

Data Structures & Algorithms (DSA) for Coding Interviews

Master the coding patterns behind technical interviews with structured practice, complexity analysis, DSA mastery and mock interviews.



8 weeks

DURATION

80 hours

GUIDED LEARNING

2 projects

PORTFOLIO

ABOUT THE ACADEMY

Practical learning. Work you can demonstrate.

Brightnest AI Academy brings live instruction, guided practice and career preparation together for individuals and teams.

23

FOCUSED COURSES

6

FLAGSHIP PROGRAMMES

Noida

ACADEMY LOCATION

Our approach

1

Learn

Understand concepts through live instruction and current examples.

2

Build

Apply learning through labs, assignments and guided projects.

3

Explain

Document decisions, results, trade-offs and limitations.

4

Prepare

Connect completed work with CVs, interviews and workplace conversations.

PEOPLE BEHIND THE ACADEMY

Meet Ranjeet Kumar



ACADEMY ADVISER

Ranjeet Kumar

Innovation & Growth Leader

15+ years

Experience in data, artificial intelligence and machine learning leadership.

Areas of expertise

- Data science and machine learning solution leadership
- AI product strategy and scalable data platforms
- Technology team leadership and mentorship
- Practical AI and data adoption for business transformation

Education

Master of Information Systems, Anna University, Chennai
Bachelor of Computer Science Engineering



COURSE OVERVIEW

Build your next set of skills

Master data structures, algorithms, problem solving and technical interview patterns. Progress from Complexity and Problem-Solving Framework to Interview Simulation and DSA Capstone through guided labs, assessed projects, and portfolio evidence.

Who this is for

Students and developers preparing for software-engineering coding interviews.

Before you begin

Learners should be comfortable writing basic programs in Python, Java, C++, or another interview language.

Coding-interview readiness comes from recognising patterns, choosing suitable data structures, reasoning about complexity, and explaining trade-offs under time pressure.



LEARNING OUTCOMES

What you will be able to do

01

Analyse and optimise a set of baseline solutions while explaining trade-offs aloud.

02

Solve a curated set of interview problems and classify patterns.

03

Implement core structures and solve cycle, stack and queue pattern problems.

04

Solve tree traversal, heap and top-K problems under time constraints.

05

Solve dependency, pathfinding and connectivity interview problems.

06

Solve progressively harder DP and greedy problems using a repeatable framework.

07

Complete multiple mock coding interviews and a final curated 50-75 problem mastery set.



CURRICULUM

Course curriculum

8 modules · 8 weeks · 80 hours of guided learning

01 Complexity and Problem-Solving Framework

6 hours

TOPICS

Big-O time/space · Constraints · Brute force to optimized · Test cases · Invariants · Communication · Interview problem-solving workflow

PRACTICAL WORK

Analyse and optimise a set of baseline solutions while explaining trade-offs aloud.

Tools: Any interview language; Python/Java recommended

Assessment: Timed analysis

Portfolio evidence: Complexity cheat sheet + solved set

02 Arrays, Strings and Two-Pointer Patterns

10 hours

TOPICS

Arrays · Strings · Hashing · Prefix sums · Sliding window · Two pointers · Sorting patterns · Frequency maps · Subarray problems

PRACTICAL WORK

Solve a curated set of interview problems and classify patterns.

Tools: Python/Java, Online judge optional

Assessment: Pattern checkpoint

Portfolio evidence: Solved array/string portfolio



CURRICULUM

Course curriculum

8 modules · 8 weeks · 80 hours of guided learning

03 Linked Lists, Stacks and Queues

8 hours

TOPICS

Linked-list operations · Fast/slow pointers · Stacks · Monotonic stack · Queues/deques · Expression parsing · Cache concepts

PRACTICAL WORK

Implement core structures and solve cycle, stack and queue pattern problems.

Tools: Python/Java

Assessment: Coding assessment

Portfolio evidence: Data-structure implementations

04 Trees, BSTs, Tries and Heaps

10 hours

TOPICS

Tree traversal · Recursion/iteration · BST operations · Heaps/priority queues · Tries · Top-K · Interval/scheduling use cases

PRACTICAL WORK

Solve tree traversal, heap and top-K problems under time constraints.

Tools: Python/Java

Assessment: Timed challenge

Portfolio evidence: Tree/heap problem set



CURRICULUM

Course curriculum

8 modules · 8 weeks · 80 hours of guided learning

05 Graphs and Graph Algorithms

10 hours

TOPICS

Representations · BFS/DFS · Connected components · Topological sort · Shortest paths · Union-find · Grid graphs · Cycle detection

PRACTICAL WORK

Solve dependency, pathfinding and connectivity interview problems.

Tools: Python/Java

Assessment: Graph practical

Portfolio evidence: Graph algorithms notebook/repo

06 Recursion, Backtracking and Search

8 hours

TOPICS

Recursion trees · Subsets/permutations · Combinations · Constraint search · Pruning · Memoisation · Divide-and-conquer · Search space reasoning

PRACTICAL WORK

Solve combinatorial search problems and document pruning strategies.

Tools: Python/Java

Assessment: Backtracking checkpoint

Portfolio evidence: Search-pattern problem set



CURRICULUM

Course curriculum

8 modules · 8 weeks · 80 hours of guided learning

07 Dynamic Programming and Greedy Patterns

12 hours

TOPICS

State definition · Transitions · Memoisation/tabulation · 1D/2D DP · Knapsack patterns · Subsequences · Interval DP awareness · Greedy proof intuition

PRACTICAL WORK

Solve progressively harder DP and greedy problems using a repeatable framework.

Tools: Python/Java

Assessment: DP assessment

Portfolio evidence: Dynamic programming portfolio

08 Interview Simulation and DSA Capstone

16 hours

TOPICS

Mixed pattern recognition · Coding under time · Clarifying questions · Communication · Testing · Optimization · Behavioral handoff · Mock interviews

PRACTICAL WORK

Complete multiple mock coding interviews and a final curated 50-75 problem mastery set.

Tools: Coding platform, GitHub

Assessment: Mock interview rubric

Portfolio evidence: Interview-ready DSA repository

APPLIED PORTFOLIO

Projects you will build

Two portfolio projects supported by guided module work.

PORTFOLIO PROJECT 1

75-Problem Pattern Mastery Portfolio

Complete a curated problem set across core interview patterns with explanations and complexity analysis.

DELIVERABLES

GitHub repository · Pattern notes · Optimised solutions

PORTFOLIO PROJECT 2

Mock Interview Sprint

Complete timed mock interviews and track improvement across speed, correctness and communication.

DELIVERABLES

Interview scorecards · Weak-area plan · Final readiness report

LEARNING EXPERIENCE

Learn, practise and present

- Live instructor-led sessions that connect concepts to real workplace decisions.
- Guided labs and workshops in every module.
- Assignments, checkpoints and practical feedback.
- Portfolio documentation, demonstrations and capstone review.
- Access to recordings and LMS resources according to the published batch policy.
- Career preparation based on completed work and target roles.

Tools you will work with

Any interview language (Python or Java recommended) · Online judge · Coding platform · GitHub

CAREER PREPARATION

Build confidence for interviews

A structured process to connect your learning with your next career step.

01**Role clarity**

Identify roles that fit your background, interests and current skills.

02**Profile readiness**

Review your CV, LinkedIn, GitHub and project summaries.

03**Project proof**

Prepare to demonstrate completed work and explain your decisions.

04**Interview practice**

Practise technical questions, project walkthroughs and interviews.

05**Opportunity updates**

Receive relevant job openings and employer requirements, subject to availability and learner readiness.

Career support helps you prepare. Employment outcomes depend on experience, project quality, interview readiness and market conditions.

LEARNER JOURNEYS

Companies where our learners have been hired

Across the Brightnest AI Academy learner community



Learner employment history across the academy; not a placement guarantee for this course. Names and logos identify employers; they do not imply endorsement or a hiring partnership.

BEFORE YOU ENROL

Your questions, answered

Is the DSA for Coding Interviews course suitable for beginners?

This course progresses from intermediate to advanced level. Learners should be comfortable writing basic programs in Python, Java, C++, or another interview language.

What will I build during the course?

You will complete guided labs in every module and build two portfolio projects: 75-Problem Pattern Mastery Portfolio and Mock Interview Sprint. Deliverables include working files or code, documentation, testing or evaluation evidence, and a final presentation.

Which tools and platforms are covered?

You can use any interview language; Python or Java is recommended. Practical work also uses an online judge, a coding platform and GitHub.

How long does the course take?

The course includes approximately 80 guided learning hours across 8 modules, delivered over 8 weeks.

Which career paths can this course support?

The curriculum supports the development of skills for software engineering interviews and graduate developer career preparation. Career outcomes depend on prior experience, project quality, interview readiness and market conditions; employment is not guaranteed.

Will I receive mentor and career support?

The course includes live instruction, lab support, assignment feedback, project reviews and career preparation covering portfolio development, CV writing, LinkedIn profile improvement, and interview guidance.

FEES & ADMISSIONS

Plan your next step

COURSE FEE

INR 35,000 + GST

EMI and easy instalments available

Duration	8 weeks
Level	Intermediate-Advanced
Learning format	Live mentor-led learning
Batch starts	Expected Saturday / Sunday starts

Check the live Batches page for the next expected weekend. Confirm the exact date, class times and availability with admissions.

Book a free demo class >

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