1. Computer Science Fundamentals (If you don’t have a CS background)
   1. **edX -** [Introduction to Computer Science and Programming Using Python | edX](https://tidd.ly/38lzE8t)
   2. **edX** - [CS50's Introduction to Computer Science](https://tidd.ly/3LJh6gY)
   3. **Coursera** - [Computer Communications Specialization](http://coursera.pxf.io/n1VbMX)
   4. **Book -** [Grokking Algorithms: An illustrated guide](https://amzn.to/36pEfFV)
2. Programming Language

*Do any courses, your main goal here is to understand how to write basic Python*

*Code and how to work with different datasets!*

* 1. **Darshil -** [Python for Data Engineering](https://learn.datawithdarshil.com/courses/Python-for-Data-Engineering)  **(Recommended)**
  2. **DataCamp** - [Data Engineering With Python](http://datacamp.pxf.io/zaO9Gm)
  3. **Coursera** - [Python for Everybody Specialization](http://coursera.pxf.io/LPE3La) (Do this if you don’t know anything about python)
  4. **edX** - [Python Basics for Data Science | edX](https://tidd.ly/3NPhP20)
  5. **Udemy** - [Python Bootcamps: Learn Python Programming and Code Training](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.567828&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fcomplete-python-bootcamp%2F)

**Practice Projects:**

* Scrape Data Using BeautifulSoup Library eg. Amazon, Covid, Wikipedia, or any website you like
* Build A Calculator Using Python

1. SQL (Structured Query Language)

*Learn about the basics of SQL and how to write queries, once you complete the course make sure you do hands-on practice on Hackerrank or any website you like!*

* 1. **Udemy** - [The Complete SQL Bootcamp for the Manipulation and Analysis of Data](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.762616&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fthe-complete-sql-bootcamp%2F) (Recommended)
  2. **Coursera** - [SQL for Data Science](http://coursera.pxf.io/jWaA7n)
  3. **DataCamp** - [Intro To SQL DataCamp](http://datacamp.pxf.io/kjAGKM)

**Practice SQL here**

* [Hackerrank SQL](https://www.hackerrank.com/domains/sql)

1. Basics Of Linux

*Why Linux? Because you will be working with many remote machines, doing SSH to access them, and performing operations so it’s important to learn them.*

*You don’t have to remember all the commands but just understand what they do and how to write them*

* 1. **Udemy** - [Linux for Beginners: Linux Basics](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.3945922&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Flinux-for-beginners-2021%2F) (Recommended)
  2. **Coursera** - [Linux Fundamentals](http://coursera.pxf.io/x9oDKO)

**Do Hands-On Project**

* [Beginner Data Engineering Portfolio Project](https://www.youtube.com/watch?v=2xyoz0T47Bs&list=PLBJe2dFI4sgukOW6O0B-OVyX9c6fQKJ2N) (Recommended)

1. Big Data Fundamentals

*This section is theoretical and you need to understand how big data system works and their history of them*

* 1. **Coursera** - [Big Data Specialization](http://coursera.pxf.io/9Wqa6Q) (Recommended)
  2. **edX** - [Big Data Fundamentals](https://tidd.ly/3DC5LfO)
  3. **Udemy** - [Learn Big Data: The Hadoop Ecosystem Masterclass](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.768670&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Flearn-big-data-the-hadoop-ecosystem-masterclass%2F) (Do this if you want to learn about legacy systems)

1. Data Warehouse Fundamentals

*Same as the previous section, more theory, and understanding of concepts*

* 1. **Coursera** - [Data Warehousing for Business Intelligence Specialization](http://coursera.pxf.io/15zQYB) (recommended for deep dive)
  2. **Udemy** - [Data Warehouse Fundamentals for Beginners](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.2752048&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fdata-warehouse-fundamentals-for-beginners%2F) (recommended for quick learning)

1. Learn Batch/Realtime Streaming Pipeline Building
   1. Batch Pipeline (Spark)
      1. **DataCamp** - [Big Data Fundamentals with PySpark](http://datacamp.pxf.io/P0nNQq) (recommended)
      2. **Udemy** - [Spark and Python for Big Data with PySpark](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.980798&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fspark-and-python-for-big-data-with-pyspark%2F)
   2. Realtime Streaming (Kafka)
      1. **Udemy** - [Apache Kafka Course for Beginners: Learn Kafka Online](https://bit.ly/3qdhRqa) (check this)
      2. **edX** - [Building ETL and Data Pipelines with Bash, Airflow, and Kafka](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.1075642&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fapache-kafka%2F)
2. Data Orchestration (AirFlow)
   1. Udemy - [The Complete Hands-On Introduction to Apache Airflow](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.1919064&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fthe-complete-hands-on-course-to-master-apache-airflow%2F)
   2. DataCamp - [Airflow](http://datacamp.pxf.io/b3Q9o6)
3. Dashboard Tool  
    *There are two ways to visualize, one using code and another one using the tool*

*so I have added both here*

* 1. Udemy - [Python Data Analysis & Visualization Masterclass](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.4397644&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fpython-data-analysis-visualization%2F) (Using Code)
  2. Udemy - [Tableau 10: Training on How to Use Tableau For Data Science](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.937678&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Ftableau10%2F) (Using Tool)
  3. Coursera - [Data Visualization with Tableau Specialization](http://coursera.pxf.io/6bz563)
  4. Udemy - [Microsoft Power BI with Desktop Training Course](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.1570206&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fmicrosoft-power-bi-up-running-with-power-bi-desktop%2F)

1. Cloud Computing

*Advance section, do courses, and then do the certification to add value in your*

*Resume, If you are new then start with AWS but if you know about*

*other clouds then you can do that too!*

* 1. AWS (Amazon Web Services)
     1. Udemy - [Ultimate AWS Certified Cloud Practitioner](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.3142166&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Faws-certified-cloud-practitioner-new%2F)
     2. Udemy - [Ultimate AWS Certified Solutions Architect Associate (SAA)](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.2196488&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Faws-certified-solutions-architect-associate-saa-c02%2F)
  2. GCP (Google Cloud Platform)
     1. Coursera - [Cloud Data Engineer Professional Certificate](http://coursera.pxf.io/4eMjNG)
  3. Microsoft Azure
     1. Udemy - [AZ-900: Microsoft Azure Fundamentals](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.2394982&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Faz900-azure%2F)
     2. Udemy - [Azure Data Engineer Certified:8 COURSE BUNDLE](https://click.linksynergy.com/link?id=HTtUFxqit0c&offerid=1060092.3150056&type=2&murl=https%3A%2F%2Fwww.udemy.com%2Fcourse%2Fimplementing-real-world-use-cases-in-azure-data-factory-v2%2F)

*Once you learn about different services then consider doing some hands-on projects*

**Do Hands-On** - [Data Engineering Cloud Project Series](https://www.youtube.com/watch?v=QHIOX_RqjLI&list=PLBJe2dFI4sgt-9GR2j-rTeKtimE9pfqyt) (AWS)

**Do Hands-On** - [YouTube Data Analysis Project](https://www.youtube.com/watch?v=yZKJFKu49Dk&list=PLBJe2dFI4sguF2nU6Z3Od7BX8eALZN3mU) (AWS)