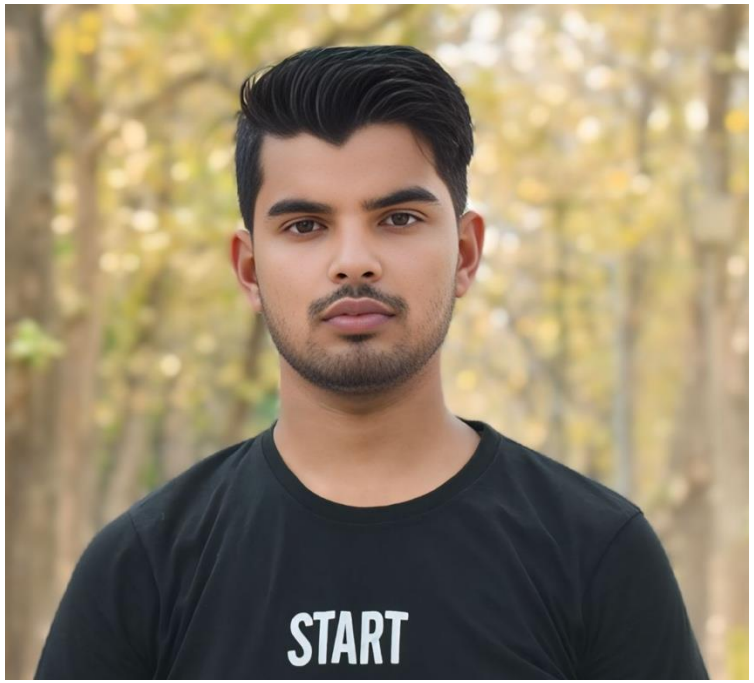
# DSA through C++

# Introduction to data structure

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# Agenda

- Why to learn DSA ?
- Importance of structuring data?
- What is a data structure?
- Classification of data structure
- Algorithms
- Prerequisites

# Why to learn DSA ?

- Raise level of programming
- Efficient Programming
- Able to solve complex problems
- Campus Placement
- A- Grade company placements

# Importance of structuring data?

**1. Dictionary**

# What is a data structure?

- Data structure is a particular way of storing and organizing data in a computer so that it can be used efficiently
- Data structures are the building blocks of algorithms and play a important role in software development.
- Data structure is nothing but container.

# Classification of Data Structure

1. Linear data structures.
    a. Static data structure.
        I. Array
    b. Dynamic data structure.
        I. dynamic array
        II. Linked list
        III. stack
        IV. queue
        V. deque
        VI. etc.
2. Non- Linear data structures.
    1. BST
    2. AVL
    3. B-Tree
    4. B+Tree
    5. Graph
    6. etc.

# Algorithms

- An algorithm is the step by step, linguistic representation of logic to solve a given problem
- Algorithm यानी documentation.

# Prerequisites

## C++

- Classes and Objects
- Constructor and destructor
- new and delete
- this pointer
- member access through pointer
- Structure