# Full Stack
# Software Development
# Program

Ace the coding interview at the
top tech companies ∞ 🍎 a N G
and upskill your career

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# PROGRAM DETAILS

## COURSE PREREQUISITE

Should be familiar with at least one programming language (C++, Java, Python, etc)

## WHO IS THIS PROGRAM FOR?

✓ Working professional having more than 6 months of experience in any domain (Technical/Non-Technical)

✓ Qualification: BE/B.Tech (from any branch), BBA/MBA, MCA/M.Tech, B.Com, B.Sc (in any branch)

## INDUSTRIAL EXPERTS

Our trainers are working professionals having more than 8+ years of experience

Microsoft  SAP  ORACLE  SWIGGY FOOD DELIVERY APP

CISCO  amazon  Adobe  genpact

**Course Duration**

Weekday Batch : 8 Months
Monday to Friday - 2 Hours/Day

Weekend Batch : 9 Months
Saturday & Sunday - 3.5 Hours/Day

**300+ Hours of Learning**

# WHY CHOOSE US?

We focus on working professionals and help them achieve the peak of success without losing their designation or wasting their existing experience.

## DOMAIN SPECIALIZATION

- Make a switch as a professional, not as a fresher
- Master with domain specific industrial projects
- Break through the crowd to get noticed by recruiters

## PROJECT INNOVATION LAB

- Experts from MNCs and MAANG assist in **online and offline** project sessions
- Attain classroom session in 7+ cities (Pune, Mumbai, Delhi, Kolkata, Hyderabad, Chennai, Bangalore)

*Project Sessions are also available in Online Mode

# WHY CHOOSE US?

## 1-ON-1 DEDICATION

- Live interactive session with expert for every individual
- Each session is guided by industrial expert
- 24*7 seamless technical support from our dedicated team



## 3 YEARS SUBSCRIPTION



- Limitless access for all the learning materials, live batches, and project sessions
- Professionals get to switch between weekdays and weekends
- Make your learning calendar as per your convenience

# CRACK MAANG INTERVIEWS

Switch from service based to product based companies leading the tech world with 100% Interview Guarantee Program

**Walmart** · **Google** · **PayPal** · **bookmyshow**

**CISCO** · **Dropbox** · **NETFLIX** · **Apple**

**teradata.** · **Microsoft** · **Meta** · **amazon**

**Adobe** · **ORACLE** · **SAP** · **McAfee**

**In collaboration with 250+ Hiring Partners**

Learn in-depth Data Structure and System Design to crack interviews in Product based MNC's

Gain practical experience by working on real-world projects guided by MAANG experts

Solve 300+ coding questions with multiple real time use-cases in 100% Live Interactive Session

# OUR PROUD ALUMNI

Before joining the DSA course I wasn't confident on any of the topics. I can see the change in my coding abilities after the completion of the course! I even got referrals to product-based companies.

**Akanksha Achanti** in

Excellent training and awesome environment! I took data structures and algorithm training in LearnBay . They teach concepts clearly and solved as many programs as possible. I was getting interview calls even before course completion.

**Rahul Anand** in

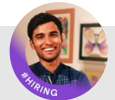This Course Helped me in getting 6 month SDE INTERNSHIP at AMAZON,India.
The advance DSA topics are taught and explained in such a simplified manner that even a newbie can catch up very easily.

**Kamlesh Sahu** in

I have done the DS & Algo course from Learnbay. I learned from the basics time complexity, arrays, linked list, stack to advance data structures – trees, graphs etc. Getting into product based MNC was always my dream and this course helped me achieve it .

**Ashutosh Chamoli** in

Before joining the DSA course I wasn't confident on any of the topics. I can see the change in my coding abilities after the completion of the course! I even got interview calls from several product based companies.

**Vishrut Vats** in

I attended ds algo course under Learnbay. They discussed multiple approaches to solve any problem starting from brute force to one with less complexity. Assignments, mock interviews and job referrals really helped me in my career.

**Manav Jain** in

I took DS course under Learnbay. Irrespective of implementation languages, one can join this. Their excellent training methodology helps to learn quickly. Their mock interviews with referrals to product based companies gave a good boost to my career

**Manish Jha** in

Learnbay gives you a major platform to enhance your skills and learn the concepts in depth. The best thing about them is that the classes are flexible and they provide recorded videos of the lectures being taught that help you to brush up the concepts.

**Harsh Jaiswal** in

# OUR PROUD ALUMNI

Learnbay is the best place to add latest skill sets to your profile. There data structure and algorithm course is class apart, they provide very detailed core concepts and sample of practice over various platforms such as hacker rank.

**Anant Raj Singh**

Have taken DS course at this institute. Irrespective of implementation languages, one can join this. Cleared many tough concepts in an easy way. I was trying to switch to product based MNC and this course just made it possible.

**Neha Gour**

I enrolled for Data Structures and Algorithms course at Learnbay. Prateek Sir's teaching methodology has been really engaging. He entertains all the approaches in the class which helped us to see the problems from multiple angles.

**Nikhil Goyal**

Great experience in data structure training. The trainer has great understanding in all concepts to clear our doubts which gave the confidence to challenge any DS interview. And I was well prepared for the interview calls I got near the end of this course

**Sagarika Jena**

Good Experience, I did training in data structure and algorithms. Trainers are well knowledgeable and the questions they taught are the same which touches the interview pattern. They even help you get  interview calls from product based MNCs.

**Jatin Kumar Khilrani**

This is a unique place to get trained by experts even if you are already a software professional. Live online classroom sessions enable us to attend the sessions from anywhere in the world but live so we can talk to the trainer during the middle of a session.

**Venkataraman R.**

**Read More Reviews**

# PROGRAM OUTLINE

### LEARN FUNDAMENTALS

Gain an understanding of the fundamental aspects of software development and its applications

### TECHNICAL EXPERTISE

Acquire a profound knowledge of data structure as well as system design

### PRACTICAL EXPERIENCE

Sharpen your skills by working with 300+ coding exercises & real-time use cases

### DOMAIN SPECIALIZATION

Work on domain specific industrial projects and make your experience relevant

### PROFILE GROOMING

Get Interview ready with experts. Attain Resume Build-Up, 1:1 Mock Interview Sessions

### CRACK MAANG INTERVIEWS

Guaranteed Interviews call from FinTech Startups and top MNCs

# PROGRAM FEE & FINANCING

We provide a choice of financing alternatives to make it more cost-effective, and make our programs accessible for all learners

## No Cost EMI

We have partnered with the following financing companies to provide competitive finance options at 0% interest rate with no hidden costs.

**zest**

**LIQUILOANS**

**Propelld**

**ShopSe**

To know more about course fees & scholarship, click here

## Financing as low as

### Rs. 10,816/month

For one-time payment

Internet Banking

Credit/Debit Card

## Program Fee

Rs. 1,10,000/- +18% GST

**Rs. 1,29,800/-**

**20 hours**

**Prerequisite**: Any Programming language, preferably Java or C++

### 1. Cohort Orientation
A quick guide to Software Development
Significance of projects & **case studies**
How to make it big in the IT Industry and crack **MAANG** Interviews
**Interview process** of top product based MNCs and Unicorns.

### 2. Analysis of Algorithms, Space and Time complexity
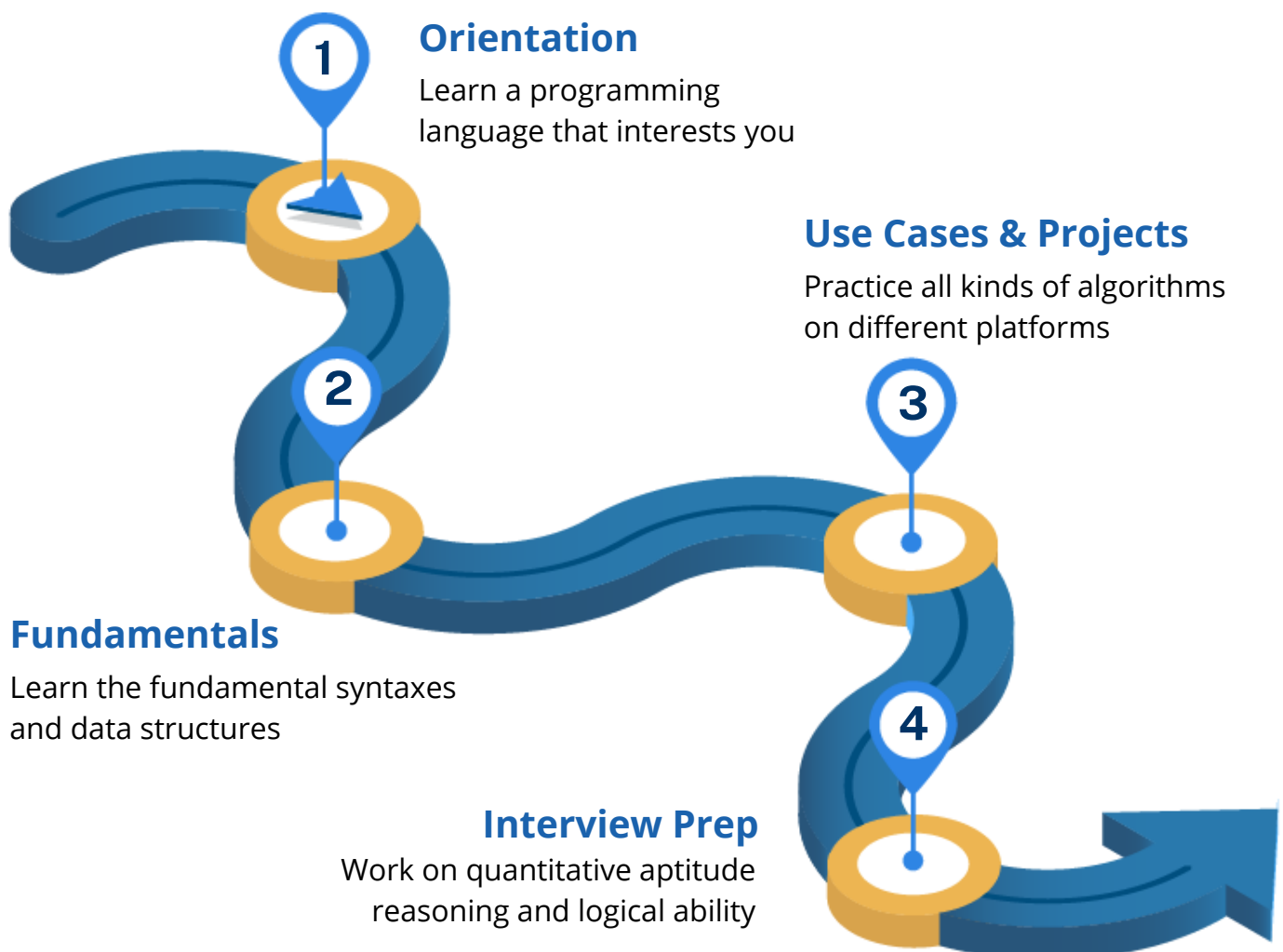Big-O, Big-Omega, and Big-Theta notations
Best, average, and worst-case
Complexities hierarchy
Complexity classes (P vs. NP problem)
Asymptotic Analysis
Analysis of Loops

**1**

### Orientation
Learn a programming language that interests you

**2**

### Use Cases & Projects
Practice all kinds of algorithms on different platforms

**3**

### Fundamentals
Learn the fundamental syntaxes and data structures

**4**

### Interview Prep
Work on quantitative aptitude reasoning and logical ability

## 1. Array Overview

The method used to store it in memory
Difference between a static and a dynamic array
How can the size of an array be increased

## 2. String

Find the length of a string,
Validate, reverse & change case of a string
Count words and vowels in a string
Compare strings and find duplicates in a string in a normal way, as well as using bitwise operations and checking whether two strings are anagrams
Rabin Karp and KMP algorithms

## 3. Linked List

Why we need Linked List
What is the definition of a singly connected list
What is a Doubly Linked List, and how does it work
What is a Circular Connected List, and how does it work

## 4. Queue

How it functions
Real-life examples
Linear queues, circular queues, priority queues, and deque queues are examples of queue types
Enqueue, Dequeue, Peek, Queue Overflow, and Queue Underflow, and other queue operations

## 5. Stack

What is a stack
What is the difference between LIFO and FIFO principles
What is the role of the stack
Push(), pop(), isempty(), isfull(), peek(), count(), change(), display(), and other typical stack operations.
Real-world stack use cases

## 6. Heap

Data Structure and its implementation.
Binary heap and various operations like Insertion, Heapify and extract, Decrease key, Delete and Build a map.

## 7. Trie
Properties of trie for a set of strings, searching, inserting, and deleting a node from Trie
Application, Advantages & Disadvantages of a Trie
Counting distinct rows in a binary matrix.

## 8. Tree, Binary Search Tree and AVL Tree
Tree Data Structure and terms like Root, Child node, Parent, Sibling, Leaf node, Internal nodes, Ancestor nodes, and Descendent
Implementation of Tree and Tree Traversal (such as Inorder, Preorder, Postorder)

## 9. Segment Tree
BST implementation of search, insertion, deletion, and floor, self-balancing BST, Tree set, and Treemap, depth and height of nodes
Level order traversal as well as BST application.

## 10. Graph & Recursion
Graph representation, BFS, DFS, Shortest path in Directed Acyclic graph, Prim's algorithm and minimum spanning tree
Dijkstra's shortest path algorithm
Kruskal's algorithm
Kosaraju's algorithm
Articulation point, Bridges in a graph, Tarjan's algorithm.

## 11. Introduction to recursion
Application to recursion, writing base cases and problems discussed here are kind of Tower of Hanoi, Josephus problem

## 12. Backtracking Algorithm
Rat in a maze problem
Knight's tour problem
Hamiltonian cycle
Tug of war

**60 hours**

### 13. Searching
Linear search, binary search, BFS, DFS
Two pointer approach problem,
Ternary search, Jump search,
Exponential search

### 14. Sorting
Bubble sort, Bucket sort, Comb
sort, Counting sort, Heap Sort,
Insertion sort, Merge sort
Quicksort, Radix sort, Selection
sort, Shell sort, Bitcoin sort
Cocktail sort, Cycle sort, Tim sort.

### 15. Greedy Algorithm
Activity selection problem
Fractional Kanpsack
Kruskal's minimum spanning tree
problem
Huffman coding, Prim's MST for
Adjacency List Representation
Greedy Algorithm to find the
minimum number of Coins etc.

### 16. Pattern Searching
Naive pattern searching
KMP algorithm
Finite automata
Boyer Moore algorithm

### 17. Dynamic Programming
Edit distance problem using naive
and DP approach
0-1 Knapsack problem using naive
and DP approach
An optimal strategy for a game
Egg dropping problem
Coin change problem

### 1. Introduction to System Design
Why System Design Interview?
Approaching And narrowing down a problem, Identifying an Abstract Design, Optimizing and addressing the bottlenecks
Designing for resiliency and handling failures
Learn System Design (HLD + LLD) with hands on project

Component Modelling Messaging Queue Multithreading and Synchronization

### 2. High Level Design With Projects
Introduction to common Micro Service design patterns, Microservices & System components in real world Event Driven, Domain Driven, Rest API driven Architectures

### 3. Low-Level Design With Projects OOD and Design Patterns
API Design DB Schema Design for NoSQL and SQL Common LLD and API design questions
Load Balancing – Software And Hardware Load Balancers, Caching – Distributed And Global Cache, Content Distribution network(CDN), Sharding And Partitioning Methods, Common Problems of Sharding

### 4. Database Indexing, Proxies
Proxy Server, Queues, SQL vs No SQL, CAP Theorem in distributed Computer Systems, Distributed Hash Table And Consistent Hashing, Web sockets, Ajax Polling

**Usecase No.1:** Designing an Instant messaging Services

**Usecase No.2:** Design Facebook Messenger – Case study to be covered in live session

**Usecase No.3:** Design Twitter and Twitter Search – Consider the case for million+ UserAssignment.

**Usecase No.4:** Design Whatsapp Messaging Services

**Usecase No.5:** Design Book My Show, Design Uber Backend, Design Stockbroker System, Design Youtube
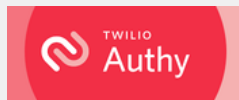
**40 hours**

## 1. Authentication

Develop Authentication technology that provides access control for systems by checking to see if a user's credentials match the credentials in a database of authorized users or in a data authentication server.



## 2. CRUD

Create an online application that displays the contents of a database in list form, modify or delete each record and add new ones.



## 3. Payment Gateway Integration

Learn to integrate the payment gateway which is used to authorize and process credit card and debit payments for online businesses



## 4. API Integration

Learn advanced API integration to connect two or more applications, via their APIs, that lets those systems exchange data.

**40 hours**

## 5. Travel Booking Application

The connected website must offer signup, login/logout, and profile creation/editing. This must include a "wishlist box," a "order tracker," personalized suggestions, personalized and occasional discount features, a chatbot, etc. Payment channels and security aspects require more attention. Integration of the 360-degree furniture images feature will make such a project outstanding.



## 6. Video Conferencing Application

This is a full-stack web development project at the advanced level that includes seamless audio-video call management services. This will include capabilities such as the construction of virtual whiteboards, video-call recorders, audio-call recorders, chat message saving, and so on. Even you can design an integrated code editor for uninterrupted work experience, even during work-from-home.



## 7. Blog Site

Nothing more than creating a basic content management system is being done here.
An increased content optimization feature and graphics optimization feature are required for such a website or application. Additionally, you must develop tools like comment and feedback management, and social media site connections for improved search engine ranking.



## 8. Workout Application

These days workout trackers go far beyond the common pedometer. Workout trackers like Strava and FitBit track and store user data like heart rates and run times. Over time, they provide data analysis as well for your performance. Of course, the data bit falls in line with back-end development. But your ability to see this data with clarity and understanding is due to front-end development.

**40 hours**

## 9. Buy/Sell Second-hand Products

The connected website must offer signup, login/logout, and profile creation/editing. This must include a "wishlist box," a "order tracker," personalized suggestions, personalized and occasional discount features, a chatbot, etc. Payment channels and security aspects require more attention. Integration of the 360-degree furniture images feature will make such a project outstanding.



## 10. On-Demand Home Service Application

This webpage will list local services. Local vendors and service providers can advertise their services, budgets, and locations. It's the best way for a small business to contact app users and locals online. This website must offer an amazing filter and rapid query resolution.



## 11. Online Code Editor Application

It's an advanced-level web application development project. Here, your focus will be on seamless collaboration, instant hosting of newly released apps, and prototyping. The user-friendliness of such an app will be identified by the ease of setup, multi-language support efficacy, NPM assistance excellence, repository managers integration scopes, etc.
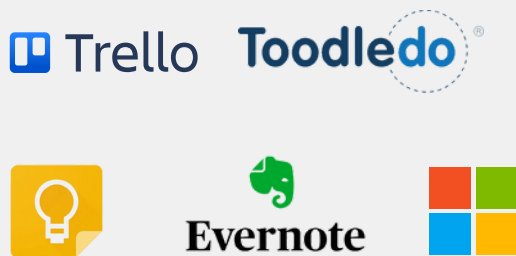


## 12. Stock Investment Application

In this project, you will learn about building and optimizing multi-use panels and components. Here, you need to work mainly on the front end. The skill that is mostly required for this projects is lookup function generation and portfolio panel designing. There must be a dedicated panel for live stock updates.

## 13. Create a To-do List Application

This project will improve your front-end techniques with user login and authentication. And will also help you understand different types of operations in the database. This will help you to master CRUD operation management.



## 14. Chatting/Messaging Application

You will master the tricks and tips of building a decent-looking and perfectly useful front-end. This project focus on the best practices of making a chat app extremely user-friendly. Other aspects of this project include database merging, socket.io, etc.
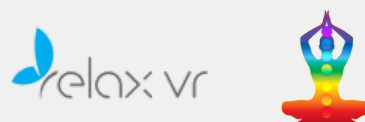


## 15. Food Delivery Application

This project teaches you how to build a huge, full-stack food-delivering website. You'll construct a restaurant registration backend framework. You need a tasty app front end. Complex database management efficacy is another outcome of this project.



## 16. VR-Based Application

Create your own VR program with increased audio-visual capabilities. Discover how to use VR applications to reduce stress and anxiety. Uncover the tips for creating calming sound effects and eye-soothing 3-D graphics.

- Top 50 Interview Questions on Elementary data structures
- **Top 100 Interview Questions on Advance data structures**
- Top 20 Dynamic Programming Interview Questions

- Searching and Sorting Interview Questions

- Programming Knowledge
- Aptitude, Reasoning & English
- **Quantitative Aptitude**
- Behavioral
- **Logical Ability**
- Computer Science & Programming

- Top 15 Puzzles to solve and practice
- **Practice the Most Popular Algorithms**
- Bit Magic
- Prefix Sum and Sliding Window

**Practice On:**
- Queue and Dequeue
- Doubly and Circular Linked Lists
- Recursion
- Divide & Conquer

- **Linkedin** - Build a powerful personal brand on Linkedin to attract top recruiters
- Learn **Resume building** techniques
- Practice 1:1 **Mock Interviews**
- **Create Portfolio based on Capstone project**

## 1. Full Stack

- **Programming Essentials**

  1. **Programming** and **Web** Fundamentals
  2. Basic **SQL** Queries
  3. **Git** and **GitHub**
  4. Syntax, **Data Types**, Variables, Loops, **Conditionals** and If Statement
  5. OOP's, Built in Modules in **Python** and **Java**
  6. File Handling, **Regular Expression**, Exceptional Handling
  7. Collection, **Framework**, Modules & **Packages**

- **Frontend**

  1. Create webpage using **HTML5** and **CSS3**
  2. **JavaScript** - Basic to Advance
  3. Learn about **react js, angular, express, backbone and node js**
  4. Understand basics of **UI/UX (Figma)**
  5. Learn **DOM** Manipulation

- **Backend**

  1. **SQL** and **NoSql** Concept
  2. Learn **MongoDB** - Operators, Collections, Indexes, Cloud
  3. Learn **JSON & AJAX**  to connect to APIs and endpoints
  4. All about **Spring Boot, Django**
  5. Handling data warehouses to web services with several concurrent users using **PostgreSQL**
  6. Understanding **AWS** Smart Architecture
  7. **Google Cloud Platform** - learn infrastructure **deployment** service

## 2. Product Engineer/Manager

1. Fundamentals of **team management**
2. Recognize functional specifications
3. **Product Lifecycle Administration**
4. Competitive Intelligence
5. Domain-Driven Design
6. Application Requirements Specification
7. Creating a product roadmap
8. Illustrate product ideas and concepts
9. **Integration of products**
10. To convert consumer demands and technological trends into product definitions, a **cross-functional team** will be assembled

## 3. Data Science and AI

1. An overview of **Machine Learning**
2. **Exploratory Data Analysis**
3. **Data Visualization** using Tableau
4. Introduction to **Time Series Forecasting**
5. Understanding Implementation of **Deep Learning**
6. Basics of **NLP**
7. Introduction to **Computer Vision**
8. **Cognitive** Computing and **Predictive** Analysis
9. Built **Chatbot** Application using AI
10. Project - Predictive analytics-based forecasting mode

## 4. Web 3.0 Developer

1. Overview of **Bitcoin**
2. **Blockchain** - Genesis Block, Hashing Algorithm
3. Blockchain **Functioning** and Working
4. All about - **Ethereum**
5. Building Smart Contract
6. **ERC 721** Token
7. Creating **Simple Storage** System
8. Project - **DEX** for Ethereum EcoSystem
9. Virtual Real Estate Project - **Minecraft**
10. **Hands-On Project** - EVM, Voting, Multi-Send

## 5. Devops & Clouds

1. In-Depth knowledge of **Agile Principles**
2. Understanding **Project Development** Process
3. Setting up tools and required **infrastructure**
4. Gain expertise in **CI/CD pipeline** development using multiple automation technologies.
5. Managing Database using **MySQL** and **MongoDB**
6. Analytics in **Cloud Computing**
7. Understanding Deployment Models, Managed Services & **Virtualization**
8. Overview of **Distributed Computing**
9. Infra **Automation, Abstraction, Provisioning**
10. Producing **insights** from cloud-based data accessible on demand.
11. Developing Secure Data Storage and Processing Applications
12. Working on **AWS** and **GCP** for Project Deployment

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