**Integration Process**

**Objective:**

To ensure smooth data flow between the SQL database and Microsoft Excel for analysis and visualization, maintaining data consistency and accuracy.

**Importing Data from SQL to Excel**

1. Data Export:

Tool Used: MySQL Workbench

Commands Executed:

sql

SELECT \* FROM Courses INTO OUTFILE '/documents/courses.csv' FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n';

2. Data Import:

Open Excel: Start Microsoft Excel and open a new workbook.

Import Process:

- Go to the *Data* tab.

- Click on *Get Data > From Text/CSV*.

- Select `courses.csv` and click *Import*.

- Review the data preview and click *Load*.

- Repeat the steps for other CSV files (`enrollments.csv`, `attendance.csv`, `assessments.csv`), placing each in a separate worksheet.

3. Ensuring Consistency:

Column Headers: Verify headers (e.g., `CourseID`, `CourseName`) match SQL table columns.

Data Types: Check that dates and numbers are correctly formatted.

Validation: Cross-check data for accuracy and completeness.

4. Establish Relationships:

Establish relationships between data tables in Excel (similar to how relationships are defined in the SQL database) by creating a Data Model through *Power Pivot* in Excel.