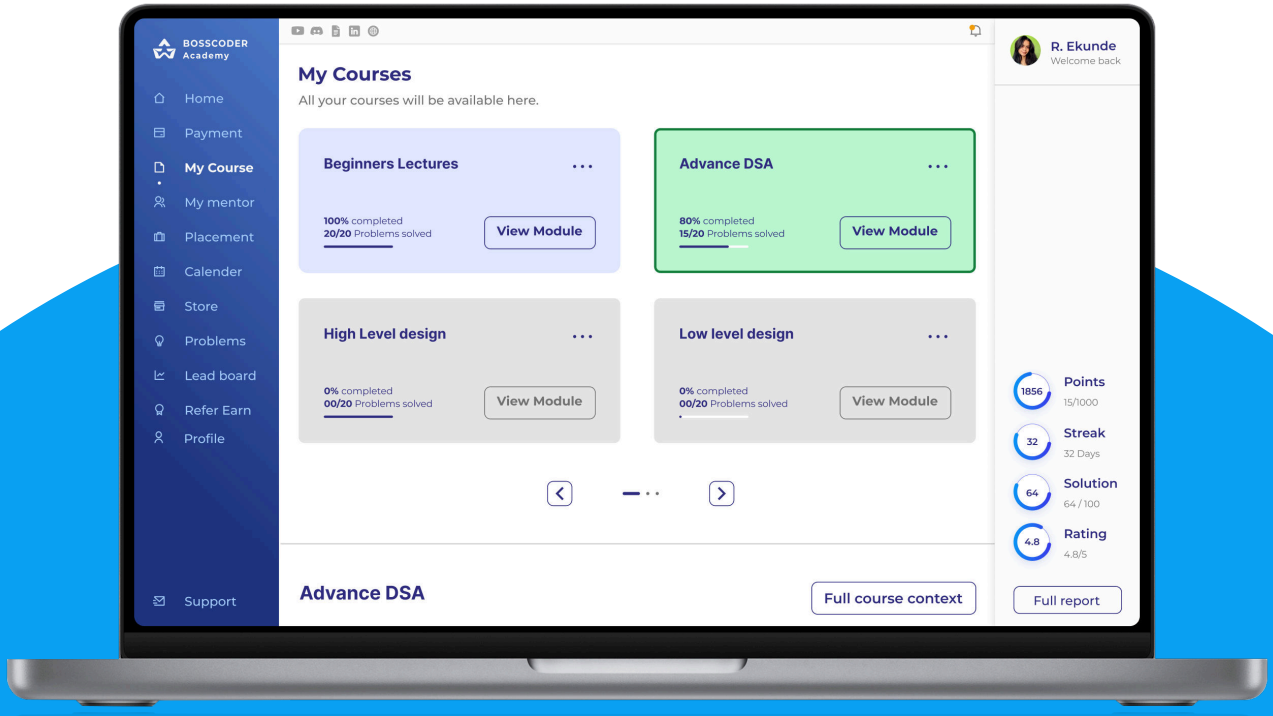
BOSSCODER ACADEMY

CURRICULUM



MODULE 1 **ONLY FOR BEGINNER BATCH**

Introduction to Programming & Programming constructs

Duration: 1.5 Months

1. Basics of Programming
2. Conditional statements: If else
3. Loops
4. Pattern Problems
5. Functions
6. Time Complexity
7. 1D arrays
8. 2D arrays
9. Strings
10. Number system & Bit Manipulation
11. Introduction to Maths for computer science
12. Introduction to Sorting & Hashing
13. Introduction to recursion
14. Introduction to Data structures : Linked list, stacks, queues

MODULE 2 | **ADVANCE BATCH STARTS HERE**

Linear DSA

Duration: 2 Months

1. Arrays
2. Time Complexity
3. Bit Manipulation
4. 1D & 2D Arrays
5. Maths
6. Searching
7. Basics of Recursion
8. Binary Search
9. Sorting & Hashing
10. 2 Pointers
11. String matching algorithms
12. Data structures
13. Linked list, Stacks & Queues
14. Recursion

MODULE 3 (PROJECT MODULE)

3.1 MERN Stack Project

Duration: 2 Month

1. Introduction to Web Development
2. Introduction to HTML
3. Introduction to CSS
4. Simple Project Based on HTML, CSS- Portfolio
5. Flex, Animation and 3D space
6. Tailwind CSS
7. Getting started with GIT
8. One Major Project (Portfolio)
9. Javascript, Javascript Functions
10. Javascript objects and timing events
11. Modern JS
12. DOM manipulation
13. JS mini project
14. Asynchronous JavaScript, Javascript Module
15. Higher order functions in JAVASCRIPT
16. Introduction to NODEJS
17. Working with npm
18. Introduction to EXPRESS JS
19. Middleware and Error Handling
20. Authentication
21. SASS
22. MONGO DB and MONGOOSE
23. Database relation and CRUD operations

24. RESTful API design
25. Introduction to React
26. React Router, Hooks
27. Introduction to Redux, Integration of Redux and React
28. Deployment
29. React JS Project
30. Final Project using MERN

MODULE 3 (PROJECT MODULE)

3.2 JAVA Project

Duration: 2-3 Weeks

1. Introduction to Spring Boot
2. Data Access with Spring Boot
3. Spring Boot Web Development(Working with Thymeleaf)
4. Spring Boot Security
5. Spring Boot Advanced Topics
6. Building RESTful APIs
7. Frontend Development with React
8. Connecting Frontend and Backend
9. Deployment and Optimization

MODULE 4

CS Fundamentals

Duration: 1 Month

1. Database management system
2. Operating systems
3. Computer networks

MODULE 5

Advanced DSA

Duration: 2 Months

1. Trees
2. Tries & Heaps
3. Dynamic Programming
4. Greedy Algorithms
5. Advanced Problem solving
6. Graphs

MODULE 6

System Design

Duration: 1.5 Months

1. LLD
    a. OOPs
    b. Design principles (SOLID)
    c. Design patterns
    d. UML Diagram & Schema design
    e. API design & Project structure
    f. Concurrency & Multithreading
    g. 10 Case studies & Machine coding
2. HLD
    a. HLD Foundation
        i. Client server architecture & Network Protocols
    b. Key characteristics of a system & tradeoff
        i. Availability, latency, consistency, throughput, redundancy
        ii. SQL vs NoSQL
    c. Tangible components of the system
        i. Load balancers, Proxy, reverse proxy
        ii. Consistent Hashing
        iii. Rate limiting
        iv. Leader election, Master slave
        v. Storage
        vi. Caching
        vii. Microservices
    d. Actual system components
        i. Nginx, redis, S3, Kafka, Zookeeper
    e. 10 Case studies