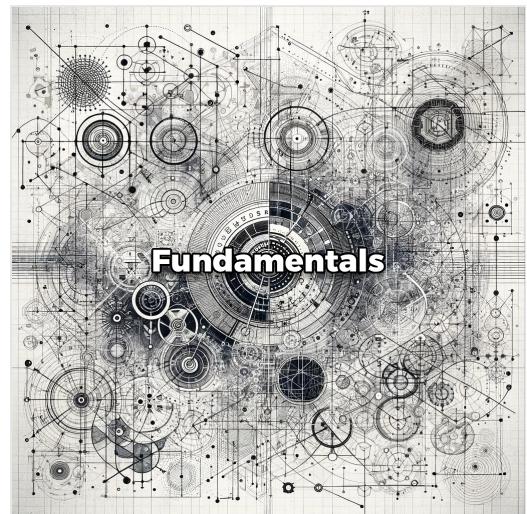


## Fundamental



### Stuff

#### Variables & Data Types:

- int.
- float.
- double.
- char.
- bool.

#### Input & Output.

- cin.
- cout.

#### Conditional Statements:

- If - else.
- switch.

#### Loops:

- For loops.
- While Loops.
- Do While Loops.

## Intermediate



### Stuff

#### Strings.

#### Functions:

- Declaration.
- Definition.
- Scope.
- Overloading.

#### Scopes & Namespaces.

- Local.
- Global.
- using namespace.

#### Pointers & References.

- Pointers to variables.
- Pointer to functions.
- References to functions.

#### Dynamic Memory Management:

- new.
- delete.
- Memory leaks.

#### Arrays and Strings:

- Character Arrays.
- std::string.

#### Preprocessor Directives:

- Header Files.
- Macros.
- Conditional Compilation.
- File inclusion.

#### File Handling:

- File Read & Write.

#### Error Handling:

- try.
- catch.
- throw.

## Object Oriented Programming



### Stuff

#### Classes & Objects:

- Defining classes.

- Creating Classes.

#### Encapsulation:

- Access specifiers.
- Getters.
- Setters.

#### Inheritance:

- Base class.
- Derived class.
- Public, Private & Protected Inheritance.
- Single-Level Inheritance.
- Multi-Level Inheritance.
- Multiple Inheritance.

#### Polymorphism:

- Function Overloading.
- Virtual Functions.

#### Abstract Classes & Inheritance:

- Pure Virtual Functions.
- Interface Implementation.

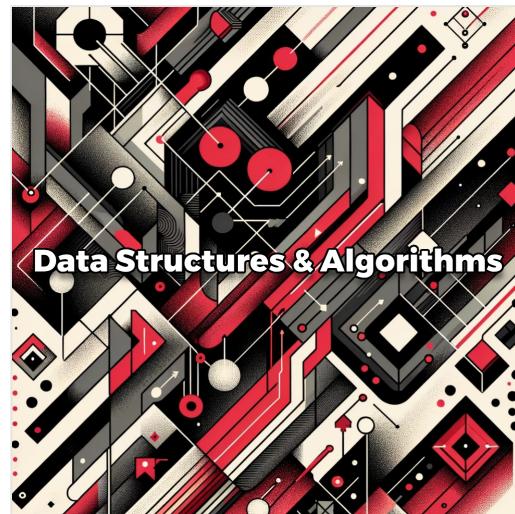
#### Constructors & Destructors:

- Virtual and Simple Constructors and Destructors.

#### Operator Overloading.

#### Friend Functions & Classes:

## Data Structures and Algorithm



### Stuff

#### Fundamentals:

- Arrays.
- Linked Lists.
- Stacks.
- Queues.
- Trees.

#### Advance Data Structures:

- Graphs.
- Hash Tables.
- Heaps.
- Advance Tree Structures:
- AVL-Trees.
- B-Trees.

#### Sorting Algorithms:

- Bubble.
- Selection.
- Insertion.
- Quick.
- Merge.
- Heap Sort.

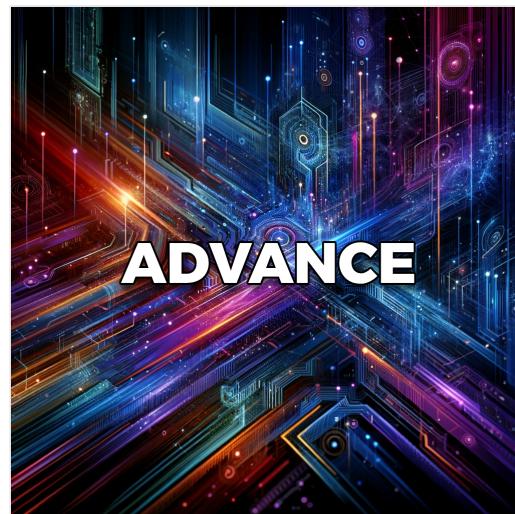
#### Searching Algorithms:

- Linear Search.
- Binary Search.

#### Graph Algorithms:

- Depth First Search.
- Breath First Search.
- Dijkstra's.
- A\*.
- Prim's.
- Dynamic Programming.
- Greedy Algorithms.
- Backtracking Algorithms.

## Advance Concepts



### Stuff

- Templates.
- Concurrency & Multithreading:
  - Creating and managing threads.
  - Mutexes.
  - Synchronization.
- Advance File I/O:
  - Binary Files.
  - Random Access Files.
- Regular Patterns.
- Networking (socket Programming).
- Design Patterns:
  - Observer etc.