Excelling in Data Engineering:

A Comprehensive Course Syllabus

SevenMentor PVT.LTD

www.sevenmentor.com

DATA ENGINEERING
Course Mission

SevenMentor Institute leads the way in providing cutting-edge IT Training and Skill Development across India. We have strived to establish an ideal learning atmosphere at all our training centers. We prepare our students to become dependable future professionals. Our institute aspires to promote universal access to learning for students. To achieve our mission of promoting better learning we invite all students to enroll in our Data Engineering Course. Join us today to make a fulfilling career in Data Engineering.

DATA ENGINEERING STATISTICS:

INDUSTRY INSIGHTS

75% Companies will use some form of Data Engineering based Application

58% Year on Year Growth For All Data Engineering Jobs

Learn **Data Engineering** and Be in Demand Always!

Data Engineering, the unsung hero of the data ecosystem, is the discipline dedicated to the design, construction, and maintenance of the infrastructure that enables the seamless flow and storage of data. Think of it as the architect and builder of the data world, responsible for constructing the pipelines and structures that house the information underpinning the digital landscape. It's the backbone of data-driven decision-making, ensuring that data is collected, processed, and made accessible to data analysts, scientists, and decision-makers. In the realm of data engineering, data becomes your raw material, and tools like ETL processes and data warehouses are your building blocks, constructing the foundations of data-driven enterprises

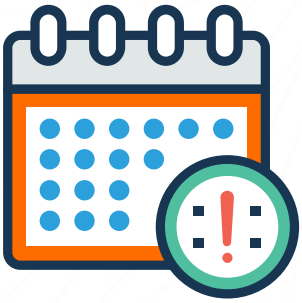
Unlock the Potential of Data Engineering:
Achieve Boundless Innovation

If your aspiration is to attain expertise in Data Engineering, a realm revered for its limitless possibilities and far-reaching influence, it is essential to set out on a perpetual voyage dedicated to continuous growth and competence within this ever-evolving field. Data Engineering stands out for its flexibility and extensive applicability across a myriad of sectors, enabling enthusiasts to craft a diverse range of ingenious, forward-thinking, and game-changing solutions.

Be Prepared For Every Scenario!

Gain practical Data Engineering experiences through well designed courses, latest tools and excellent teachers.

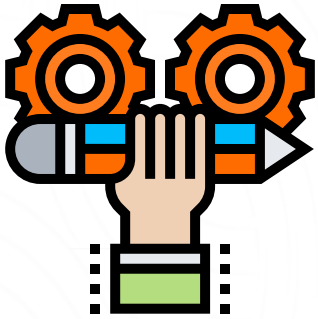
Experienced Faculty



Flexible Scheduling

Hands-On Learning

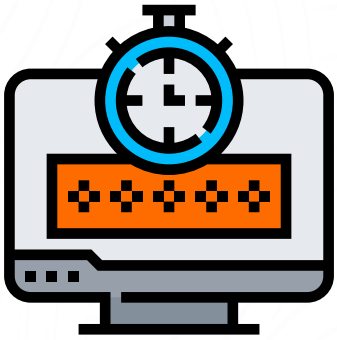
Mock Interview Sessions



Real-World Projects

Career Support

Comprehensive Curriculum



Lifetime Access

PYTHON

- What is Python and history of Python?
- Installing Anaconda, Jupyter Notebook
- First Program
- Python Identifiers, Keywords and Indentation
- Comments
- Getting User Input
- Python Data Types
- What are keywords
- What are variables?
- Python Inbuilt Functions

Control-Flow Statements:

- If-else
- Elif
- While loop
- For loop
- Range Function
- Break
- Continue
- Assert
- Pass
- Return
- Coding Assignment

Data Structures:

- What are Data Structures?
- Lists in Python
- Code Walkthrough on Lists
- Understanding Iterators
- Tuple in Python
- Code Walkthrough on Tuple
- Dictionaries in Python
- Code Walkthrough on Dictionaries
- Sets in Python
- Code Walkthrough on Sets
- More examples on Data Structures

Functions:

- What are functions in python?
- Defining and Calling Functions
- Inbuilt Functions
- User Defined Functions
- Lambda Function
- Split Function
- Strip Function
- Map Function
- Filter Function
- Format Function
- Code Walkthrough on User Define Functions
- Regular Expressions Basics

Object Oriented Programming:

- Why do we need Object Oriented Programming?
- What is a class?
- What is an object?
- What is Self?
- Constructors
- Global and local variables
- Static and Dynamic Variables
- Abstraction
- Inheritance
- Encapsulation
- Polymorphism
- Code Walkthroughs on OOP
- Polymorphism
- Code Walkthroughs on OOP

Exception Handling and GUI:

- Why do we need to handle exceptions?
- Errors in Python
- Compile-Time Errors
- Runtime Errors
- What is Exception?
- try....except...else
- try-finally clause
- Raising an exceptions
- User Defined Exceptions
- Graphical User Interface in python
- Tkinter

Miscellaneous Topics:

- SQL connection with Python using SQLITE Library
- Multi-Threading and Multi-Processing
- Introduction to Web-scraping
- BeautifulSoup Library
- Numpy Library for Data Analysis
- Code Walkthrough On Numpy Library
- Pandas Library for Data Analysis
- Code Walkthrough On Pandas Library
- Matplotlib Library for Data Analysis
- Code Walkthrough On Matplotlib Library
- Revision Sessions
- Assignment Discussions

Project Discussion:

- Defining the Business Problem
- Constraints
- Flow Diagram
- Libraries Used
- Results and Conclusion
- Future Scope
- References

SQL

- What is SQL?
- Why do we need SQL?
- What is Data Base Management System?
- Types of DBMS
- Execution Of SQL query
- Difference Between SQL & MYSQL
- Introduction to MySQL
- Installation of MySQL server
- Download sample database
- Load sample database to work.

Basic SQL Keywords:

- Basic SELECT Statement
- Limit/Offset
- OrderBy
- Distinct
- Where
- Comparison Operators
- Null
- Logical Operators
- Aggregate Operators(Count, Max, Min, Avg, Sum)
- Group By
- Having
- Order Of Keywords
- Wildcard Operators

JOINS:

- What are Joins?
- Inner Join
- Outer Join
- Left Join
- Right Join
- Self Join
- SubQueries/NestedQueries/Inner Queries
- Triggers
- Stored Procedures

DML/DDL:

- DML:Insert
- DML:Update, Delete
- DDL:Create Table
- DDL:Alter:Add,Drop,Modify
- DDL:Drop Table,Truncate,Delete
- DCL:Data Control Language: GRANT,REVOKE

PL-SQL

- Informal introduction to PL/SQL Advantages of PL/SQL
- Datatypes in PL/SQL
- Program structure of PL/SQL Embedding SQL statements
- Using conditional statements and loops
- What is cursor?
- How to create cursor?
- Using cursors in PL/SQL
- How to create explicit cursor? Creation of for loop cursor What are cursor parameters?
- How to use for update clause? What is ref cursors?
- How to use implicit cursors?

Understanding Exception Handling:

- What is an Exception?
- Describing Exception types Handling system defined exceptions Handling user defined
- exceptions? Sql code vs Sql errm
- Pragma exception_init

Creation Of Stored Procedures:

- Creating procedures in Pl/SQL
- Working with procedure parameters
- IN parameter
- OUT parameter
- IN OUT parameter
- How to create procedures with cursors
- How procedures return records?
- What is Pragma autonomous transaction?

Creating & Using Functions:

- Importance of function
- How to create functions?
- Difference between procedures and functions
- How to use inline functions?

Creating & Using Packages:

- What is a Package?
- Reasons to use packages
- What is package specification?
- What is package body?
- How to instantiate package?
- How to initialise instantiated package? What are all the package state?

Collections In PL/SQL:

- What is collection?
- How to use arrays?
- Using nested tables
- How to use index by value?
- Listing types of collection methods.
- General overview and discussion about DBA Concepts

Introduction To Data Engineering/Data Warehouse

- What is Data Engineering?
- Use Cases, and Applications?
- Data Engineer or Data Scientist?
- What is DataWarehouse?
- Data Lakes
- Data Engineering Problems Tools of a Data Engineer
- Working with Different Databases Processing Tasks,
- Scheduling Tools, and Different Cloud Providers
- Why Cloud Computing, Use Cases, and Applications?
- Different Cloud Services

AWS

AWS Data Engineering Tools :

- CORE python
- Sql and no sql
- Data Storage Tools
- Data Integration Tools
- Data Warehouse Tools
- Data Visualization Tools

Data Storage Tools:

Amazon S3

Data Ingestion Tools :

- Amazon Kinesis Firehose
- AWS Snowball
- AWS Storage Gateway

AWS Storage Gateway :

AWS Glue

Data Warehouse Tools :

Amazon Redshift

Data Visualization Tools :

Amazon QuickSight

MongoDB

- What Is MongoDB? Installation and Configuration MongoDB Data Modelling Introduction to
- NoSQL Architecture with MongoDB MongoDB Advantages
- MongoDB Tools, Collection and Documents

CRUD and the MongoDB Shell:

- Introduction to CRUD
- Introduction to the MongoDB API
- Creating a Database, Collection and Documents

Data Modelling & Schema Design:

- MongoDB Database References
- Model Tree Structures
- MongoDB Analysing Queries
- MongoDB Atomic Operations
- MongoDB Map Reduce
- MongoDB Text Search
- MongoDB Regular Expression
- MongoDB Capped Collections

Administration:

- MongoDB Deployment and Cluster setup
- MongoDB GridFS
- Trident Spout
- Working with Replica Sets
- MongoDB Sharding

Indexing:

- Indexing and Aggregation
- Indexing, query profiling and the query optimisers
- GeoSpatial Indexes
- Index types, Index Properties
- MongoDB Advanced Indexing
- MongoDB Indexing Limitations
- Aggregation Introduction

SPARK

Hadoop Overview:

- Hadoop Overview:
- Need of Hadoop technology
- Hadoop Cluster and Racks in detail
- Overview of Map Reduce
- Big data Concepts and data types
- Concept of Streaming data and different tools utilisation
- HDFS and Basic Hadoop commands

Scala Programming:

- Scala overview and Environment Setup
- Oops concepts in scala
- Control Structure and Functions
- Closures and Collections
- Exception Handling in scala

Apache Spark 2 x Installation:

- Download release and set
- Working with eclipse
- Installing Scala IDE with spark
- Testing with different OS

Working with Apache Spark:

- RDD and its Transformations
- Working with Eclipse Maven, Spark context and RDD
- Working with different file formats
- Introduction to Spark Data Frame
- Data Frames and RDD's with with Spark 1.x and 2.x style
- Creating Multiple Spark Context and Spark Sessions
- Applying Own Schema to the Data Frame and basic operations.
- Creating Datasets and its basic operations
- Dataset vs DataFrame Performance

Working with Apache Spark:

- Running Spark Job in Yarn/cluster Mode From IDE
- Spark with Mysql, transformations On MySQL
- Table - DataFrame API 12.Query Push Down to MySQL Database
- Creating Partitioned Table with Spark
- Spark built-in functions and UDF
- Examples with spark Sql and RDD's
- Spark job submit

Spark Streaming:

- Working with data stream 2. Example of network
- Twitter data stream
- Twitter data analysis cases

Kafka:

- Fundamentals of kafka, Work Flow and Basic Operations
- Creating Topics, Partition, Replication, Broker and Kafka cluster
- Working with Producer and Consumer Examples
- Creating Consumer Group, Leaders, Followers
- Starting brokers, Listing and modifying topics
- Single Node-Multiple Brokers Configuration and Creating Producer, Consumer and Consumer
- group application
- Running a jar files from terminal

Real time case studies:

- Working on different data sets

SparkMlib:

- Classification algorithm
- Clustering algorithm

Get Skills To Fulfill Every Role:

Every student at **SevenMentor** gets personalized guidance, Mentorship, and ample opportunities to address individual questions and concerns. All our sessions are designed to be engaging, interactive, and tailored to your learning pace, ensuring you grasp each concept with clarity.

Aniket Kulkarni

He have theorotical as well as practical experience in the field of ML. He did M Tech and have 10+ years of Industrial and Academic experience.
Currently working as Data Science Trainer. He have trained 2000 + professionals and students for the course of Python, SQL, Power BI, Machine Learning and Deep Learning.

Karishma Pawar

Karishma holds a PhD in Computer Engineering, specializing in cutting-edge fields including Artificial Intelligence and Machine Learning. In addition to more than 8 years of experience in Data Science, remarkable publications in peer-reviewed journals and conferences are to her credit. She has previously worked with Avaya and Infosys, and demonstrated a commitment to advancing the frontiers of knowledge.

Get Skills To Fulfill Every Role:

Our **Data Engineering** Courses are designed for a wide range of people looking for skills and opportunities across all major **IT** sectors

Hands-On Projects: Gain practical experience by working on real-world projects, building a robust portfolio that will impress potential employers.

Flexibility: Our flexible schedule options allow you to learn at your own pace, making it perfect for both beginners and experienced developers looking to upskill.

Career Support: We're dedicated to your success! Benefit from career guidance, resume building, interview prep, and job placement

Community: Join a vibrant community of like-minded learners, where you can collaborate, share ideas, and network with peers.

Our Students are at reputed Tech Companies

BAJAJ FINSERV · GT FINANCIAL SERVICES · INFERYX · STRELEMA · pivotchain · LONAR TECHNOLOGIES

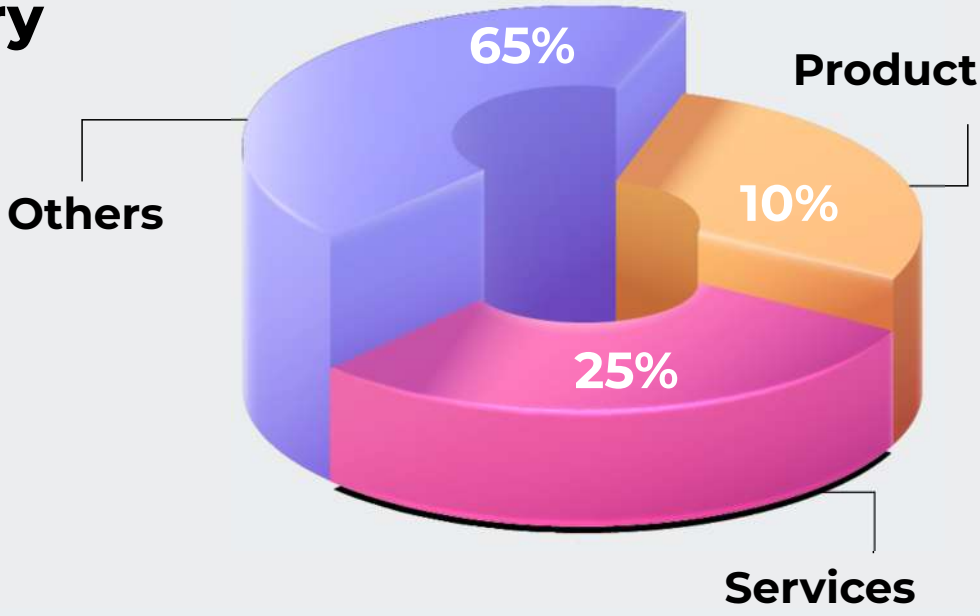
Simplify Healthcare · OMFYS · Scymes · KALA Genset Source of Power · Altum Credo Home Finance · INFOWORLD THE SOFTWARE PEOPLE

NABLA INFOTECH · Circulants · SRV media Insights | Ideas | Impact · Rabbit&Tortoise TECHNOLOGY SOLUTIONS · NIMAP INFOTECH FOCUS TO REDEFINE · Integs Cloud

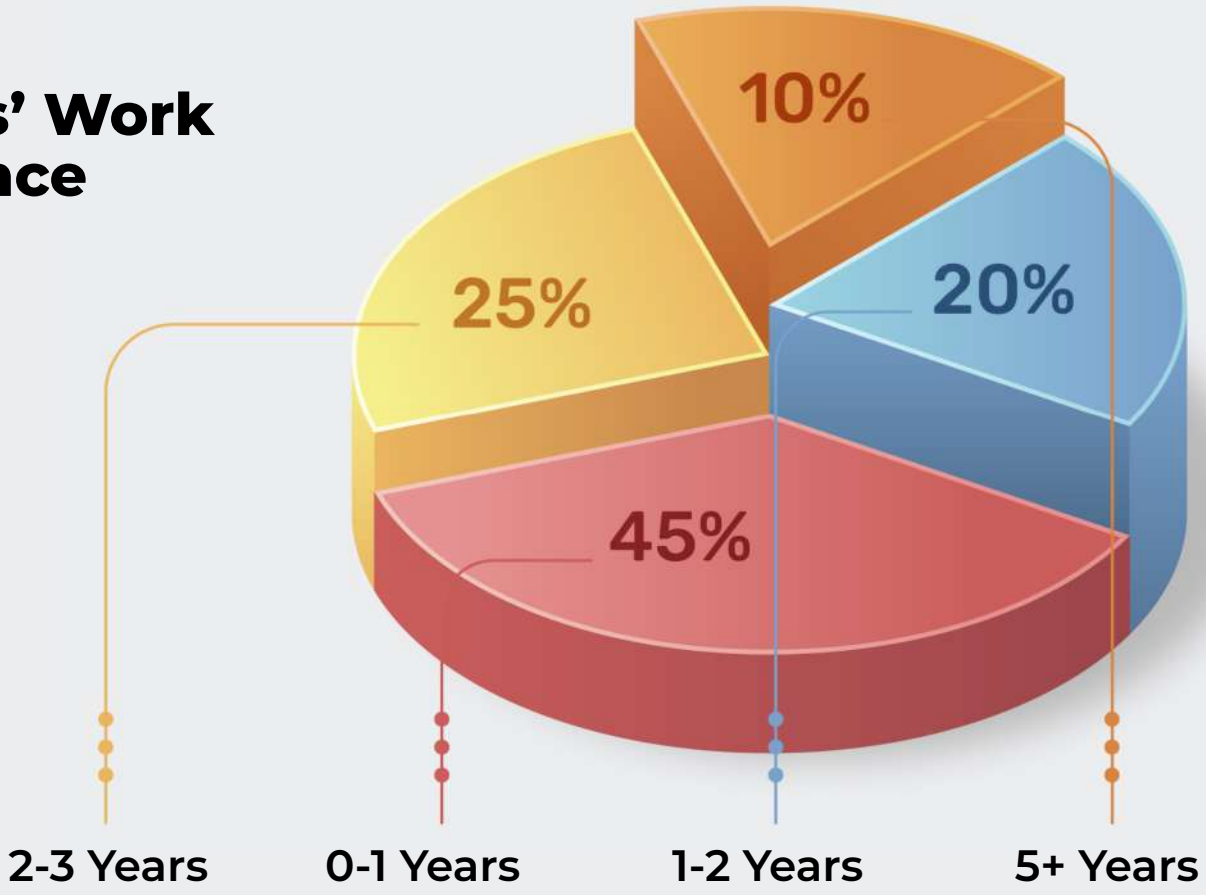
DATA ENGINEERING
JOBS ARE ALSO VERY STABLE!

The demand for **Data Engineering** professionals is growing rapidly, so there is a lot of job security in this field. This can be a great motivator for people who are looking for a stable career.

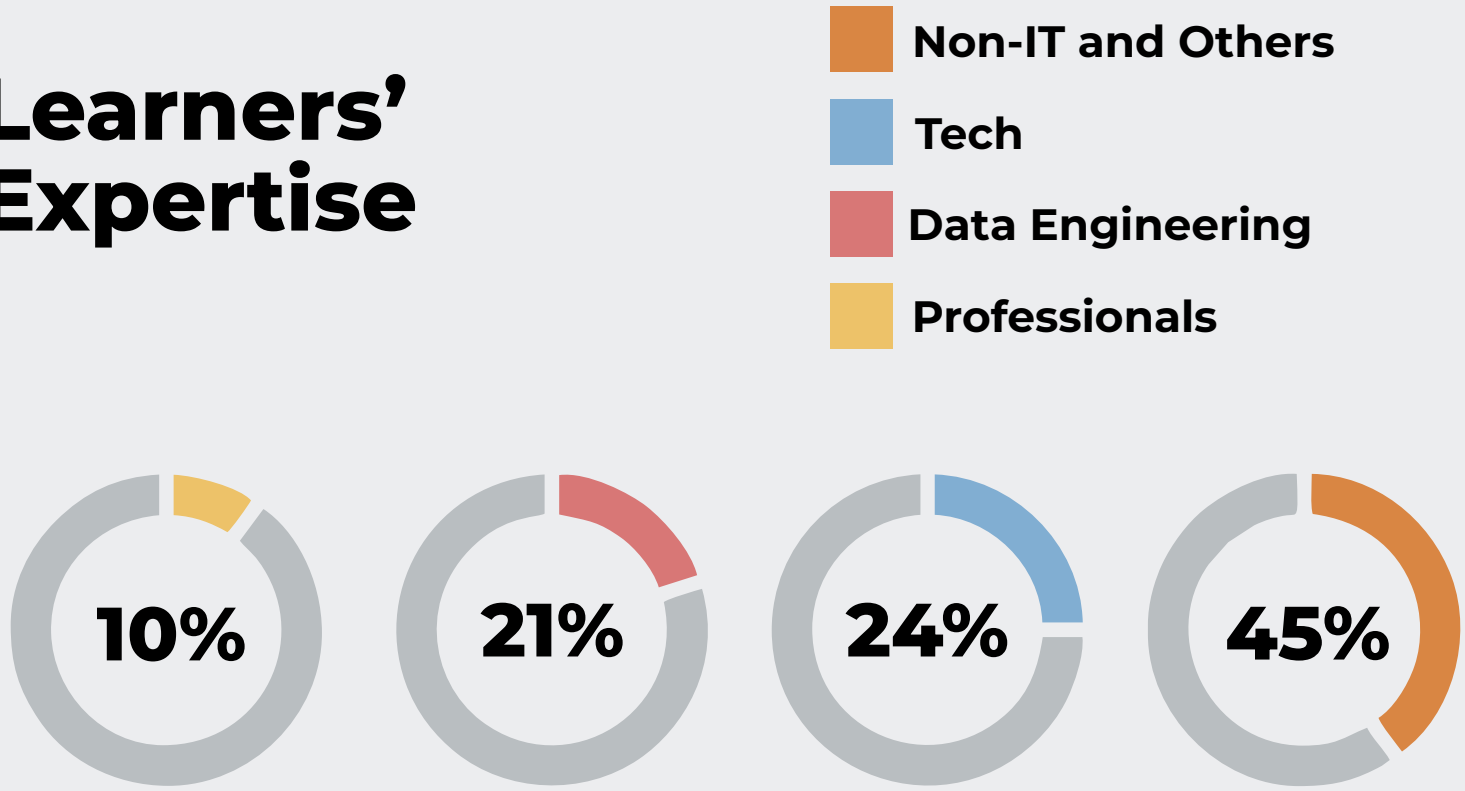
Learners' Industry Background



Learners' Work Experience



Learners' Expertise



BOOST YOUR CAREER TO NEW HEIGHTS:

The global Data Engineering job market is expected to grow by 44% from 2021 to 2030, creating 3.5 million new jobs.
In India it is expected that 309,000 new Data Engineering jobs will be available by 2030, accounting for 9% of the global demand. The average salary for an Data Engineering professional in India is approximately Rs. 05 to Rs. 14 Lakhs per annum.

Affordable Training without Compromise:

We recognize that realizing your aspirations in the field of Data Engineering should not strain your finances. At our institution, affordability is at the heart of our Data Engineering Program. We firmly believe that exceptional education should be within reach for all, and we've meticulously designed our curriculum with this principle in mind. Our Data Engineering Program promises an exhilarating learning journey at a remarkably affordable cost.

HOW TO START YOUR CAREER IN DATA ENGINEERING

- Enroll at **SevenMentor Institute**
- Get hands-on training from **Experienced Teachers**
- Receive Industry-recognized **Data Engineering Certification**
- Work for leading **MNCs** through our **on-campus interviews**

WE ARE THERE FOR YOU

If you are interested in learning more about Data Engineering training, please contact us. Our team would be happy to answer any questions you have and help you find the right training for you.

Request For Call Back

020 7117 1500