Project Title	**DataSpark: Illuminating Insights for Global Electronics**
Skills take away From This Project	**Data Cleaning and Preprocessing, EDA,Python, Data Management using SQL, Power Bi/Tableau**
Domain	**Retail Analytics in the Electronics Industry**

Problem Statement:

As part of Global Electronics' data analytics team, you are tasked with conducting a comprehensive Exploratory Data Analysis (EDA) to uncover valuable insights from the company's data. Your goal is to provide actionable recommendations that can enhance customer satisfaction, optimize operations, and drive overall business growth.

Global Electronics, a leading retailer of consumer electronics, has provided you with several datasets containing information about their customers, products, sales, stores, and currency exchange rates. The company seeks to leverage this data to better understand their business and identify areas for improvement.

Business Use Cases:

By analyzing Global Electronics' customer, product, sales, and store data, we aim to identify key insights that will enhance marketing strategies, optimize inventory management, and improve sales forecasting. This will help tailor marketing campaigns, develop better products, plan effective promotions, and decide on store expansions and optimizations. Additionally, understanding the impact of currency exchange rates on sales will allow for better international pricing strategies. Overall, these insights will help Global Electronics increase customer satisfaction and drive business growth.

Approach:

1. **Data Cleaning and Preparation**
    - Check for missing values and handle them appropriately.
    - Convert data types where necessary (e.g., dates, numerical values).
    - Merge datasets where necessary for analysis (e.g., linking sales data with product and customer data).
2. **Load Data**
    - Insert the preprocessed data into an SQL database by creating relevant tables for each data source and using SQL INSERT statements to load the data.
3. **Power BI Visualization**
    - Connect SQL to Power BI/Tableau, import the data, and create interactive dashboards.

4. **Develop 10 SQL Queries**
    - Formulate and execute 10 SQL queries to extract key insights from the data. These queries should address important business questions and support the analysis steps below.

Analysis Steps:

1. **Customer Analysis**
    - Demographic Distribution: Analyze the distribution of customers based on gender, age (calculated from birthday), location (city, state, country, continent).
    - Purchase Patterns: Identify purchasing patterns such as average order value, frequency of purchases, and preferred products.
    - Segmentation: Segment customers based on demographics and purchasing behavior to identify key customer groups.
2. **Sales Analysis**
    - Overall Sales Performance: Analyze total sales over time, identifying trends and seasonality
    - Sales by Product: Evaluate which products are the top performers in terms of quantity sold and revenue generated.
    - Sales by Store: Assess the performance of different stores based on sales data.
    - Sales by Currency: Examine how different currencies impact sales figures, considering exchange rates.

3. **Product Analysis**
    - Product Popularity: Identify the most and least popular products based on sales data.
    - Profitability Analysis: Calculate profit margins for products by comparing unit cost and unit price.
    - Category Analysis: Analyze sales performance across different product categories and subcategories.
4. **Store Analysis**
    - Store Performance: Evaluate store performance based on sales, size (square meters), and operational data (open date).
    - Geographical Analysis: Analyze sales by store location to identify high-performing regions.

Results:

Upon completion of the project, learners are expected to deliver a comprehensive Exploratory Data Analysis (EDA) report for Global Electronics, featuring clean and integrated datasets, in-depth insights into customer demographics, purchasing behaviors, product performance, store operations, and currency impact on sales. The report will include visually compelling visualizations and actionable recommendations tailored to enhance marketing strategies, optimize inventory management, improve sales forecasting, guide product development, and inform store expansion and operational decisions. This analysis will empower Global Electronics to increase customer satisfaction, maximize revenue, and drive overall business growth.

Data Set : DataSet

Data Set Explanation: Data Set Explanation

References:

EDA Guide	**Exploratory Data Analysis (EDA) Guide**
PowerBi Session Recording Link	PowerBi

Steps to Create a Free Power BI Work Account	**Steps to Create a Free Power BI Work Ac…**
Project Live Evaluation	**Project Live Evaluation**
Capstone Explanation Guideline	**Capstone Explanation Guideline**
GitHub Reference	**How to Use GitHub.pptx**
Project Orientation Link (English)	**DataSpark: Illuminating Insights for Globa…**
Project Orientation Link (Tamil)	**DataSpark: Illuminating Insights for Globa…**

Project Deliverables:

- Data Cleaning and Preparation: Ensure all datasets are clean, integrated, and ready for analysis.
- Exploratory Data Analysis (EDA): Perform EDA to uncover trends, patterns, and insights.
- Visualizations: Create visualizations to effectively communicate key findings.
- Report: Summarize the analysis and provide actionable recommendations for Global Electronics.

By completing this project, you will help Global Electronics make informed decisions that enhance customer satisfaction, optimize operations, and drive overall business growth. Your analysis and recommendations will be critical in guiding the company's strategic initiatives.

Timeline:

The project timeline spans one week.

Project Evaluation metrics:

- You are supposed to write a code in a modular fashion (**in functional blocks**)
- Maintainable: It can be maintained, even as your codebase grows.
- Portable: It works the same in every environment (operating system)
- You have to maintain your code on **GitHub**.(Mandatory)
- You have to keep your **GitHub** repo public so that anyone can check your code.(Mandatory)
- Proper readme file you have to maintain for any project development(Mandatory)
- You should include basic workflow and execution of the entire project in the readme file on **GitHub**
- Follow the coding standards: https://www.python.org/dev/peps/pep-0008/
- You need to Create a Demo video of your working model and post in **LinkedIn**(Mandatory)

PROJECT DOUBT CLARIFICATION SESSION (PROJECT AND CLASS DOUBTS)

About Session: The Project Doubt Clarification Session is a helpful resource for resolving questions and concerns about projects and class topics. It provides support in understanding project requirements, addressing code issues, and clarifying class concepts. The session aims to enhance comprehension and provide guidance to overcome challenges effectively.
Note: Book the slot at least before 12:00 Pm on the same day

Timing: Tuesday, Thursday, Saturday (5:00PM to 7:00PM)

Booking link :https://forms.gle/XC553oSbMJ2Gcfug9

LIVE EVALUATION SESSION (CAPSTONE AND FINAL PROJECT)

About Session: The Live Evaluation Session for Capstone and Final Projects allows participants to showcase their projects and receive real-time feedback for improvement. It assesses project quality and provides an opportunity for discussion and evaluation.
Note: This form will Open on Saturday and Sunday Only on Every Week

Timing: Monday-Saturday (11:30PM to 1:00PM)

Booking link : https://forms.gle/1m2Gsro41fLtZurRA