🚀 Project: Analyzing Global E-commerce Sales Trends

Objective: Identify patterns, forecast sales, and provide insights for business strategies.

Project Roadmap

1. **Data Collection**
    - Web Scraping E-commerce Sales or use an API.
    - Query data from a SQL database (we can simulate one with SQLite or PostgreSQL).
2. **Data Cleaning**
    - Handle missing values (sales amount, product details).
    - Remove duplicates.
    - Standardize formats (dates, currencies).
3. **Exploratory Data Analysis (EDA)**
    - Uncover sales patterns over time.
    - Analyze top-selling products and regions.
    - Investigate customer segmentation (age, region, purchase behavior).
4. **Visualization**
    - Use **Tableau** to create dashboards:
        - **KPI Cards**: Total Sales, Avg Order Value, Top Product Categories.
        - **Charts**: Monthly sales trends, regional sales heatmaps, product performance.
5. **Statistical Analysis**
    - Conduct **hypothesis testing** (e.g., Do sales significantly increase during holidays?).
    - Perform **A/B testing** simulations (e.g., comparing two pricing strategies).
6. **Modeling**
    - Implement a **time series forecast** (ARIMA, Prophet) to predict future sales.
    - Use **clustering** to segment customers (K-means clustering).
7. **SQL Integration**
    - Create SQL queries to:
        - Extract sales by region and date.
        - Identify best-selling products.
        - Calculate customer lifetime value (CLV).
8. **Communication & Storytelling**
    - Write a clear report on insights and recommendations.
    - Design an **interactive Tableau dashboard** for stakeholders.
    - Prepare a **LinkedIn post** to showcase your project.
9. **Tools**
    - **Python** (Pandas, Numpy, Matplotlib, Scikit-learn).
    - **SQL** (SQLite or PostgreSQL).
    - **Tableau** for dashboards.
    - **GitHub** for version control.
10. **Project Management**

- Use **Trello** to track progress (Data Collection → Cleaning → EDA → Modeling → Presentation).