Learnbay

Software Development
Master Program

300+ Hiring
Partners

100% Live
Interactive Classes

175% Average
Salary Hike

+91 77956 87988

www.learnbay.co

Context

2cr
worth scholarships awarded

600+
professionals secured jobs after a career break

30k+
Trusted Learners

About The Program

Get ahead in software development with our Master Program, designed for professionals seeking comprehensive education and career advancement. Our program covers a wide range of topics including programming languages, software design principles, algorithms, data structures and system design. Professionals will learn about software project management, software architecture, and emerging technologies. Individuals will gain the skills and knowledge required to develop high-quality software applications.

We exist to provide accessible, reasonable, and industry-relevant education that empowers India's workforce to grow and develop.

4.79/5

4.66/5

4.8/5

Great Place To Work. Certified

Program Highlights

Industry-Relevant & Updated Syllabus

Learn the industry's latest tools, techniques & trends. Gain hands-on experience developing various apps.

360 Degree Knowledge Building

Develop practical skills through real-world projects and assignments

1:1 Dedicated Mentorship

Personalized learning experience from experienced industry professionals.

Multiple Career Opportunities

Advance your career in software development by targeting roles like software developer, software engineer, project manager etc

Why Learn Software Development?

60% rise in software dev jobs

250% highest salary hike

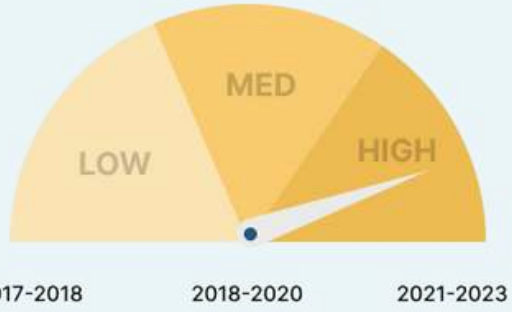
300+ partner companies

Average monthly salary of Software Developer by experience

₹ 72,000

** Avg Salary in Lakhs

Demand for software development skills increased by 615%



Software development Popularity in last 5 Years

Placement Report

30K+
Trusted Learners

9K+
Successfully Placed

25K+
Job Interviews Cracked

Book a free consultation with expert

Contacts Us

Program Details

ELIGIBILITY

- **Working professionals** having 1+ year(s) experience in IT domain.
- **Students pursuing B.Tech and B.Sc. in computer science.**

Qualification:

- **B.E/B.Tech** in computer science/IT
- **M.Tech** in computer science/IT
- **B.sc, M.sc** in computer science/IT
- **BCA, MCA**

Course duration : 11 months

About instructors:

Experienced software development instructors share valuable practical knowledge and effective solutions, preparing students for success in the industry.

Total Fees:

₹ 1,15,000/- + 18% GST

₹ 1,35,700/-

EASY EMI

₹ 11,308/month

Financing partners

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What Our Alumni's Say

Shishir Kamal

I'm currently enrolled in the Full Stack course and have completed the DSA and System Design modules. The trainers' teaching method has been enlightening for me as a beginner. Highly recommend Learnbay for upskilling.

Arpit Agarwal

This online software development course was the best I've taken. Great instructor, easy-to-understand explanations, well-structured and effective hands-on exercises. Highly recommended!

Ritam Mukherjee

Great course for software development, with real-world examples and practical exercises. I learned a lot and could apply it in my career. Highly recommend for learners.

Amrita Panjwani

Highly recommend course for software development. Well-organized material, practical exercises to apply and build skills. Suitable for anyone interested in the field.

What Our Alumni's Say

Jatin Kumar Khilrani

The software development course was a game-changer. Extensive content, highly skilled trainer, exceptional job support laid the foundation for my career in software development.

Tushar Singhal

Learnbay's software course surpassed my expectations, with clear instruction and helpful instructors. Grateful for the gained knowledge and accessible support.

Gowthaman Jeganathan

I'm currently enrolled in the Full Stack course and have completed the DSA and System Design modules. The trainers' teaching method has been enlightening for me as a beginner. Highly recommend Learnbay for upskilling.

Abhishek Pakhide

I recently finished Learnbay's Basic DSA Course online. The course is well-structured, taught by knowledgeable trainers with a focus on interview preparation and data structure concepts. It benefits both novices and experts.

What Our Alumni's Say

Qudsia Tahniyath

Learnbay has helped me a lot to learn data science applications in the e-commerce industry. The live class concept was really helpful in receiving proper DS training. Thanks to all my mentors and the placement team.

Binit Kumar Swalsingh

I've been with this org since Jan 4, 2023, studying Full Stack Software Development. If you have ambition and need a mentor to show you the right path to success with the right knowledge, I highly recommend this org.

Swarup Halder

I have enrolled in Software Development course. I had basic knowledge of DSA and since then it has been a wonderful learning experience. The teacher does an excellent job of explaining the concepts in a way that is easy to understand.

Karanveer Bansal

I enrolled in Learnbay's full stack program. I already completed basic DSA and the live sessions were clear, with good teaching pace. They offer an easy and simple EMI option for course fees.

Learning Path

3-5 weeks — BEGINNERS

L1 — **Pre-course Work**

Intro to JAVA Programming, OOPS & Array, Functions & Recursions

4 months — ADVANCED

L2 — **Data Structures & Algorithms**

String, Linked List, Stack , Queue, Searching, Sorting, Heap, Graph, Trees

1 month

L3 — **CS Fundamentals**

2 months

L4 — **System Design**

3 months

L5 — **Specialization**

MERN (Full Stack Specialization)

SPRING (Backend Specialization)

1 month

L6 — **Deployment + Project Work + Career Service PRO**

Career Service PRO

Get 3 years of Job and Placement support

Unleash your career potential with unlimited job access, interview support, and profile review

6+ Mock Interviews with FAANG Mentors

Excel in the competitive job market with 6+ mock interviews guided by FAANG experts

Resume Building Session

Craft a powerful resume showcasing your expertise in software development to stand out from the competition

1:1 LinkedIn Review Session

Get 1-on-1 sessions with experts for a better understanding of LinkedIn profile reviews and cover letter.

Unlimited Interview Calls

Receive unlimited interview calls from a diverse pool of interested employers/recruiters until you successfully secure a job

Others Vs Learnbay

Benefits	Learnbay	Others
Guaranteed Interview Calls**		
Industry capstone project certificate from IBM		
Domain specialized programs for professionals		
100% live interactive sessions with industry experts		
On demand video call with industry experts		
Personalized Resume Review Session		

****Note :** To get interview calls, you need to score above 60% and class attendance min 60%

Program Syllabus

TERM 1

Beginners Start Here

Pre-course Work (3-5 Weeks)

Programming Basics, Data Types and Code Flow

- Why Programming
- Simple use case where programming is required
- How to Write simple psuedo code
- Difference in different programming languages
- Intro to Java and Development setup

- **Focal length of Spherical Mirror**
- **Cuboid Perimeter**
- **Simple Sum**
- **Nobita and Profit**
- **Shinchan and Kazama**

If statement, Loops and Code flow

- Java Basics
- Writing code in Java
- If statements Loops
- Flow of basic code and best coding practices

- **Pattern printing**
- **Single Digit**
- **Armstrong Number**

Input, Output and Exceptions

- Taking Input and printing
- Types of exception and handling them.
- More on Java language fundamentals
- JDK
- JRE

- **If- Leap year**
- **Max Integer**
- **Triangle (right angle)**
- **Basic Calculator**

Functions

- How functions work and how to make custom functions and work with them
- Significance
- Defining
- Function return type
- Passing arguments

- **Pokemon Master**
- **Help Sherlock**
- **Penny and Charity**
- **Rotation Policy**

Program Syllabus

TERM 1

Pre-course Work (3-5 Weeks)

Objected Oriented Programming

- Abstraction
- Encapsulation
- Inheritance
- Polymorphism
- Interfaces, Modifiers, Classes and Objects

- **Classes in Java**
- **Classes and Object Manipulation**

2-D Matrix

- **Max sum column**
- **Diagonal Sum**
- **Good Cells**
- **Row with maximum 1's**
- **A Boolean Matrix Problem**

1-D Array

- 1-D Array (Defining & initializing, iterations, looping on Arrays)

- **Average Me**
- **Max Numbers**
- **Simple Arrangement**
- **Buildings**
- **Sum and Mean**
- **Increasing Array**
- **Replace Element**
- **Alternate Sum Product**
- **Is this repeated?**

Note :

- Advanced Concepts : Exception handling, multithreading, collections and generics will be covered in extra sessions
- This module will be full of assignments and there will be a test after that needs to be cleared to move to the next module

Program Syllabus

TERM 2

Advanced Learners Start Here

DSA (2 months)

Functions & Recursion

- Significance
- Defining
- Function return type
- Passing arguments

- **Power Function**
- **Factorial - Recursion**
- **Fibonacci Numbers**
- **Sum of Digits**
- **Sum of Product of Digits of a given number**

Time and space Complexity

- Best, worst & average case

Bit Manipulation

Sorting using Divide and Conquer and implementation

- Sortings
- Divide and Conquer
- Merge Sort
- Quick Sort
- Comparator Sort

Recursion

- Recursion
- Divide and Conquer

- **Tower of Hanoi**
- **Number of ways**
- **Candy Crush**

Linear Search and Binary Search

- Linear Search
- Binary Search
- Ternary Search

- **Searching an element in a sorted array**
- **Square root of an Integer**
- **Minimum Element in Sorted and Rotated Array**

Two Pointers

- **Merge Sort**
- **Shopping**
- **Even odd Separate Sorting**
- **Implementing Quick Sort**
- **Sort 0's, 1's and 2's2. Maximum Force**

Program Syllabus

TERM 2

DSA (2 months)

Simple Array Sorting and its implementation

- Sortings
- Bubble sort
- Insertion Sort

- **Selection Sort**
- **Bubble Sort**
- **Insertion Sort**
- **Bubble Sort(Descending Order)**

ArrayList and Linked List - 1

- Single Linked List (Insertion at positions in Linked List, iteration in Linked List, Deletion at position in Linked List, Linked List loops)

- **Insert node at the given position**
- **Print the Linked List**
- **Delete the Kth node from the end**
- **Intersection of two linked list**

Linked List - 2

- Double Linked List (Double Linked list creation (prev pointer), iteration in Double Linked List, insertion at positions in Linked List, Deletion in Double Linked List)

- **Reversing the Linked List**
- **Palindrome List**
- **Merge two sorted linked list**

Linked List - 3

- Circular Linked list (Circular Linked list creation,iteration in Circular Linked List, insertion at positions in Circular Linked List, Deletion in Circular Linked List

- **Insertion node at kth postition in doubly linked list**
- **Insertion in circular linked list**
- **Deletion in Doubly Linked List**
- **Reversing a double linked list**

Program Syllabus

TERM 2

DSA (2 months)

Stack

- Intro
- Application and Implementation using Array

- **Array implementation of stack**
- **Stack implemetation using linked list**
- **Stack operations**

Applications of Stack

- Implementation using Linked list
- Stack as library

- **Infix to Postfix**
- **Height Problem**
- **Nearest Smaller Element**
- **Stock span problem**
- **Greater is better**

Queue

- Implementation using Array
- Implementation using Linked list
- Queue as a library

- **Array implementation of Queue**
- **Linked List implemenation of Queue**
- **Operation on Queue**

Applications of Queue

- Implementation using Array
- Implementation using Linked list
- Queue as a library

- **Operations on Deque**
- **Maximum of all subarrays of size K**
- **Generate Binary Numbers**
- **Reverse First K elements of Queue**

Program Syllabus

TERM 2

DSA (2 months)

Maths

- Modular Arithmetic, Modular Exponentiation, GCD, Modular Multiplicative Inverse
- GCD, Primality Testing, Seive of Eratosthenes

- **GCD**
- **Modular Multiplicative Inverse**
- **Check if prime**
- **Number of primes**
- **Identical Groups**
- **Count Occurence of X**
- **Favourable Multiple**
- **Sum of divisors**
- **Good Team Leader**
- **Sum of Prime**
- **Kth prime factor of N**

Advance Data Structure

- Tree -1 (Traversals)

- **Level order traversal of a tree**
- **Inorder Traversal**
- **Post Order Traversal**
- **Count Leaves in Binary Tree**

Analysis of Algorithm - Advance

- Greedy

- **Minimum Absolute Difference in Array**
- **Permutation Game**
- **Best Score**
- **Maximize diff**
- **Cost of Stock**
- **Maximum Contiguous Subarray Sum**
- **Minimum Number of Coins**
- **Largest Number with given sum**
- **Pairs sum divisble by K**
- **Toy Company Greedy**

Advance Data Structure

- Tree -1 (Traversals)

- **Two Trees are Identical or Not**

Program Syllabus

TERM 2

DSA (2 months)

Advance Data Structure

- Tree - 2 (Construction of tree from traversals, height of tree, mirror of tree)
  - **Tree from Inorder and Preorder**
  - **Height of Binary**
  - **Tree Mirror of binary tree**
  - **Sum of Deepest Leaves**
- Tree - 3 (LCA, Diameter)
  - **Lowest Common Ancestor**
  - **Diameter of Binary Tree**
  - **Right View of Binary Tree**
  - **Maximize Sum**
  - **Maximum Width of Binary Tree**
- BST
  - **Insertion in BST**
  - **Deletion in BST**
  - **Minimum in BST**
  - **Lowest Common**
  - **Ancestor in a BST**
  - **Is BST?**

Advance Data Structure

- Heaps
  - **Kth smallest element**
  - **Kth largest element in a stream**
  - **Max in Queue**
  - **Find medium in a stream**
  - **Minimum Cost of Ropes**

Program Syllabus

TERM 2

DSA (2 months)

Analysis of Algorithm - Advance

- Dynamic Programming

- **Staircase Problem**
- **Increasing Subsequences**
- **Longest Chain Subsequence**
- **Adjacent numbers in subsequence differs by 1**
- **Sum of all substrings**
- **Stickler Theif**
- **0-1 Knapsack Problem**
- **DP Grid 2**
- **Max Sum Path**
- **Subset Sum**
- **Subset with equal Sum**
- **Matrix Chain Multiplication**
- **Minimum Moves**
- **Longest Common Substring**
- **Shortest Common Supersequence**
- **Coin Change - Minimum Number of Coins**

Advance Data Structure

- Graph - 2 (Cycles in Graph)

- **Cycles in Undirected Graph**
- **Detect Cycle in a directed graph**
- **Count Bad Vertices**
- **Shortest Cycle(easy version)**

Advance Data Structure

- Graph - 1 (BFS, DFS)

- **BFS**
- **DFS Basic**
- **is connected? Has Path Hamiltonian Path**

Advance Data Structure

- Graph - 3 (DFS, BFS on matrix)

- **Find the number of islands**
- **Number of Components**
- **Find whether path exists**
- **Rotten Oranges**

Advance Data Structure

- Graph - 4 ([Dijkstra Algorithm, Flood Fill Algorithm])

- **Dijsktra Algorithm**
- **Flood Fill Algorithm**
- **Replace O's with X's**
- **Minimum Cost Path**
- **Snake and Ladder Problem**

Program Syllabus

TERM 2

DSA (4 months)

Analysis of Algorithm - Advance

- Graph - 5 [Minimum Spanning Tree, Floyd Warshall, Topological Sorting]

- **Minimum Spanning tree**
- **Floyd Warshall Algorithm**
- **Topo-sort**
- **Bipartite Graph**
- **Lexicographically Smallest Topo Order**

Note : After every sessions learners will get pseudo-code that they'll have to complete on coding platforms and submit. Assignment questions will be assigned on a weekly basis.

Program Syllabus

TERM 3

CS Fundamentals & DBMS (1 month)

DBMS

- Introduction to Databases
- The Relational Model
- Entity-Relationship Model
- Database Design
- Structured Query Language (SQL)
- Database Indexing and Optimization
- Transaction Management
- Database Security and Authorisation
- Backup, Recovery, and Integrity
- Emerging Trends in Database Management

Networking Fundamentals

- Introduction to Computer Networking
- Network Topologies and Technologies
- OSI Model and Protocol Stack
- IP Addressing and Subnetting
- Routing and Switching
- Local Area Networks (LANs)
- Wide Area Networks (WANs)
- Wireless Networking
- Network Security
- Domain Name System (DNS)
- Cloud Networking
- Emerging Trends in Computer Networking

Operating System

- Introduction to Operating Systems
- Computer System Architecture
- Process Management
- Memory Management
- File System Management
- Input/Output (I/O) Systems
- User Interface and Command-Line Interaction
- System Security and Authentication
- Virtualization and Cloud Computing
- Distributed Operating Systems
- Real-Time Operating Systems (RTOS)

Program Syllabus

TERM 3

System Design (2 months)

Introduction to System Design

- What is System Design?
- Goals of System Design
- Components of a System Design
- System Design Process
- Importance of System Design
- Types of Systems
- Architecture of a System

- **Have students brainstorm examples of different types of systems they interact with on a daily basis.**
- **Research and present on the system architecture of a well-known software or platform.**

Design Patterns

- Creational Patterns
- Structural Patterns
- Behavioral Patterns
- Singleton Pattern
- Factory Pattern
- Adapter Pattern
- Observer Pattern
- Command Pattern

- **Design a simple system using one or more of the design patterns.**

Design Principles

- SOLID Principles
- KISS Principle
- DRY Principle
- YAGNI Principle
- Separation of Concerns
- Law of Demeter

- **Implement a simple project using one of the design patterns.**
- **Apply the design principles to a real-world problem and present the solution to the class.**

Design Patterns

- **Analyze a popular software product and identify the design patterns used in its architecture.**
- **Research and present on the system architecture of a well-known software or platform.**

Program Syllabus

TERM 3

System Design (2 months)

High-Level Design (HLD)

- Understanding the Purpose and Scope of HLD
- HLD Design Process
- Types of HLD
- Creating a High-Level Design Document

- **Design a high-level architecture for a real-world system.**
- **Research and present on a well-known system outage and discuss the measures that could have been taken to prevent it.**

Low-Level Design (LLD)

- Understanding the Purpose and Scope of LLD
- LLD Design Process
- Types of LLD
- Creating a Low-Level Design Document

- **Design a low-level architecture for a real-world system.**
- **Research and present on a well-known company's deployment process and identify areas for improvement.**

Scalability and Performance

- Scalability
- Performance
- Load Balancing
- Caching
- Database Scaling

- **Design a high-traffic website and identify potential bottlenecks in scalability and performance.**

Scalability and Performance

- **Research and present on a well-known company's performance issues and how they addressed them.**

Program Syllabus

TERM 3

System Design (2 months)

Security and Reliability

- Security
- Reliability
- Fault Tolerance
- Disaster Recovery
- Backup and Restore

- **Design a system with security and reliability in mind.**
- **Research and present on a well-known security breach and discuss the measures that could have been taken to prevent it.**

Integration and Deployment

- Continuous Integration
- Continuous Deployment
- DevOps
- Microservices
- Containers

- **Design and deploy a small-scale application using a cloud-based platform.**
- **Research and present on a well-known company's integration and deployment process and identify areas for improvement.**

Case Studies

1 E-Commerce Microservices Platform

Design an e-commerce platform using microservices architecture. Each microservice could handle different functionalities such as user authentication, product catalog, cart management, payment processing, order fulfillment, and recommendations. Use RESTful APIs for communication between microservices. Explore aspects of scalability, data modeling, and transaction management.

2 Food Delivery App

Create a food delivery application with microservices. Each microservice could be responsible for tasks like user registration, restaurant management, order placement, delivery tracking, and payment processing. Implement REST APIs to enable communication and data exchange between the microservices.

3 Travel Booking System

Design a travel booking system using microservices. Separate microservices could handle aspects like flight booking, hotel reservation, car rental, and itinerary planning. Utilize REST APIs for inter-microservice communication and data exchange.

4 Social Networking Platform

Develop a social networking platform with microservices. Different microservices could manage user profiles, posts, likes, comments, and connections. Implement RESTful APIs to facilitate interactions between the microservices. Emphasize real-time updates, news feed algorithms, and user interactions.

Case Studies

5 Ride-Sharing Service

Design a ride-sharing service with microservices. Each microservice could handle tasks like user registration, ride booking, driver matching, and payment processing. Implement RESTful APIs to facilitate communication and data exchange between microservices. Discuss geolocation services, map integration, and load balancing.

6 Music Streaming App

Develop a music streaming application with microservices. Different microservices could manage user profiles, playlists, song recommendations, and payment processing. Utilize REST APIs for communication between the microservices. Focus on caching, load balancing, latency reduction, and data replication.

7 Health and Fitness Platform

Create a health and fitness platform using microservices. Microservices could handle user profiles, workout tracking, meal planning, and progress monitoring. Implement RESTful APIs to enable communication between the microservices. Discuss data security, compliance with regulations, and handling sensitive patient information.

8 Online Learning Portal

Design an online learning portal with microservices. Separate microservices could handle user authentication, course management, content delivery, and progress tracking. Use REST APIs for inter-microservice communication. Address content delivery optimization and handling large numbers of users.

Program Syllabus

TERM 5

Specialization (3 months)

Full-Stack Specialization

MERN

Download Syllabus

Backend Specialization

SPRING

Download Syllabus

Program Syllabus

TERM 6

Deployment (2 Weeks)

Building a Spring Boot Application

- Creating a new Spring Boot project
- Dependency management with Maven or Gradle
- Defining application properties (e.g., database configuration, logging)

Working with Databases

- Integrating Spring Boot with relational databases (e.g., MySQL, PostgreSQL)
- Using Spring Data JPA for database interactions
- Implementing CRUD operations with JPA repositories

Securing a Spring Boot Application

- Implementing authentication and authorization
- Securing REST APIs with Spring Security
- Handling CSRF attacks and other security considerations

Building and Packaging Spring Boot Applications

- Creating executable JARs or WARs
- Deploying Spring Boot applications to local and remote servers

Developing a Basic Spring Boot Application

- Creating and configuring Spring Beans
- Implementing RESTful APIs with Spring Web
- Handling HTTP requests and responses
- Data validation and error handling

Testing Spring Boot Applications

- Writing unit tests for Spring components (e.g., controllers, services)
- Using JUnit and Mockito for testing
- Understanding test best practices and test coverage

Spring Boot Actuator

- Monitoring and managing Spring Boot applications using Actuator endpoints
- Customizing Actuator endpoints and security configurations

Program Syllabus

TERM 6

Deployment (2 Weeks)

Containerization and Deployment

- Introduction to Docker and containerization
- Dockerizing a Spring Boot application
- Deploying Spring Boot apps to cloud platforms (e.g., AWS, Azure, Google Cloud)

Continuous Integration and Continuous Deployment (CI/CD)

- Setting up CI/CD pipelines with tools like Jenkins or GitLab CI
- Automating the deployment process

Monitoring and Scaling

- Utilizing monitoring tools (e.g., Spring Boot Admin, Prometheus, Grafana)
- Scaling Spring Boot applications in different deployment environments

Troubleshooting and Best Practices

- Identifying and resolving common issues
- Adopting best practices for Spring Boot application development and deployment

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