Assignment No.4

1. An array is a _____ data structure in C that can store elements of the same data type.
2. A _____ is a data structure in C that can store elements of different data types.
3. In a stack, the operation to add an element is called _____.
4. In a stack, the operation to remove the top element is called _____.
5. A queue follows the _____ principle.
6. In a singly linked list, each node contains _____ and a pointer to the next node.
7. The _____ pointer points to the first node in a singly linked list.
8. In a binary tree, a node can have a maximum of _____ children.
9. The _____ of a tree is the node from which the tree originates.
10. In a binary search tree, the left subtree of a node contains elements _____ than the node, and the right subtree contains elements _____ than the node.
11. The process of inserting a new element at the end of a linked list is called _____.
12. The _____ of a linked list points to NULL, indicating the end of the list.
13. In a doubly linked list, each node has _____ pointers: one pointing to the next node and one pointing to the previous node.

Assignment No.4

14. A _____ is a data structure that supports First-In-First-Out (FIFO) operations.
15. The _____ is the first element in a queue.
16. In a stack, the element at the top is also referred to as the _____ element.
17. The process of removing an element from a queue is called _____.
18. A _____ is a data structure used for quickly finding a specific element in a collection.
19. An _____ is a data structure that represents a hierarchical structure with a root node and child nodes.
20. A _____ tree is a tree where each node has at most two children.
21. In a binary search tree, the _____ node has the smallest value.
22. The _____ node in a binary search tree is the one with the largest value.
23. The _____ operation in a binary search tree finds the smallest value greater than a given value.
24. The process of rearranging elements in a list so that smaller elements come before larger elements is called _____.
25. _____ is a sorting algorithm that repeatedly steps through the list, compares adjacent elements, and swaps them if they are in the wrong order.
26. _____ is a sorting algorithm that divides the array into smaller subarrays, sorts those subarrays, and then combines them.
27. In C, you can implement a stack using an _____ data structure.

Assignment No.4

28. A _____ is a data structure in C that allows you to access elements based on their position or index.
29. An array index in C starts from _____.
30. In C, the _____ keyword is used to dynamically allocate memory for data structures like linked lists.
31. A _____ is a data structure in C that contains a collection of key-value pairs.
32. The _____ in a hash table is a function that converts a key into an index where the value can be found.
33. In C, a _____ is a data structure that stores elements in a sorted order and allows for efficient insertions and deletions.
34. _____ is a searching algorithm that works by dividing a sorted array in half repeatedly until the desired element is found.
35. In a binary tree, a _____ is a node with only one child.
36. The _____ of a tree is a node that has no children.
37. In a linked list, the _____ is the last node.
38. A _____ is a data structure that stores elements in a circular manner.
39. In C, a _____ is a data structure that follows a Last-In-First-Out (LIFO) order.
40. _____ is a sorting algorithm that builds a final sorted array one element at a time.
41. In a doubly linked list, each node contains a pointer to the _____ node and a pointer to the _____ node.
42. In C, the _____ keyword is used to define a structure to represent a node in a linked list.
43. A _____ is a data structure that provides key-value mappings and supports operations like insertion, deletion, and retrieval.

Assignment No.4

44. In C, the _____ operator is used to access the value of a structure member.
45. The _____ pointer in a singly linked list points to the next node.
46. A _____ is a data structure used to implement a priority queue.
47. The process of inserting an element in a sorted array while maintaining the sorted order is called _____.
48. A _____ is a special type of tree in which each node has at most two children, and all nodes are either greater or less than their children.
49. In C, the _____ data structure allows you to store multiple values of the same data type.
50. In a queue, the operation to remove the front element is called _____.

Assignment-4 Answers

Certainly! Here are the answers to the fill-in-the-blank statements:

1. linear
2. structure
3. push
4. pop
5. FIFO (First-In-First-Out)
6. data
7. head
8. two
9. root
10. smaller, larger
11. append
12. tail
13. two
14. queue
15. front
16. top
17. dequeue
18. hash table
19. tree
20. binary
21. leftmost
22. rightmost
23. successor
24. sorting
25. Bubble Sort
26. Merge Sort
27. array
28. array
29. 0
30. malloc
31. dictionary
32. hash function
33. balanced tree
34. Binary Search
35. leaf
36. leaf
37. tail
38. circular buffer
39. stack
40. Insertion Sort
41. previous, next
42. struct

Assignment-4 Answers

43. map
44. dot (.)
45. next
46. heap
47. insertion
48. binary search tree
49. array
50. dequeue