1. Programming Language :
   1. Python
      1. Basic Syntax
      2. Variables
      3. Data Types
      4. Operators
      5. List
      6. Tuples
      7. Sets
      8. Dictionaries
      9. Conditional Statements (If..Else)
      10. Loops
      11. Try...Except
      12. Reading Files (CSV,JSON, TEXT, Excel)
      13. Writing Files
      14. Functions
      15. Working with Dates
   2. Scala
   3. Java

**The practice of hackerrank or leetcode with easy problems (10-15)**

**Time for learning - 2 Weeks**

1. Data Structures & Algorithms (Basic):
   1. Time Complexity and Space Complexity (Big O notation)
   2. Arrays
   3. Linked List
   4. Stack
   5. Queue
   6. Tree
   7. Graph
   8. Searching
      1. Linear Search
      2. Binary Search
      3. Interpolation Search
   9. Sorting
      1. Selection Sort
      2. Insertion Sort
      3. Merge Sort
      4. Quick Sort
      5. Heap Sort

**Practice of geeksforgeeks with easy problems (10-12)**

**Time for learning - 1-2 Months (Depending on previous experience)**

1. Database Fundamentals :
   1. DDL (CREATE, DROP, ALTER, TRUNCATE, RENAME)
   2. DCL (GRANT and REVOKE)
   3. DML (INSERT, UPDATE, DELETE)
   4. TCL (COMMIT, ROLLBACK)
   5. Aggregation (MAX, MIN, FIRST, AVG,COUNT, SUM)
   6. Integrity Constraints (Primary Key, Foreign Key)
   7. Data Schema
   8. ACID Properties
   9. Views
   10. Stored Procedures
   11. ER and Relational Diagrams
   12. Indexing
   13. Hashing
   14. Normalization forms
2. SQL Scripting :
   1. Transactional Databases : MySQL, PostgreSQL
   2. Joins (Left, Inner, Outer, Full, Right)
   3. Sub Queries
   4. UNION Statement
   5. Date Function
   6. Nested Queries
   7. Group By
   8. Having
   9. CASE Statements
   10. Window Functions

**Practice of hackerrank or leetcode with easy problems (10-15)**

**Time for learning - 3-4 Weeks (section 3 and 4)**

1. BigData Fundamentals :
   1. BigData Basics and Characteristics?
   2. 5 V’s of BigData
   3. Vertical vs Horizontal Scaling
   4. Scaling Up and Scaling Out
   5. ETL Pipelines
   6. File formats
      1. CSV
      2. JSON
      3. AVRO
      4. Parquet
      5. ORC
   7. Type of Data
      1. Structured
      2. Unstructured
      3. Semi-structured

**Time for learning - 1 Week (Only Theory)**

1. Cluster Computing
   1. Hadoop Ecosystem
      1. HDFS
      2. Mar-Reduce
      3. Yarn
   2. Apache Hive
      1. How to load data in different file formats
      2. Internal Tables
      3. External Tables
      4. Querying table data stored in HDFS
      5. Partitioning
      6. Bucketing
      7. Map-Side Join
      8. Sorted-Merge Join
      9. UDF in Hive
      10. SerDe in Hive
2. Apache Spark
   1. Spark Core
   2. Spark SQL
   3. Spark Streaming
   4. Difference Between Hadoop and Spark

**Time for learning - 3-4 Weeks (Hands-on and theory)**

1. Data Processing
   1. Batch Processing
   2. Real-Time Processing
   3. Hybrid Processing

**Time for learning - 1-2 Weeks (Understand basic concept)**

1. Data Warehousing Fundamentals:
   1. OLAP vs OLTP
   2. Dimension Tables
   3. Data Cube
   4. Extract Transform Load (ETL)
   5. E-R Modeling VS Dimensional Modeling
   6. Fact Tables
   7. Star Schema
   8. Snowflake Schema
   9. Warehouse Designing Questions

**Time for learning - 1-2 Weeks (Theory)**

1. Data Exploration Libraries:
   1. Pandas
      1. Reading and writing CSV & JSON
      2. DataFrames and Series
      3. Head, tail
      4. Info()
      5. Dropping columns
      6. Sorting
      7. Apply
      8. Filter
      9. Loc and iloc
      10. Shape, Index, Columns
      11. Lambda
      12. Basic Arithmetic Functions
      13. Join and Merge
   2. NumPy
      1. Creating Arrays
      2. Indexing and Slicing
      3. Copy vs View
      4. Shape
      5. Reshape
      6. Split
      7. Join
      8. Sort, Search, Filter, Split
   3. MatplotLib
      1. Pyplot
      2. Plotting
      3. Lines
      4. Legends
      5. Labels
      6. Grid
      7. Scatter
      8. Bars
      9. Histogram
      10. Pie Charts
      11. Seaborn

**Time for learning - 1-2 Weeks (Theory and HandsOn)**

1. Data Orchestration (AirFlow) :
   1. Intro to Airflow
   2. Implementing Airflow DAGs
   3. Maintaining and monitoring Airflow workflows
   4. Building production pipelines in Airflow

**Time for learning - 1-2 Weeks (Theory and HandsOn)**

1. NoSQL:
   1. Difference between NoSQL vs SQL
   2. Features of NoSQL
   3. Types of NoSQL database
   4. CAP Theorem
   5. Eventual Consistency
   6. Tools -
      1. HBase
      2. Cassandra
      3. AWS DynamoDB
      4. MongoDB

**Time for learning - 2-3 Weeks (Theory and HandsOn)**

**Learn MongoDB or Cassandra**

1. Message Queue or Streaming Services :
   1. Apache Kafka
   2. Apache Beam
   3. AWS Kinesis

**Time for learning - 2-3 Weeks (Theory and HandsOn)**

**Pick one and learn**

1. Dashboarding Tools :
   1. Tableau
   2. QuickSight
   3. Data Studio
   4. Looker

**Time for learning - 2 Weeks (Theory and HandsOn)**

**Build some dashboards (will tell you about projects in future videos)**

1. Cloud Services (AWS) :
   1. On-demand Machines
      1. AWS EC2
   2. Access Management
      1. AWS IAM
   3. Object Storage
      1. AWS S3
   4. Transactional Database Services
      1. AWS RDS
         1. MySQL
         2. Arora
         3. PostgreSQL
   5. Adhoc Query
      1. AWS Athena
   6. Data Warehouse
      1. AWS Redshift
   7. NoSQL Database Services
      1. AWS DynamoDB
   8. Serverless
      1. AWS Lambda
   9. ETL Services
      1. AWS Glue
   10. For Storing and Accessing Credentials
       1. AWS Secret Manager
   11. Log Services
       1. AWS Cloudwatch
       2. AWS Config
   12. Distributed Data Computation
       1. AWS EMR
   13. Messaging Queue
       1. AWS SNS
       2. AWS SQS
   14. Real-Time Data Processing
       1. AWS Kinesis
       2. AWS Firehose
       3. AWS Analytics
   15. Networking (Advance Leve)
       1. VPC
       2. Subnets
       3. NACL
       4. Security Groups
       5. VPC Peering
       6. VPN
   16. Security
       1. KMS
       2. WAF

**Time for learning - 2-3 Months (Theory and HandsOn)**

**Learning fundamentals, doing hands-on practice with projects**