

### **1. Input:**

**<https://www.kaggle.com/datasets/mkechinov/ecommerce-purchase-history-from-jewelry-store/data>**

### **2. Expected Output**

The expected output is a forecast of jewelry sales based on historical e-commerce purchase data using the Long Short-Term Memory (LSTM) model. The goal is to predict future sales and provide insights for inventory management, marketing strategies, and business planning.

### **3. Methods to Solve**

The document outlines a series of steps for data processing and analysis, which include:

**Data Collection and Cleaning:** The dataset contains historical purchase data from an online jewelry store.

**Data Analysis and Visualization:** Analyzing trends in the data such as popular jewelry types, sales distribution, and customer demographics.

**Model Selection:** Choosing the LSTM model for time series forecasting due to its effectiveness in capturing temporal dependencies.

**Model Training and Evaluation:** Training the LSTM model on the cleaned dataset and evaluating its performance using metrics such as Mean Squared Error (MSE).

### **4. Your Ideas on How to Transfer from Input to Output in General**

To transfer from input (historical sales data) to output (sales forecast), the following general steps should be taken:

**Preprocess the Data:** Clean the dataset by handling missing values and encoding categorical variables.

**Feature Engineering:** Create relevant features such as sales trends over time, moving averages, and lagged sales values.

**Model Training:** Split the data into training and testing sets. Train the LSTM model on the training set.

**Model Evaluation:** Test the model on the testing set and evaluate its performance using appropriate metrics.

**Forecasting:** Use the trained model to predict future sales.