

GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Computer Applications (Integrated) Year II – (Semester-III) (w.e.f. July 2016) Practical List

Subject Name: Data Structures

Subject Code: 4430602

- 1 Develop C program which performs following :

Create a Structure with following Data Members:

1. Integer Array
2. Size of the Array

Sort the Array using various Sorting algorithms such as Bubble Sort, Selection Sort, Two-way Merge Sort, Insertion Sort, Quick Sort, Radix Sort, Heap Sort and Shell Sort. And store the sorted Array in a text file.

- 2 Develop C program which performs the following :

Create a Structure with following Data Members:

1. Integer Array
2. Size of the Array

Search an element in Array using Linear (Sequential) Search and Binary Search. And Display result in file. For Sequential Search, assume (a) Unordered Array, and (b) Ordered Array and develop programs accordingly.

- 3 Develop C program which performs following :

Create a structure with following Data members:

1. Integer Array
2. Size of the Array

Perform the following operations on stack using user-defined functions:

1. Push
2. Pop
3. Isempty
4. Isfull
5. Peep

Create a file which stores all values of Array through Stack. Has it reversed the order of the elements of the Array? Why?

- 4 Develop C program which performs the following:

Create a user-defined structure with the following data members:

1. A Data
2. A link to the next node

Perform the following operations on stack using user-defined functions:

1. Push
2. Pop
3. Isempty
4. Isfull
5. Peep

Create a file which stores all values of list.

- 5 Write a program to convert an infix arithmetic expression (parenthesize / unparenthesized) into postfix notation.
- 6 Write a program to evaluate a postfix expression.
- 7 Develop C program which performs following :

Create a structure with following Data members:

1. Integer Array
2. Size of the Array

Search an element in a given list using Binary search by recursion. And Display result in file.

- 8 Develop C program which performs the following :

Create a structure with following Data members:

1. Integer Array
2. Size of the Array

Perform the following operations on Simple queue using user-defined functions:

1. Insert an element
2. Remove an element
3. Display
4. Isfull
5. Isempty

Create a file which stores all values of Array.

- 9 Develop C program which performs following :

Create a user-defined structure with the following data members:

- 1) A Data
- 2) A link to the next node

Perform the following operations on Simple queue using user-defined functions:

1. Insert an element
2. Remove an element
3. Display
4. Isfull
5. Isempty

Create a file which stores all values of list.

10 Develop C program which performs following :

Create a structure with following Data members:

1. Integer Array
2. Size of the Array

Perform the following operations on Circular queue using user-defined functions:

1. Insert an element
2. Remove an element
3. Display
4. Isfull
5. Isempty

Create a file which stores all values of Array.

11 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Data
2. A link to the next node

Perform the following operations on Circular queue using user-defined functions:

1. Insert an element
2. Remove an element
3. Display
4. Isfull
5. Isempty

Create a file which stores all values of list.

12 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Co-efficient
2. A Exponent

3. A link to the next node

Perform the following operations on Singly list using user-defined functions:

1. Create
2. Display
3. Addition
4. Multiplication

Create a file which stores all values of list.

- 13 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Data
2. A link to the next node

Perform the following operations on list using user-defined functions:

1. Create a list
2. Traverse the whole list\
3. Delete first node
4. Delete last node
5. Delete a node before specified data
6. Insert at first position
7. Insert at last position
8. Insert a node before specified data
9. Insert a node at specified position
- 10.Count
- 11.Copy
- 12.Merge two list
- 13.Reverse
- 14.Search
- 15.Sort

Create a file which stores all values of list.

- 14 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Data
2. A link to the next node

Perform the following operations on Circular list using user-defined functions:

1. Create a list
2. Traverse the whole list\
3. Delete first node
4. Delete last node
5. Delete a node before specified data
6. Insert at first position
7. Insert at last position
8. Insert a node before specified data
9. Insert a node at specified position
- 10.Count
- 11.Copy
- 12.Merge two list

13.Reverse

14.Search

15.Sort

Create a file which stores all values of list.

15 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Data

2. A link to the next node

3. A link to the previous node

Perform the following operations on the doubly-linked list using user-defined functions:

1. Create a list

2. Traverse the whole list\

3. Delete first node

4. Delete last node

5. Delete a node before specified data

6. Insert at first position

7. Insert at last position

8. Insert a node before specified data

9. Insert a node at specified position

10.Count

11.Copy

12.Merge two list

13.Reverse

14.Search

15.Sort

Create a file which stores all values of list.

16 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Data

2. A link to the next node

3. A link to the previous node

Perform the following operations on doubly-linked Circular list using user-defined functions:

1. Create a list

2. Traverse the whole list\

3. Delete first node

4. Delete last node

5. Delete a node before specified data

6. Insert at first position

7. Insert at last position

8. Insert a node before specified data

9. Insert a node at specified position

10.Count

11.Copy

12. Merge two list

13. Reverse

14. Search

15. Sort

Create a file which stores all values of list.

17 Develop C program which performs following :

Create a user-defined structure with the following data members:

1. A Data
2. A link to the Left child
3. A link to the Right child

Perform the following operations on Binary Search Tree using recursion:

1. Create
2. Traverse (Inorder, Preorder, Postorder)
3. Insert
4. Delete
5. Search

Create a file which stores all values of traversal.