PORTFOLIO

Submitted By

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for the course 18CSC201J- Data Structures and Algorithms

Under the guidance of

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FACULTY OF ENGINEERING AND TECHNOLOGY

SCHOOL OF COMPUTING

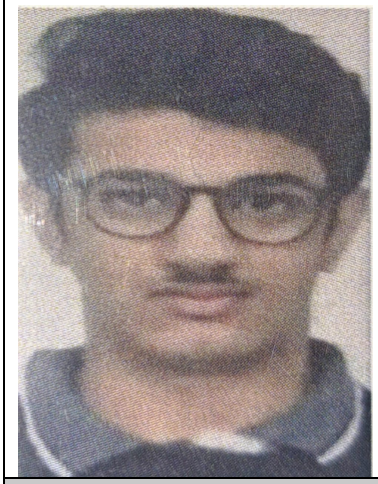
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

Kattankulathur, Kancheepuram

NOVEMBER 2022

STUDENT PORTFOLIO

Insert Photo



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Semester: 3rd Semester

Subject Title: 18CSC201J Data Structures and Algorithms

Handled By: Mr Shanmugam S

Assignment – Crossword Puzzle (Unit 1,2,3, & 4)
(Write about the assignment questions and how u solved differently)

With Every new Unit there has been a hype for completing it, the questions were becoming challenging. I was very much interested to finish the crossword. With each challenge, I was able to evaluate my confidence and know how much I have prepared.

With every new crossword, I found out it became more challenging to finish the crosswords as the units advanced each time, I am unable to do something, I had done some research to fix my errors and know the answers.

Assignment
(What is the most interesting part in the assignment)

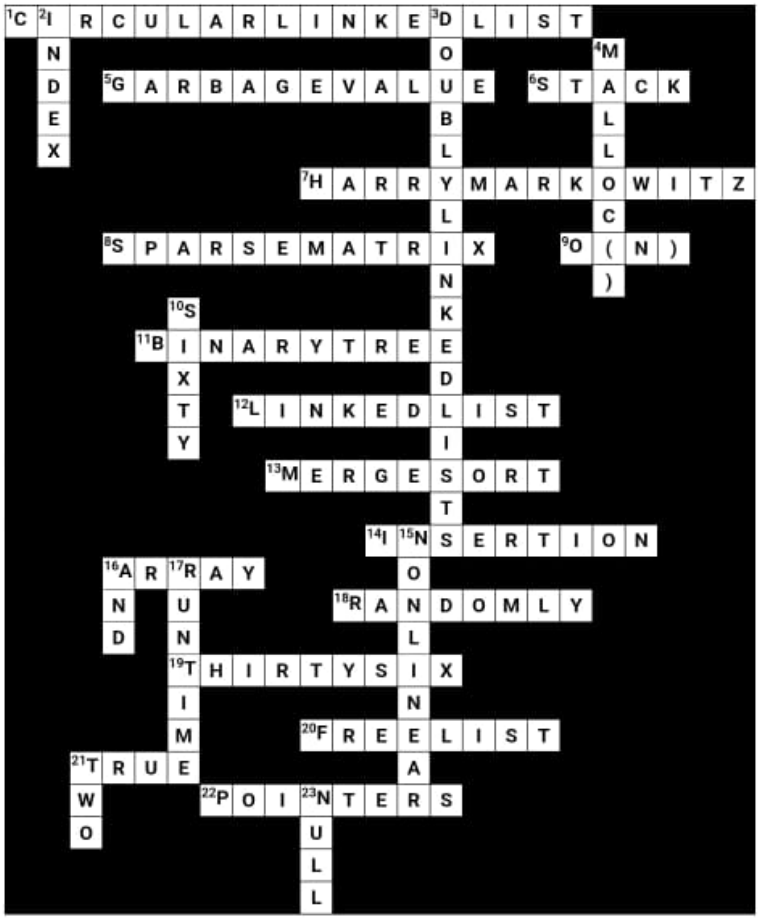
The most interesting part of the assignment is that it in case I do not know some answers researching on web, I was able to learn many other things apart from what I wanted. Every time I was able to learn new things which shall help me in some or the other way.

18CSC201J_DATA STRUCTURES AND ALGORITHMS

UNIT II

Correct! Well done.
Your score is 100%.

Down: 23: The last node of the linked list contains pointer to _____ NULL Enter



Check

Across:

1. A linked list in which none of the nodes contains a NULL pointer is?
5. What is the output of the below code?

```
#include
int main()
{
int arr[5]={10,20,30,40,50};
printf("%d", arr[5]);

return 0;
}
```

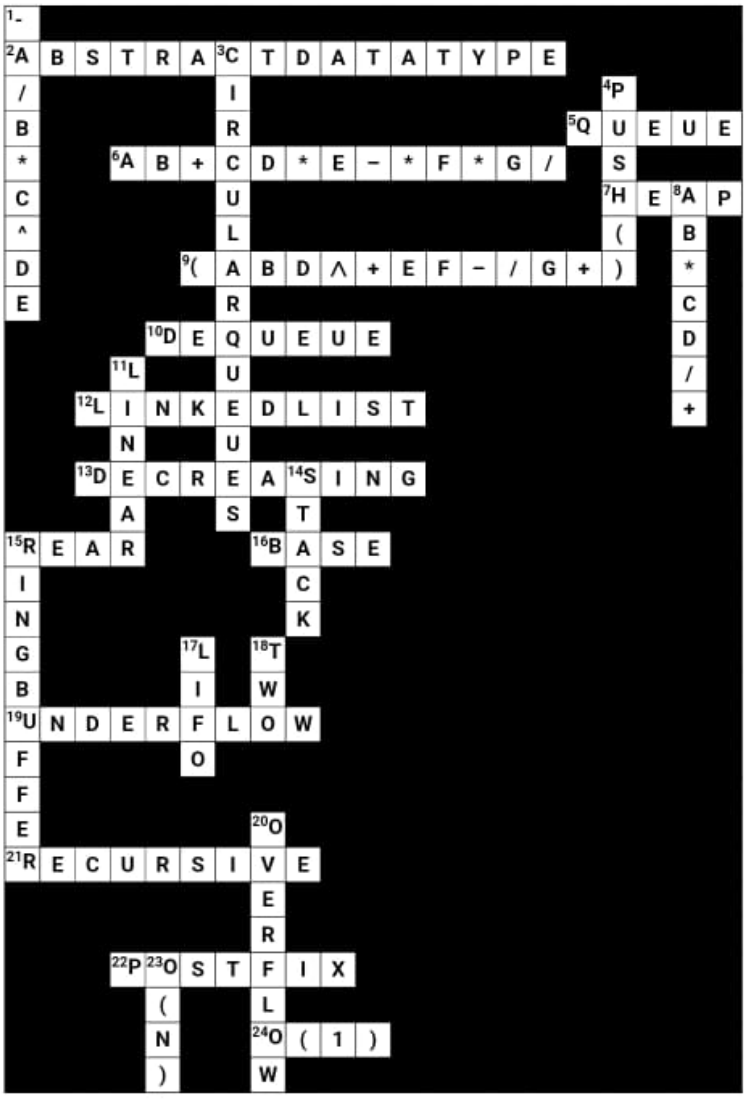
6. Which data structure is required to convert the infix to prefix notation?
7. who coined the term sparse matrix?
8. Matrix which contain very few non-zero elements is known as _____
9. What is the time complexity of searching for an element in a circular linked list?
11. In what way the Symmetry Sparse Matrix can be stored efficiently?
12. Polynomial addition can be implemented using _____
13. Which sorting algorithms is preferred to sort a linked list?
14. _____ refers to addition of element to the array.
16. _____ is a collection of items stored at contiguous memory locations.
18. Elements in an array are accessed _____
19. The size of int arr[9] assuming that int is of 4 bytes?
20. Default list in cursor implementation is called_____.
21. Is O(n) the Worst case Time Complexity for addition of two Sparse Matrix(T/F)?

Down:

2. searching for an array element based on its value or _____
3. _____are useful for playing video and sound files with "rewind" and "instant replay"
4. _____ can be used to allocate a block of memory which can simulate an array.
10. Assuming int is of 4bytes, what is the size of int arr[15];?
15. Graphs are the examples for _____Data structure.
16. Multiplication / Division follow which operation?
17. When does the ArrayIndexOutOfBoundsException occur?
21. Data Structure are classified into _____types.
23. The last node of the linked list contains pointer to _____

Correct! Well done.
Your score is 100%.

Down: 1: The prefix form of A-B/ (C * D ^ E) is? -A/B*C^DE Enter



Check

Across:

2. An _____ is defined by its behavior from the point of view of a user.
5. _____is a linear data structure in which the insertion and deletion operations are performed at two different ends.
6. The postfix form of the expression (A+ B)*(C*D- E)*F / G is?
7. With what data structure can a priority queue be implemented?
9. Convert the following infix expressions into its equivalent postfix expressions.
(A + B ∧D)/(E − F)+G
10. The function that deletes values from a queue is called _____
12. The stack implemented using _____ can work for the variable size of data.
13. The elements are popped in the _____ order
15. _____ pointer contains the address of the last element of the queue.
16. In_____case the problem is simple enough to be solved directly without making any further calls to the same function.
19. In a stack, if a user tries to remove an element from an empty stack it is called _____
21. _____ function is a function that calls itself during its execution.
22. The operator appears in the expression after the operands in _____expression.
24. What is the time complexity of enqueue operation?

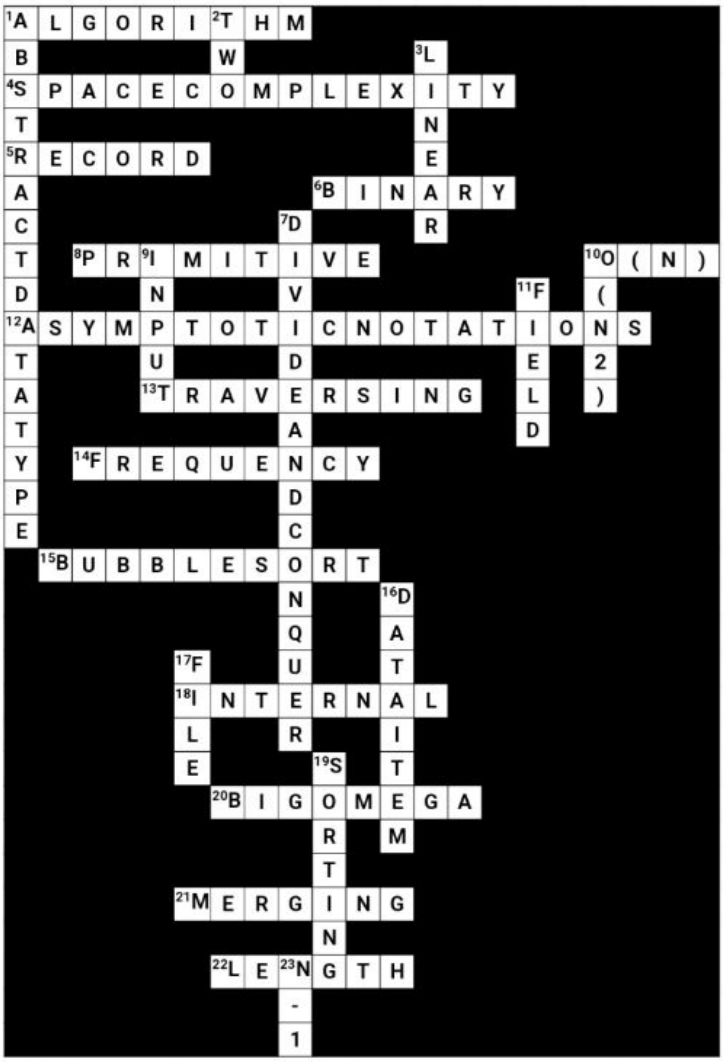
Down:

1. The prefix form of A-B/ (C * D ^ E) is?
3. The unused memory locations in the case of ordinary queues can be utilized in _____.
4. _____ is a function used to insert a new element into stack at top position.
8. The postfix form of A*B+C/D is?
11. Stack is a _____Data Structure
14. The data structure required to check whether an expression contains a balanced parenthesis is?
15. Circular Queue is also known as _____
17. Stack works on "_____" principle.
18. How many stacks are required for evaluation of prefix expression?
20. If the stack is full, _____ condition is enabled.
23. What is the time complexity of evaluation of postfix expression algorithm?

UNIT-1 18CSC201J -DATA STRUCTURES AND ALGORITHMS

Correct! Well done.
Your score is 100%.

Down: 23: Insertion sort consists of _____ passes, where N is the number of elements to be sorted. N-1 Enter



Check

Across:

1. _____ is a well defined list of steps for solving a particular problem.
4. _____ is the total amount of memory space used by an algorithm/program including the space of input values for execution.
5. _____ can be defined as the collection of various data items.
6. _____ Search is useful when there are large number of elements in an array
8. _____ data structures are the fundamental data types which are supported by a programming language.
10. What is the running time of an insertion sort algorithm if the input is pre-sorted?
12. _____are mathematical tools to represent the time complexity of algorithms for asymptotic analysis.
13. Operation used for Visiting each record so that items in the records can be accessed.
14. _____ is defined as the total number of times each statement is executed.
15. The sorting algorithm is comparison-based algorithm in which each pair of adjacent elements is compared and the elements are swapped if they are not in order
18. _____sort uses only the primary memory during sorting process.
20. _____notation is used to describe the best case running time of algorithms and concerned with large values of n.
21. All external sorts are based on process of _____
22. Record is classified according to _____.

Down:

1. _____ is a type for objects whose behavior is defined by a set of value and a set of operations.
2. Linear data structures can be represented in memory in _____ ways.
3. _____ search does not demand a structured list.
7. Merge sort uses which of the following technique to implement sorting?
9. Asymptotic analysis is _____bound
10. What is the worst case complexity of bubble sort?
11. _____ is a single elementary unit of information representing the attribute of an entity.
16. _____ refers to a single unit of values.
17. ____ is a collection of various records of one type of entity
19. _____ is a process through which the data is arranged in ascending or descending order.
23. Insertion sort consists of _____ passes, where N is the number of elements to be sorted.

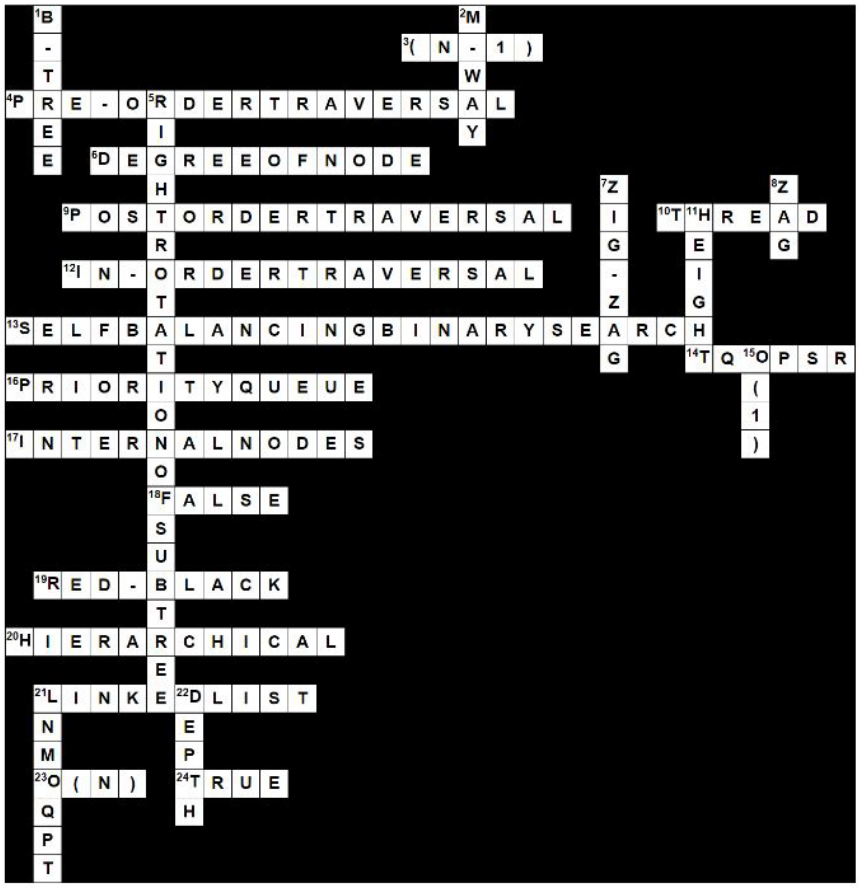
UNIT - 4

18CSC201J/DATA STRUCTURES AND ALGORITHMS

Your score is 98%.
Some of your answers are incorrect. Incorrect squares have been blanked out.

Down: 1: 2-3 tree is a specific form of

B-TREE Enter



Check

Across:

3. Tree with n nodes exactly have _____edges
4. To obtain a prefix expression, which of the tree traversals is used?
6. _____ is defined as number of children per node
9. What does the following piece of code do?

```
public void func(Tree root)
{
func(root.left());
func(root.right());
System.out.println(root.data());
}
```

10. In a binary tree, certain null entries are replaced by special pointers which point to nodes higher in the tree for efficiency. These special pointers are called _____
12. In a binary search tree, which traversal would print the numbers in the ascending order?
13. Associative arrays can be implemented using _____tree
14. The post-order traversal of a binary tree is O P Q R S T. Then possible pre-order traversal will be _____
16. A self – balancing binary search tree can be used to implement _____
17. When a binary tree is converted in to an extended binary tree, all the nodes of a binary tree in the external node becomes_____
18. A binary tree is a rooted tree but not an ordered tree.(T\F)
19. 2-3-4 trees are B-trees of order 4. They are an isometric of _____ trees.
20. Tree consists of collection of nodes arranged in _____ pattern
21. Linear access time for _____too high.
23. What is the time complexity of pre-order traversal in the iterative fashion?
24. In postorder traversal of binary tree right subtree is traversed before visiting root.(T|F)

Down:

1. 2-3 tree is a specific form of _____
2. A B-tree is called as _____tree where each node is allowed to have a maximum of m children.
5. What output does the below pseudo code produces?

```
Tree_node function(Tree_node x)
{
Tree_node y = x.left;
x.left = y.right;
y.right = x;
return y;
}
```

7. In _____ rotation every node moves one position to the right followed by one position to the left from its current position.
8. In_____ rotation every node moves one position to the left from its current position.
11. The number of edges from the node to the deepest leaf is called _____ of the tree.
15. Efficiency of finding the next record in B+ tree is ____
21. The pre-order and in-order are traversals of a binary tree are T M L N P O Q and L M N T O P Q. What is post-order traversal of the tree?
22. Number of edges from root node to particular node is as _____

Codechef Achievements

istknth_48 0 ★

Username: **istknth_48**

Current Score	Current Rank	CodeChef Rating
14800	27	NA

Practice

Total Score: **13400**

S.no	Contest Code	Scores	Contest Rank
1	SRMK2PP04	500	1
2	SRMK2PP05	500	1
3	SRMK2PP06	10400	1
4	SRMK2PP07	500	1
5	SRMK2PP08	500	1
6	SRMK2PP09	500	1
7	SRMK2PP10	500	1

Assignment

Total Score: **1400**

S.no	Contest Code	Scores	Contest Rank
1	SRMK2AP03	200	1
2	SRMK2AP04	200	1
3	SRMK2AP05	200	1
4	SRMK2AP06	200	1
5	SRMK2AP07	200	1
6	SRMK2AP08	200	1
7	SRMK2AP09	200	1

Any other

(Write if you registered or practise apart from Codechef (ex. Hackerrank, Leetcode etc.)

HACKERRANK:

Bronze level in C language:

Arnav

Signature

Note: Enclose the assignment and relevant certificates along with the profile