

## Roadmap to learn data analytics

### Phase 1 – Foundation

#### Understand the Role

- What is data analytics?
- Differences between data analyst, data scientist, and data engineer.
- Common tasks and responsibilities.

#### Basic Mathematics and Statistics

- Descriptive statistics (mean, median, mode, standard deviation).
- Inferential statistics (hypothesis testing, confidence intervals).

#### Learn Excel

- Data manipulation and cleaning.
- Pivot tables and charts.
- Basic formulas and functions.

### Phase 2 – Data Analysis Tools

#### SQL (Structured Query Language)

- Basics of SQL (SELECT, WHERE, JOIN).
- Advanced SQL (subqueries, window functions, CTES).

#### Python/R for Data Analysis

- Python: Libraries such as Pandas, NumPy, Matplotlib, Seaborn.
- R: Libraries such as dplyr, ggplot2, tidyr.

#### Data Visualization

- Principles of data visualization.
- Tools: Tableau, Power BI, matplotlib (Python), ggplot2 ( R )

### Phase 3- Data Cleaning and Preparation

#### Data Wrangling

- Handling missing values.

- Data transformation.
- Feature engineering.

### **Data Quality**

- Ensuring data accuracy and consistency.
- Identifying and handling outliers.

## **Phase 4 – Advance Analytics**

### **Advanced Statistics**

- Regression analysis.
- Time series analysis.
- Multivariate analysis.

### **Machine Learning Basics**

- Supervised vs. unsupervised learning.
- Key algorithms (linear regression, decision trees, clustering)

## **Phase 5 – Practical Applications**

### **Projects and Case Studies**

- Work on real-world datasets.
- Kaggle competitions and datasets.
- End-to-end projects from data collection to reporting.

### **Domain Knowledge**

- Understanding the specific industry you are interested in (e.g., finance, healthcare, e-commerce).
- How data analytics is applied in that domain.

## **Phase 6 - Job Preparation**

### **Building a Portfolio**

- Showcase your projects on GitHub.
- Include a variety of projects that demonstrate your skills.

## **Resume and LinkedIn Profile**

Tailor your resume for data analyst positions.

Highlight, relevant skills, projects, and experiences.

## **Interview Preparation**

- Common interview questions and answers.
- Mock interviews.
- Case study and technical test