



G.H. Patel of College of Engineering and Technology

Department of Computer Engineering

Vision

- ✓ To produce globally competitive computer engineers, who are prepared to accept the challenges at professional level, while maintaining the core values.

Mission

- ✓ To create excellent teaching learning environment.
- ✓ To mould engineers with a strong foundation of scientific knowledge and engineering concepts.
- ✓ To enhance the acquired concepts and develop new technology through excellence in research.
- ✓ To assist nation building and elevating the quality of life of the people through leadership in professionalism, education, research and public services.

Programme Educational Objectives (PEO)

- ✓ To educate young aspirants with the fundamentals of engineering and knowledge of latest technologies.
- ✓ To encourage the students to remain updated by pursuing higher degree or certification programs.
- ✓ To assume management and leadership roles to contribute in socio-economic development of the nation.

Academic year: 2022-23

Semester : 3

Subject Name: Data Structures

Subject Code: 102040301

INDEX

Name:

Enrolment No: **Branch:** Computer Engineering

Sr. No.	Name of Experiment	Page No.	Date	Marks	Signature
01	1) Write a program to insert/delete in a linear array at specific position. 2) Write a program to remove duplicate elements from linear array. 3) Write a program to read 10 integers in an array. Sort them in ascending order.				
02	1) Write a program to demonstrate the concept of Call by value and Call by Reference . 2) Write a program to implement stack using array that performs the following operations. (a) PUSH, (b) POP, (c) PEEK, (d) ISEMPY, (e) ISFULL, (f) DISPLAY. 3) Write a program to reverse array elements using stack.				
03	1) Write a program to evaluate postfix expressions using stack. 2) Write a program to check for balanced parenthesis using stacks. 3) Write a program to check whether the string is palindrome or not using stack.				

04	1) Write a program to convert infix expression to postfix expression using stack.				
05	1) Write a program to implement queue using array that performs the following operations (a) ENQUEUE, (b) DEQUEUE, (c) ISEMPY, (d) ISFULL, (e) DISPLAY. 2) Write a program to implement circular queue using array that performs the following operations (a) ENQUEUE, (b) DEQUEUE, (c) ISEMPY, (d) ISFULL, (e) DISPLAY.				
06	1) Write a menu driven program to implement singly linked list that performs the following operations (a) createList(): To create the list with 'n' number of nodes initially as defined by the user. (b) traverse(): The given traverse() function traverses and prints the content of the linked list. (c) insertAtFront(): This function simply inserts an element at the front/beginning of the linked list.				
07	1) Write a menu driven program to implement following functions in a singly linked list (a) insertAtEnd(): This function inserts an element at the end of the linked list. (b) insertAtPosition(): This function inserts an element at a specified position in the linked list. (c) deleteFirst(): This function simply deletes an element from the front/beginning of the linked list. (d) deleteEnd(): This function simply deletes an element from the end of the linked list. (e) deletePosition(): This function deletes an element from a specified position in the linked list. (f) reverseLL(): This function reverses the given linked list.				
08	1) Write a program to implement stack using linked list that performs the following operations (a) PUSH, (b) POP, (c) PEEK, (d) ISEMPY, (e) ISFULL, (f) DISPLAY. 2) Write a program to implement queue using linked list that performs the following operations (a) ENQUEUE, (b) DEQUEUE, (c) ISEMPY, (d)				

	ISFULL, (e) DISPLAY.				
09	1) Write a program to implement doubly linked list that performs the following operations (a) Insert a node at the front of the linked list. (b) Insert a node at the end of the linked list. (c) Delete a last node of the linked list. (d) Delete a node before specified position. 2) Write a program to implement circular linked list that performs the following operations (a) Insert a node at the end of the linked list. (b) Insert a node before specified position. (c) Delete a first node of the linked list. (d) Delete a node after specified position.				
10	1) Write a program to construct binary tree using array. 2) Write a program to traverse binary search tree using linked list.				
11	1) Write a program to implement depth-first search. 2) Write a program to implement breadth-first search.				
12	1) Write a program to implement linear search and binary search algorithms. 2) Write a program to implement insertion sort and selection sort algorithms.				
13	1) Write a program to implement quick sort and merge sort algorithms.				
14	1) Write a program to implement a hash table.				
Additional Programs					
1	1) Implement a program to convert infix notation to prefix notation using stack.				
2	1) Write a program to implement radix sort and bucket sort algorithms.				
3	1) Write a program to implement the mechanism to handle hash collision by 1. Separate chaining. 2. Open addressing.				
4	1) Exercise 2.2.8 from “ Data Structures using C and C++” by Yedidyah Langsam, Moshe J. Augenstein and Aaron M. Tenenbaum.				



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Sr. No.	List of Assignment(s)	Page No.	Date	Marks	Signature
1	Assignment 1				
2	Assignment 2				
3	Assignment 3				
4	Mini Project				