SARASWATI Education Society's
SARASWATI Institute of Technology
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Kharghar, Navi Mumbai - 410 210.

# Computer Engineering Department

**Vision:** "To contribute to society through excellence in scientific & knowledgeable based education of computer science professional".

**Mission:**

- To transform students into technically components, socially responsible & ethical computer science professionals
- To promote a creative teaching-learning process that will strive for academic excellence in the field of computer engineering.
- To enhance the technical expertise of students through workshop & industry-institute interaction

**Subject Name: Data Structure Using C** **Date :-31/07/2023**

**Assignment No :-1**

**Course Outcome:**

a. Perform basic operations on Array.
b. Apply different Searching and Sorting techniques.
c. Implement basic operations on Stack and Queue using array representation.
d. Implement basic operations on Linked List.
e. Implement program to create and traverse tree to solve problems.

**Topic Name:-Introduction To Data Structure**

1) Define Data Structure.
2) Why we need Data Structure.
3) Enlist and explain Primitive data types in C.
4) Give classification of data types.
5) Define Primitive and Non-Primitive data types in C.
6) Give classification of data structure and give two examples of each.
7) Differentiate Linear and Non Linear Data Structure with example.
8) What Abstract Data Type.
9) Explain different approaches to design an Algorithm.
10) Describe Algorithm Analysis in terms of Time and Space Complexity.
11) Define Big 'O' notation.

**Date of Submission:-2/8/23** **Assign By: - Mrs. Namrata swapnil Thakur.**

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**Subject Name: Data Structure Using C** **Date :-29/08/2023**

**Assignment No :-2**

**Course Outcome:**

a. Perform basic operations on Array.
a. Apply different Searching and Sorting techniques.
b. Implement basic operations on Stack and Queue using array representation.
c. Implement basic operations on Linked List.
d. Implement program to create and traverse tree to solve problems.

**Topic Name:- Sorting And Searching**

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1. What is searching? Explain linear search with suitable examples.
2. Explain binary search . Write a C program for it.
3. Find the position of element 29 using binary search method. A={11,5,21,3,29,17,2,43}.
4. Define storing and state four techniques of sorting
5. Sort the following number using bubble sort . 29,35,3,8,11,115,56,12,1,4,85,5.
6. Describe the working of the selection sort method and write complexity of it .
7. Describe Insertion sort and write a C program to insert an element in an array.
8. State advantage and disadvantage of Quick sort
9. Sort the following element using Radix sort.100, 204, 30,5,600,24,6
10. Compare Quick sort and Radix sort with respect to working principle and time complexity

**Date of Submission:-10/9/23**

**Assign By: - Mrs. Namrata swapnil Thakur.**

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**Subject Name: Data Structure Using C** **Date :-9/10/2023**

**Assignment No :-3**

**Course Outcome:**

a. Perform basic operations on Array.
b. Apply different Searching and Sorting techniques.
c. Implement basic operations on Stack and Queue using array representation.
d. Implement basic operations on Linked List.
e. Implement program to create and traverse tree to solve problems.

**Topic Name:- Stacks and Queue**

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1. Define Stack with its applications.
2. Write a C Function to perform PUSH operation on Stack
3. Write a C Function to perform POP operation on Stack
4. Convert the following infix expression into postfix expression .((A+B)*D) ^ (E-F)
5. Evaluate the following Postfix expression: 5, 6, 2, +, *, 12, 4, /, -
6. Define recursion with one example.
7. Define queue with example.
8. Differentiate stack and queue.
9. Define Priority queue and Dequeue.
10. Write the C code for enqueue operation in circular queue.

**Date of Submission:-10/10/23**

**Assign By: - Mrs. Namrata swapnil Thakur.**