Business Requirement Document (BRD)

ETL System for Sales, Customer, Product & Inventory Management
(SSIS and Advance Database)

Version 1.0 – Provided by Business & Data SME

1. Project Overview

The business requires the development of an ETL solution using SSIS to automate daily ingestion, processing, and publishing key operational data.

The solution must load three core data feeds: **Customers, Products, and Sales** and maintain a daily Inventory table/View while updating the final Product Dimension and Customer Dimension with cumulative sales metrics. The goal is to ensure accurate, historical reporting, and support analytics for sales trends, inventory tracking, and product performance.

This project is intended for intermediate-level SSIS developers.

2. Data Sources

All source files are delivered daily into a configurable folder path.

2.1 File Inputs

Feed	File Format	Frequency	Notes
Customers	CSV	Daily	Contains customer master data
Products	CSV	Daily	Contains product master data
Sales	CSV	Daily	Includes product sales transactions

Each file will contain a header row and comma-delimited values.
File names may include dates (e.g., customers_20250112.csv).

3. High-Level Requirements

Trainees must build an SSIS solution that performs the following functions:

3.1 Configurable File Path

The SSIS package must use a Project Parameter or Configuration to store the input folder path.
Path must be changeable without redeployment.

3.2 Customer & Product Feed Processing (CDC / SCD Type 2)

Business requires full historical tracking of customer and product attribute changes.
Requirements:

- Implement CDC (Change Data Capture) or equivalent logic in SSIS.
- Track inserts, updates, deletes.
- Maintain historical records in the dimension tables using SCD Type 2:
  Maintain StartDate, End Date, and IsActive flags.
  Record deletes as non-active rows:
  - IsActive = 0
  - EndDate = date_of_load

3.3 Sales Feed Processing (Incremental Load)

- Sales feed will be incrementally loaded based on sales_date.
- Load only new sales transactions.
- Ensure deduplication in case of repeated daily files.
- Converts amount in USD from source to NPR

3.4 Inventory Management

Business requires daily visibility into product inventory levels.
Requirements:
Maintain an Inventory table with fields:

ProductID	InventoryDate	BOH (Beginning On Hand)	EOH (End On Hand)

Logic:

BOH = Previous day's EOH

EOH = BOH – QuantitySold + QuantityReceived (optional: assume 0 for now)

For products first appearing in the sales file:

Initialize BOH = 0 unless provided.

3.5 Final Product Table (Product Dimension Output)

The business requires a consolidated Product dimension table with:

Latest active SCD Type 2 record of each product

A cumulative sales metric:

total_qty_sold = SUM of quantities from Sales fact for that product

This table will be used by downstream BI tools.

3.6 Logging, Error Handling & Monitoring

The ETL must include robust tracking of operations.

Requirements:

Create an ETL_Log table containing:

- PackageName
- StartTime
- EndTime
- Status (Success/Failed)
- ErrorMessage

  At minimum:

  Use SSIS Event Handlers

  Log OnError and OnTaskFailed events

  Packages must fail gracefully with clear messages.

4. Target Tables (Required Output)

4.1 DimCustomer

   SCD Type 2 structure

   Includes IsActiveflag

Includes total_amt_spent

4.2 DimProduct

SCD Type 2 structure

Includes IsActiveflag

Includes total_qty_sold

4.3 FactSales

Incrementally loaded

Deduplicated

Converts amount in USD from source to NPR

4.4 InventoryDaily

BOH / EOH updated per product per day

4.5 Logging Tables

ETL_Log

5. Deliverables Expected from Trainees

Trainees must deliver:

- SSIS Solution (.dtsx) containing:
- Customer package (CDC/SCD2)
- Product package (CDC/SCD2)
- Sales package (incremental)
- Inventory package
- Logging (or integrated packages)

SQL Scripts:
- Table creation scripts
- Stored procedures (used for CDC)
- Converts amount in USD from source to NPR – A function

6. Acceptance Criteria

Your ETL system will be accepted if:

- Files load successfully from a configurable path.
- Customer & product tables show correct SCD2 behavior.
- Sales table loads only incremental records.
- Sales Table amount converts USD to NPR
- Inventory table correctly calculates BOH/EOH for each product daily.
- Product table correctly calculates total_qty_sold.
- Customer table correctly calculates total_amt_spent
- Logging clearly shows success or errors.
- Re-running the ETL does not duplicate data does SDC2 and CDC changes along with incremental load.

7. Non-Functional Requirements

Must follow naming standards (package, tasks, variables).
Must use:

- Derived and other transformations in SSIS
- Merge/CDC logic – store procedure
- Functions for dollar conversion
- Data flow + control flow
- Parameters & variables
- Event Handlers