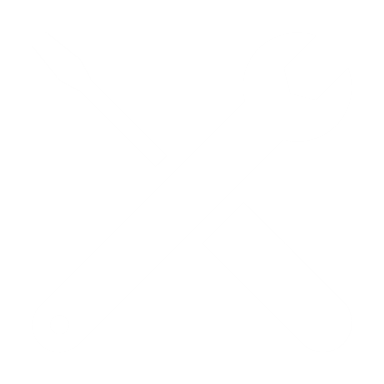
**Loading Data into SQL**

**Tools used  
 - Excel and SQL**

**Project Overview**

**Objective:**

The main goal of this project was to import and manage a dataset into SQL Server. The dataset contained military expenditure data, which required cleaning and formatting before could be successfully loaded into SQL.

**Steps Taken:**

1. **Initial Data Preparation in Excel:**
   * **Column Issues:** The dataset had a column, "Military\_expenditure\_constant\_US," which contained both numeric values and text such as "(sipri)".
   * **Solution:** We created a new column that removed these non-numeric characters using Excel functions and formulas, such as =SUBSTITUTE and =TEXT. This cleaned up the data, preparing it for import into SQL.
2. **Data Cleaning in Excel:**
   * **Text and Symbols:** The column had instances of words and symbols like "+".
   * **Solution:** A new column was created with only numeric values by extracting and cleaning the data from the original column. We then replaced the old column with this newly cleaned column.
3. **SQL Data Import Issues:**
   * **Error during Import:** While importing data into SQL, an error occurred due to the "Military\_expenditure\_constant\_US" column not allowing DBNull values.
   * **Solution:** Ensured that all cells in the column had valid numeric data and no null or non-numeric values. Additionally, the data type for this column was set appropriately in Excel before the import.
4. **Setting Data Types:**
   * **Column Data Types:** It was necessary to define the correct data types for each column before importing into SQL.
   * **Solution:** Columns were set as Text, Number in Excel. Specifically, the "Military\_expenditure\_constant\_US" column was set to Number to match its purpose.
5. **Final Data Import into SQL:**
   * **Successful Import:** After cleaning and setting the correct data types, the dataset was successfully loaded into SQL without further issues.

**Formulas and Tools Used:**

1. **Excel Functions:**
   * **SUBSTITUTE Function:** Used to replace text in cells.

Excel:

=SUBSTITUTE(A2, "(sipri)", "")

* + **TEXT Function:** Used to format cells.

Excel:

=TEXT(A2, "General Number")

* + **Cleaning Data:** Formulas were applied to remove unwanted text and symbols.

1. **SQL Data Type Setting:**
   * **Number Columns:** Defined as Number in Excel.
   * **Currency Columns:** Defined as Number in Excel.

**Challenges Faced:**

* **Non-numeric Data:** The main challenge was handling non-numeric text in a column expected to hold numeric data.
* **SQL Import Errors:** Encountered issues with data types and null values during the import process.
* **Manual Data Cleaning:** Required to manually clean the data to ensure compatibility with SQL.

**Solutions Implemented:**

* **Data Cleaning in Excel:** Successfully removed non-numeric characters and ensured consistent data formatting.
* **Appropriate Data Typing:** Defined correct data types in Excel before importing into SQL, which resolved import errors.

**Project Summary:**

This project involved preparing and importing a military expenditure dataset into SQL Server. The dataset required significant cleaning, including the removal of non-numeric characters and the setting of appropriate data types. By addressing these issues step by step, the data was successfully loaded into SQL, allowing for further analysis and querying.