DATA ANALYTICS ROADMAP : -

A **Data Analytics Roadmap for 2025** will guide you through the essential skills, tools, and knowledge areas required to become a proficient data analyst. Since you're already a Python developer, you have a head start in programming. Here's a structured roadmap:

Step 1: Fundamentals of Data Analytics (1-2 months)

📌 Mathematics & Statistics

- Descriptive statistics (Mean, Median, Mode, Variance, Standard Deviation)
- Inferential statistics (Hypothesis testing, Confidence Intervals)
- Probability theory (Bayes' theorem, Probability distributions)
- Linear Algebra & Matrices (for data manipulation)

📌 Excel & Google Sheets

- Formulas & Functions (VLOOKUP, HLOOKUP, Pivot Tables)
- Data cleaning and visualization

Step 2: Learn Python for Data Analysis (1-2 months)

Since you already know Python, focus on:

📌 Libraries for Data Analytics

- **NumPy** – Numerical computing
- **Pandas** – Data manipulation
- **Matplotlib** & **Seaborn** – Data visualization
- **Scipy** – Scientific computing
- **Statsmodels** – Statistical analysis

📌 Data Wrangling & Cleaning

- Handling missing data, outliers, and duplicates
- Data transformation (Merging, concatenation, reshaping)

Step 3: SQL & Databases (1-2 months)

📌 Learn SQL for Data Querying

- Basic commands (SELECT, WHERE, JOIN, GROUP BY, HAVING)
- Window functions, CTEs, and subqueries
- Indexing and performance optimization

📌 Work with Databases

- PostgreSQL, MySQL, SQLite

- Cloud databases (Google BigQuery, AWS RDS)

Step 4: Exploratory Data Analysis (EDA) (1-2 months)

- Data cleaning and preprocessing
- Univariate, bivariate, and multivariate analysis
- Correlation & feature selection techniques
- Visualization techniques (Heatmaps, Histograms, Boxplots, Pairplots)

Step 5: Business Intelligence & Visualization (1-2 months)

- **Tableau** / **Power BI** for interactive dashboards
- Data storytelling techniques
- Reporting and KPI tracking

Step 6: Machine Learning Basics (Optional but Useful) (2-3 months)

- Supervised vs. Unsupervised Learning
- Regression models (Linear, Logistic)
- Classification models (Decision Trees, Random Forest, SVM)
- Clustering (K-Means, DBSCAN)
- Model evaluation metrics

Step 7: Real-World Projects & Portfolio (Ongoing)

📌 Project Ideas

- Customer churn analysis
- Sales forecasting
- A/B testing for marketing campaigns
- Fraud detection analysis
- Sentiment analysis on product reviews

🎯 Build a GitHub repository or portfolio website to showcase your projects!

Step 8: Job Preparation & Advanced Topics

- Revise SQL interview questions
- Practice case studies (Kaggle, StrataScratch)
- Learn cloud computing basics (AWS, GCP, or Azure)
- Advanced Python (Data pipelines, Automation)

📢 Suggested Learning Resources

- **Python & Data Science:** Kaggle, DataCamp, freeCodeCamp
- **SQL:** SQLZoo, Mode Analytics

- **Statistics:** Khan Academy, Coursera (MIT/Harvard Stats courses)
- **BI Tools:** Tableau Public, Microsoft Learn (Power BI)