* in *nums*. If *target* exists, then return its index. Otherwise, return *-1*. | 12-10-2022 |
|  | Given an array of integers *nums* which is sorted in ascending order, and an integer *target*, write a function to search target in *nums*. If target exists, then return its index. Otherwise, return *-1*. | 12-10-2022 |
|  | Given a sorted array of *n* elements, possibly with duplicates, find the number of occurrences of the *target* element. | 12-10-2022 |
|  | Given a **0-indexed** integer array *nums*, find a **peak element**, and return its index. If the array contains multiple peaks, return the index to **any of the peaks**.  \*A peak element is an element that is strictly greater than its neighbors | 12-10-2022 |
|  | There is an integer array *nums* sorted in ascending order (with distinct values). After the possible **rotation** of the given array, find an integer *target*, return the index of *target* if it is in *nums*, or -1 if it is not in *nums*. | 12-10-2022 |
|  | Given an array *arr* of positive integers sorted in a strictly increasing order, and an integer *k*.  Write a function to return the *kth* positive integer that is missing from this array. | 12-10-2022 |
|  | Stack | Write a program to implement stack using array (Show all the operations like insertion, deletion and display) | 02-11-2022 |
|  | Write a program to convert Infix expression into Postfix expression and also analyze its Complexity. | 02-11-2022 |
|  | Write a program to evaluate the Postfix expression. | 02-11-2022 |
|  | Queue | Write a program to implement Simple Queue using arrays (Show all the operations like insertion, deletion and display) | 16-11-2022 |
|  | Write a program to implement Circular Queue using arrays (Show all the operations like insertion, deletion and display) | 16-11-2022 |
|  | Write a program to implement Priority Queue using both ordered and unordered arrays (Show all the operations like insertion, deletion and display) | 16-11-2022 |
|  | Linked List | Write a Program to insert and delete a node  (i) at the beginning  (ii) at the end  (iii) at any specific position of a singly linked list. | 23-11-2022 |
|  | Write a program to implement linked representation of Stack and Queue. | 23-11-2022 |
|  | Write a Program to insert and delete a node  (i) at the beginning  (ii) at the end  (iii) at any specific position of a Doubly linked list. | 23-11-2022 |
|  | Write a program to search an element in a given singly linked list. | 30-11-2022 |
|  | Write a program to search an element in a given doubly linked list. | 30-11-2022 |
|  | Write a Program to insert and delete a node  (i) at the beginning  (ii) at the end  (iii) at any specific position of a Circular linked list. | 30-11-2022 |
|  | Write a program to search an element in a given Circular linked list. | 07-12-2022 |
|  | Trees | Write a program to implement Binary Search Tree and its operations like insertion, deletion and searching. | 07-12-2022 |
|  | Write a program to traverse Binary Search Tree. | 07-12-2022 |
|  | Write a program to implement AVL tree and its operations like insertion and deletion. | 14-12-2022 |
|  | Sorting | Write a program to implement Selection sort. | 21-12-2022 |
|  | Write a program to implement Bubble sort. | 21-12-2022 |
|  | Write a program to implement Insertion sort. | 21-12-2022 |
|  | Write a program to implement Merge sort. | 28-12-2022 |
|  | Write a program to implement Quick sort. | 28-12-2022 |
|  | Write a program to implement Heap sort. | 28-12-2022 |
|  | Graph | Write a program to implement Breadth First Search traversal technique. | 04-01-2023 |
|  | Write a program to implement Depth First Search traversal technique. | 04-01-2023 |