🛣️ Data Analyst Roadmap – From Beginner to Job-Ready

🟢 Phase 1: Foundation Stage (Beginner)

🎯 **Goal: Understand what a Data Analyst does & learn the basics.**

☑ **Topics to Learn:**

- What is Data Analysis?
- Roles & responsibilities of a Data Analyst
- Types of data: Structured vs Unstructured

☑ **Tools:**

- **Excel / Google Sheets**
  - Basic formulas, IF, VLOOKUP, Pivot Tables
  - Data sorting, filtering, charts

🔵 Phase 2: Master SQL (Must-have)

🎯 **Goal: Extract and manipulate data from databases**

☑ **Topics to Learn:**

- SELECT, WHERE, ORDER BY, GROUP BY, HAVING
- JOINS (INNER, LEFT, RIGHT, FULL)
- Subqueries, Common Table Expressions (CTEs)
- Window Functions: RANK(), ROW_NUMBER()
- DDL & DML (CREATE, INSERT, UPDATE, DELETE)

☑ **Practice:**

- Use **LeetCode**, **Hackerrank**, or **Stratascratch**
- Work on sample **e-commerce or banking databases**

🟣 Phase 3: Learn Data Visualization

🎯 **Goal: Present data insights using charts, graphs, dashboards**

☑ **Tools:**

- **Power BI** OR **Tableau**
- Excel Charts & Dashboards

☑ **Topics:**

- Bar, Line, Pie, Maps, Donut charts
- Slicers, Filters, Drill-downs
- DAX formulas (in Power BI)
- Creating financial dashboards

🔴 **Phase 4: Learn Python for Data Analysis**

🎯 **Goal: Automate data cleaning, analysis, and exploration**

☑ **Libraries to Learn:**

- **Pandas** – Data manipulation
- **NumPy** – Working with arrays
- **Matplotlib / Seaborn** – Data visualization
- **Jupyter Notebook** – Interactive coding

☑ **Practice Projects:**

- Sales analysis
- Movie ratings analysis
- COVID-19 data trends

🟡 **Phase 5: Learn Statistics for Data Analysis**

🎯 **Goal: Understand patterns, trends, and draw insights**

☑ **Key Concepts:**

- Mean, Median, Mode, Range, Standard Deviation
- Probability & distributions
- Hypothesis Testing (Z-test, T-test)
- Correlation & Regression

☑ **Tool: Python or Excel**

🔴 Phase 6: Build Projects & Portfolio

🎯 **Goal: Apply your skills to real-world datasets**

☑ **Project Ideas:**

- 📊 E-commerce Sales Dashboard (Power BI)
- 💰 Bank Loan Analysis (SQL + Python)
- 🧾 Customer Retention Prediction (Python)
- 🛒 Retail Product Recommendation (Excel + Python)

📁 Showcase on **GitHub**, build a **Power BI portfolio**, and share on **LinkedIn**

⚙️ Bonus Tools & Skills to Learn

Tool	Purpose
Git & GitHub	Version control & sharing code/projects
Jupyter Notebooks	Writing & sharing Python code with output
Postman	API testing for fintech or web data
Figma	UI/UX for presenting data visually
Power Query	Data cleaning in Excel/Power BI
Resume writing & Interview prep	Final step for job readiness

🧠 Resources to Use:

- **Courses**: Coursera, Udemy (e.g., "Google Data Analytics Certificate")
- **Practice**: Kaggle datasets, StrataScratch
- **Certifications**: Microsoft Excel, Power BI, SQL, Python

☑ Final Outcome:

By the end of this roadmap, you'll be able to:

- ✔ Extract data using SQL
- ✔ Clean and analyze using Excel & Python
- ✔ Visualize with Power BI

- ✔ Understand business problems using statistics
- ✔ Present your findings like a pro 💼