



SYLLABUS

MASTER DATA STRUCTURES & ALGORITHMS USING C++

THIS COURSE IS IDEAL FOR
students stepping into the world of
coding or for those who have
intermediate expertise and want to
become a Pro Coder

WHY SHOULD YOU DO THIS COURSE?

Required for Development level programs

Concepts like Data structures, algorithms are required to write good code and are the basis of Development level programs like Full stack Web development or Mobile development.

Foundation concepts of coding

The concepts taught in this course are the foundation of coding. Having mastery over them ensures that you come up as a great coder.

Highly important for Jobs and internships

Any good developer is expected to be well conversant with Data structures and algorithms and these concepts are tested in almost good companies while screening candidates for Software developer role.

COURSE HIGHLIGHTS

01 **350+ Problems**

02 **4/6 Months Duration**

03 **6 Live projects**

04 **Mode of Delivery ,
Classroom, Online and
Live modes**

THIS COURSE INCLUDES

- Certificate of Excellence/Completion
- Progress tracking & Feedback
- Placement assistance
- Doubt support
- Curriculum designed for beginners. No Coding experience required

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- **Introduction Welcome aboard**
- **Welcome to the course**
- **Flowcharts and Psuedocode**
- This helps you to understand how to convert logic and write it in the form of diagrammatic and textual way.
- **Basics of Programming**

For any language the first and the most important thing to learn is the syntax, variables, loops, and conditionals. In this section, we will cover how to convert our logic to C++ Code.

- **Operators in C++**
- To help you understand different types of operators such as Arithmetic, Compound assignment, Bitwise, and Logical operators.
- **Functions**
- In this section, you will learn to write code in a modular way to help you reuse the code in different C++ files and make it more readable and organized.
- **Arrays**
- This is the one of most important data structure that is generally easy to understand but algorithms and concepts of this topic can be very tricky and it is asked in almost every tech company. Algorithms such as Binary Search, Sorting, Maximum Subarrays, and Searching are must to do in order to get a good grasp of this topic.
- **Character Arrays**
- This is another type of an array, just that you need to understand how to handle strings using character arrays. It will help you understand how the variation of data type in array change the way we handle this data structure.
- **Pointers**
- This most important topic to understand in order to move towards the advanced data structures, it is just like another datatype to help store address of memory we create to store data.
- **Algorithms STL**
- STL is one of the most useful thing that to write codes in a faster way, this is something comes very handy in competitive programming and online coding practise sites.
- **Bitmasking**
- In this section, we will understand how Bitwise operators like AND, OR, XOR, and NOT to work on machine code to help write the programs that works faster, since computer understands machine code.
- This concept is also very useful in Recursion as well as Dynamic programming advanced concepts.

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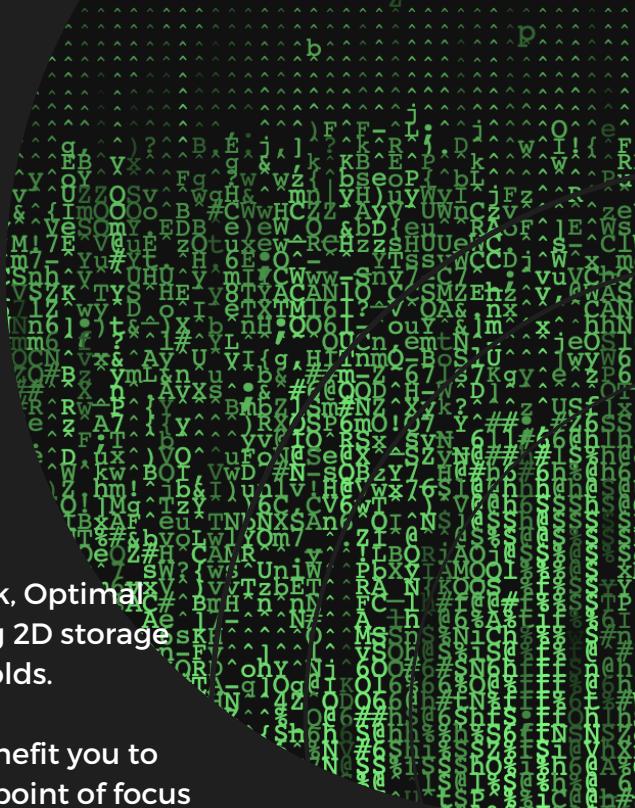
- **Strings**
- It's an alternative to Character Array, Strings data type helps in handling string easier and faster. In depth understanding of this concept becomes easier after understanding OOPS concepts.
- **Recursion Introduction**
- Inorder to understand Recursion we must understand Recursion, so this is what is focussed here i.e. write codes using Recursion.
- It is used in Dynamic Programming and as well as in data structure such as Trees, Graphs, and Heap etc.
- **Deep Diving into recursion**
- In this section, we will start exploring how to form recurrence relations using problem statements and mainly discussing recursion on arrays and strings.
- **Recursion on Subsets**
- In this section, we will understand how to solve algorithms such as phone search and advanced concept of Knapsack that is mostly asked in Interviews.
- **Backtracking**
- It is the most important concept to understand in Recursion and it is thoroughly checked in Interviews and Technical Rounds. If one has to master recursion they need to master backtracking.
- **Time and Space Complexity**
- It helps us to compare the algorithms on the basis of Time and Space it takes to run the code and help us to master how to write codes by considering constraints of the problem..
- **Object Oriented Programming**
- One of the most important topic to build data structures, this is not only used in every data structure but also help us to understand how to associate the real world with programming language.
- **Linked List**
- In this topic we learn how to store data in a non-contiguous manner and we understand how the Linked List can work in a better time complexity than other data structures in some operations.
- **Stack**
- It follows the principle of Last In and First Out, although this data structure can be easily understood but the concept of LIFO can be used to solve some typical problems such as Histogram Area, Stock Span, and Balanced Parentheses etc.

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- **Queues**
- This data structure works just like a normal queue does and it is mainly used as a helping data structure in Trees and Graphs.
- **Binary Trees and Binary Search Trees**
- In this data structure, we learn how to store data in a hierarchical format. It is one of the most important topic from Interview point of view and questions from this topic is frequently asked in companies such as Amazon, Microsoft, Flipkart and Google etc.
- **Heap**
- This data structures helps you to understand how the infinite stream of data coming can be accessed to fetch the useful information, for example, find the most sold products on any website?
- **Hashmap**
- It helps us to understand how we can store, update and delete the data in constant time. It is majorly used in Dynamic Programming and Graphs to help us make the time complexities of the algorithms better.
- **Graphs**
- The most popular data structures in companies like Direct-i, Google, and Arcesium etc.
- It is usually considered tough because of the dependency on other data strucutres such as queue, hashmaps, sets, and heap etc. but once you get a taste of how to apply these things together it will make you a better programmer.
- **Tries**
- It helps us to search in constant time and incase you want to use auto suggestions features of Amazon, Flipkart or other sites search bar this is the solution.
- Many problems such as Maximum-Xor, and Maximum Sum etc. uses tries to help improve complexity of the problem.
- **One Dimensional Dynamic Programming**
- We learn how we can improve the time complexities of Recursive algorithms drastically using concepts like Top Down approach. Also we convert out Top down approach to bottom up approach using the recurrence relation and DP concept, it's exactly what is required for the master DP.

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- INTERVIEW QUESTIONS AND EXPERIENCE**
- **Two Dimensional Dynamic Programming**
 - The most important concepts of DP are Knapsack, Optimal Game strategy, and solving string problems using 2D storage there by improving their complexities multiple folds.
 - **Greedy Algorithms**
 - This is where you learn how being greedy can benefit you to solve certain problems in a faster way. The main point of focus here is to understand where we can apply Greedy over Dynamic Programming.
 - **Top Tech Company Questions**
 - Practise from the most asked questions in companies such as Amazon, Facebook, Microsoft, LinkedIn, and Google etc. Become the programmer to crack any of your dream company.
 - **Google, Amazon, GoJek, Flipkart, Uber, Amex Interview mantras**
 - This will give you an idea of how you should prepare yourself for the final interviews and prepare yourself for everything that you may face during the placement process of any company.



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PROJECTS



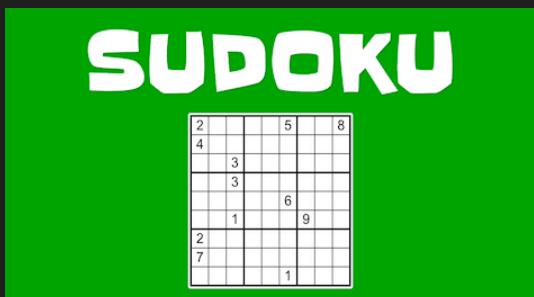
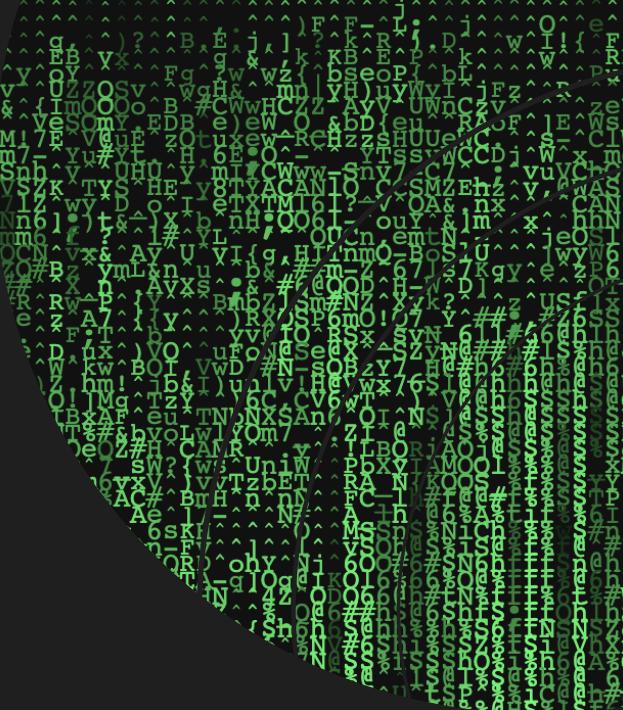
This project uses Arrays to build a very interesting Snake game



This project uses concepts of DSA to build Splitwise App



Plan your travel when you build your own application by using Graphs



Make your very own Sudoku solver with Backtracking



Design your very own Frog game while using Greedy optimisation in DSA



Use DP optimisation to build this all time favourite game and be a leader in your pack

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CHOOSE BATCH



Classroom Batch



Live Batch



Online Batch

WHY CHOOSE CODING BLOCKS

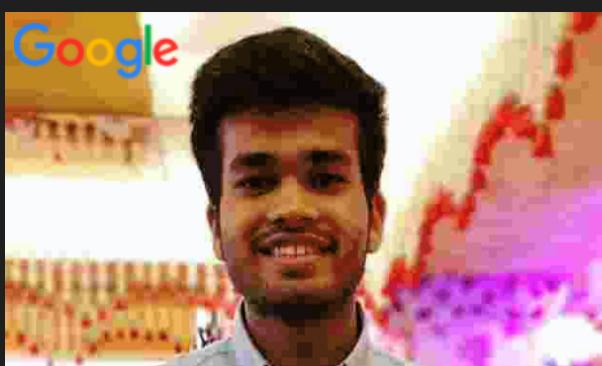
01 Superb mentors

02 Project based learning

03 Industry-vetted curriculum

04 Superb placements

INSPIRATIONAL STORIES STORIES OF CB ALUMNI



Anshul Mittal

SDE-1, Google



Harshita

SDE-1, SmartLockr

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Anubhav Gupta
SDE-1, ZOMATO



Jaspreet
SDE-1, Walmart



Lavisha
SDE-1, Goldman Sachs

YOU CAN BE ONE OF THEM!

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OUR STUDENTS CAN BE FOUND IN



RETURN ON INVESTMENT

45x - 200x

After the completion of the course you will
get a ROI of 45 - 200x



PLACEMENT ASSISTANCE

A dedicated Placement team along with Hiring Blocks, the placement portal of Coding Blocks work round the clock to ensure the best of opportunities in the Tech arena are available to you.

The screenshot shows the homepage of the Coding Blocks Hiring Blocks portal. At the top, there's a navigation bar with 'Coding Blocks | Hire' on the left and 'Are you hiring?' and 'Login' buttons on the right. Below the header is a large purple banner featuring a cartoon illustration of a person sitting cross-legged, working on a laptop, surrounded by colorful leaves. The text 'Find your dream job here!!' is displayed in white on the left side of the banner. Below the banner, a dark blue section contains the text 'Get recruited by top multinational companies and get worldwide recognition' and a 'Explore Jobs' button. At the bottom of the page, there's a section titled 'Our Partners' with logos for Google, Microsoft, nagarro, and amazon.

ALL THE HELP YOU NEED

- 01** Developer CV and Dev profile preparation
- 02** Interview preparation
- 03** 150+ Partner companies for Placements and internships
- 04** Mock interviews

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LEARNING CYCLE

MENTORS



Kartik Mathur

Academics head and Founding member



Mosina Ashraf

Senior Instructor and Product engineer



Mayank Jha

Instructor and Product engineer



Abhishek S.

Instructor and Product engineer



A wide network of TAs aka Teaching assistants, who are typical ex-students of Coding Blocks helps in Doubt resolution along with Mentors, through Video, Audio, Screen share and other media to ensure all your queries are addressed timely

TEACHING ASSISTANTS

TAs
Your Code buddies

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LEARNING CYCLE

INDUSTRY EXPERTS



Industry experts are guides currently working in Top companies like Google, Amazon, Microsoft and the like and they helps students with invaluable tips on the Industry, Hiring process, Mock interviews and other necessities required for paving the way into the Top Tech companies around the globe.

Industry Coaches

PORTAL

The screenshot shows a dark-themed e-learning portal interface. On the left, a sidebar titled "Course Content" lists several live sessions completed:

- CX-Jan'22 Live Session-01-(orientation)
- CX-Jan'22 Live Session-02-(IF ELSE LOOP DEMO)
- CX-Jan'22 Live Session-03-(Pattern)
- CX-Jan'22 Live Session-04-(Mirror Pattern)
- CX-Jan'22 Live Session-05-(Qps check Prime GCD and Fibo)
- CX-Jan'22 Live Session-06(Data Type)
- CX-Jan'22 Live Session-07(Data Type-2)
- CX-Jan'22 Doubt Session-01(Doubt Session-pattern and loops Question)

The main area features a video feed of a man with glasses and a mustache, wearing a dark jacket, looking directly at the camera. Below the video, a banner reads "Get 24*7 Doubts & Mentor Support".

Tech enabled learning

The e-learning portal is an in-house developed, state of the art application which uses the best of technology and resources to ensure all learners gain the maximum from their program. It provides immersive learning with suggestions and guidance to ensure even self learning is effective and fruitful. This portal allows learning through ebooks, videos, notes while allowing learners to attempt coding problems, MCQ assignments with attending live classes and asking doubts through chat and live video calling feature with mentors and TAs.

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TESTIMONIALS



Manali Biswas
Microsoft



Simarpreet Singh
Microsoft



Shadma Siddiqui
OYO



Aman Bansal
Goldman Sachs



Srishti Kohli
Walmart



Rajat Gupta
Walmart

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CENTRES

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PITAMPURA

360, Kohat Enclave
2 floor
Pitampura
New Delhi

WEB

NOIDA

A-73, Sector 2
Near Sector 15 Metro station
Noida
Uttar Pradesh

SOLAN

Bridgekala, Near New
Bus Stand, Solan By-Pass
National Highway
Himachal Pradesh

-  <https://www.codingblocks.com>
-  <https://online.codingblocks.com>