🚀 Project: Analyzing Global E-commerce Sales Trends

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

Project Roadmap

1. **Data Collection**
   - Find or scrape an open dataset — like Kaggle's Global E-commerce Sales or use an API (e.g., Shopify or Amazon).
   - 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).