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## What is a Data Analyst?

A **data analyst** is someone who takes raw data and turns it into useful information. They find patterns, trends, and insights in the data to help businesses make smarter decisions.

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## Difference Between a Data Analyst and a Data Scientist

- **Data Analyst:** Focuses on looking at data from the past and present to understand trends and answer business questions. They use tools like Excel, SQL, and Power BI to analyze and present data.
  - **Data Scientist:** Takes it a step further. They predict the future by building models and using advanced techniques like machine learning. It's like being a fortune-teller for data!
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## Roadmap to Become a Data Analyst in 2025

### Week 1–2: Excel Mastery

#### Topics to Learn:

- **Basic Formulas:**
  - SUM, AVERAGE, MEAN, MEDIAN, SUMPRODUCT, CONCATENATE
- **Advanced Formulas:**
  - VLOOKUP, INDEX, MATCH, IF, COUNTIF, SUMIF
- **Data Manipulation:**
  - Remove duplicates, Conditional formatting
- **Visualization and Analysis:**
  - Charts, Filters, Sort, Slicers
  - Pivot Tables and Pivot Charts

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### Next Steps:

- **Create a professional LinkedIn profile:**
    - Add a professional photo, headline, summary, and educational details.
  - **Complete a full Excel project** and add it to your resume/LinkedIn profile.
  - Optional: Create a **GitHub account** and upload your projects.
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## Week 3–5: Math and Statistics + SQL Skills

### Math and Statistics Topics:

- **Basic Math:**
  - Arithmetic, Weighted average, Cumulative sum, Percentile
- **Basic Statistics:**
  - Mean, Median, Mode, Standard deviation, Normal distribution

### SQL Topics:

- **Basic Queries:**
  - SELECT, WHERE, DISTINCT, LIKE, BETWEEN, ORDER BY, LIMIT, GROUP BY, HAVING CLAUSE
  - INSERT, UPDATE, ALTER, IMPORT, Data Types
- **Advanced Queries:**
  - Date-Time Functions, Window Functions, Sub-queries, CASE Statements, CTE, Query Optimization
- **Joins:**
  - Inner, Outer, Left, Right

### Next Steps:

- **Complete full SQL projects** and upload them to your resume/LinkedIn/GitHub profile.
  - **Network on LinkedIn:**
    - Connect with professionals in the data science industry.
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## Week 6–7: BI Tools (Power BI or Tableau)

### Topics to Learn:

- Creating dashboards, building visualizations, and data analysis techniques with either **Power BI** or **Tableau**.

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### Next Steps:

- Build and upload a **dashboard project** to your resume/LinkedIn/GitHub profile.
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## Week 8–10: Programming in Python

### Topics to Learn:

- **Core Python Concepts:**
  - Variables, Data Types, Lists, Tuples, Dictionaries, Sets, Conditional Expressions
  - Modules, Functions, Operators, If Statements, Loops, Classes, and Objects
- **Python Libraries:**
  - **Pandas:** Reading/Writing CSV, Excel, and JSON files; DataFrame manipulation (Group By, Concatenate, Merge).
  - **Matplotlib:** Creating static, animated, and interactive visualizations.

### Next Steps:

- **Complete a full end-to-end Python project:**
    - Use GitHub, Kaggle, YouTube tutorials, or Google for project ideas.
  - Add the project to your **resume/LinkedIn/GitHub profile**.
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## Soft Skills

### Key Skills to Develop:

- **I. Communication Skills:**
  - Learn to explain complex ideas clearly and effectively to different audiences.
- **II. Analytical Skills:**
  - Sharpen your ability to interpret data and draw meaningful conclusions.
- **III. Problem-Solving Skills:**
  - Develop logical thinking to tackle challenges using data-driven solutions.
- **IV. Storytelling:**
  - Master the art of presenting data insights in a compelling and engaging way.
- **V. Business Understanding:**
  - Gain knowledge of industry-specific processes to align data analysis with business goals.

### Next Steps:

- **Resume Preparation:**
  - Tailor your resume to highlight relevant skills, projects, and achievements.
- **Interview Preparation:**

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- Practice common interview questions and work on presenting your data projects effectively.