# **Guide: Importing Data into Power BI and Ensuring Consistency**

## **1. Connecting to the MySQL Database**

1. Open Power BI Desktop
2. Click on 'Get Data' in the Home ribbon
3. Select 'Database' > 'MySQL database'
4. Enter the following details:
   * Server: localhost (or your specific server address)
   * Database: expensync (your database name)
5. Click 'OK'
6. Choose 'DirectQuery' or 'Import' mode (Import is recommended for this dataset)
7. Enter your MySQL credentials when prompted

## **2. Selecting Tables**

1. In the Navigator window, select the following tables:
   * expensync.users
   * expensync.transactions
2. Click 'Load' (or 'Transform Data' if you need to make changes)

## **3. Data Transformation (if needed)**

If you clicked 'Transform Data':

1. Rename columns if necessary for clarity
2. Change data types if needed (e.g., ensure 'amount' is decimal, 'date' is date type)
3. Create calculated columns if required
4. Click 'Close & Apply' when done

## **4. Creating Relationships**

1. Go to the 'Model' view in Power BI
2. Drag the 'id' field from the users table to the 'UserId' field in the transactions table
3. Ensure the relationship is set to 'One to Many' (One user can have many transactions)

## **5. Creating Measures for Consistency**

Create the following measures to ensure consistent calculations:

1. Total Income:  
    Copy  
   Total Income = CALCULATE(SUM('expensync transactions'[amount]), 'expensync transactions'[type] = "income")
2. Total Expenses:  
    Copy  
   Total Expenses = ABS(CALCULATE(SUM('expensync transactions'[amount]), 'expensync transactions'[type] = "expense"))
3. Net Income:  
    Copy  
   Net Income = [Total Income] + [Total Expenses]

## **6. Testing and Validation**

1. Regularly cross-check Power BI totals with database totals
2. Validate any complex DAX measures against raw data
3. Test your refresh process to ensure it works correctly