**Objective:**

**Develop an SSIS package to perform an incremental load from various source files (Excel, CSV, TXT) into a SQL Server table, implementing Slowly Changing Dimension (SCD) Type 1 logic. This approach will update existing records with new data when changes are detected, without preserving historical data.**

**Requirements:**

1. **Source Data:**
   * **File Types: Excel, CSV, and TXT files containing student registration information.**
   * **Data Consistency: Ensure uniform structure across all files for seamless processing.**
2. **Destination:**
   * **SQL Server Table: dbo.Students**
   * **Table Schema:**
     + **StudentID (Primary Key)**
     + **FirstName**
     + **LastName**
     + **DateOfBirth**
     + **Gender**
     + **Course**
     + **RegistrationDate**
     + **Email**
3. **SSIS Package Design:**
   * **Control Flow:**
     + **Use a Foreach Loop Container to iterate through the source files.**
     + **Within the loop, implement a Data Flow Task to process each file.**
   * **Data Flow Components:**
     + **Utilize appropriate Source Components for Excel, CSV, and TXT files.**
     + **Apply a Derived Column Transformation if necessary to add or modify columns.**
     + **Employ a Lookup Transformation to match incoming records with existing records in dbo.Students based on StudentID.**
     + **Use a Conditional Split Transformation to determine if a record is new or existing.**
     + **For Existing Records:**
       - **Use an OLE DB Command Transformation to update the existing record with the new data.**
     + **For New Records:**
       - **Insert into dbo.Students.**
4. **Data Handling Logic:**
   * **New Records: Insert into dbo.Students.**
   * **Existing Records with Changes: Update the existing record with the new data.**
   * **Unchanged Records: No action required.**
5. **Error Handling and Logging:**
   * **Capture and log any data flow errors.**
   * **Maintain logs for successful inserts, updates, and errors for auditing purposes.**
6. **Performance Considerations:**
   * **Implement batch inserts and updates to optimize performance.**
   * **Ensure appropriate indexing on StudentID and other frequently queried columns in dbo.Students.**
7. **Testing and Validation:**
   * **Develop test cases to validate the SSIS package against various scenarios, including new records, updated records, and unchanged records.**
   * **Verify data integrity post-load to ensure accuracy.**