#### **Application Setup**

**1. Database Setup:**

* **Install SQL Server:** Ensure SQL Server 2017 or a more recent version is installed on your machine.
* **Create Database:** Create a new database named IowaCounties.
* **Create Tables:** Set up the county and adjacent\_county tables within the IowaCounties database.
* **Insert Data:** Populate the tables with data for the specified counties (Story, Greene, and Tama) and their adjacent counties using the provided SQL script.

**2. Stored Procedures:**

* **Create Stored Procedure:** Define a stored procedure spCheckAdjacency in the database to check if two counties are adjacent. This procedure takes two county IDs as input and returns a boolean result indicating adjacency.

**3. WPF Application Setup:**

* **Install Visual Studio:** Ensure you have Visual Studio installed with the .NET Framework.
* **Create Project:** Start a new WPF Application project in Visual Studio.
* **Add NuGet Packages:** Add necessary NuGet packages such as System.Data.SqlClient to handle SQL operations.
* **Design UI:** Design the user interface to include:
  + Two text boxes for inputting county IDs.
  + A button to trigger the adjacency check.
  + A label to display the result (whether the counties are adjacent or not).

**4. Code Implementation:**

* **Establish Database Connection:** Implement logic to connect to the SQL Server database from the WPF application.
* **Execute Stored Procedure:** Write code to execute the stored procedure when the user inputs county IDs and clicks the button.
* **Display Results:** Show the result of the adjacency check in the label on the user interface.

#### **Assumptions Made**

1. **Data Integrity:**
   * It is assumed that the data in the county and adjacent\_county tables is accurate and up-to-date, reflecting the true adjacency relationships between counties in Iowa.
2. **User Input:**
   * The application assumes users will input valid county IDs. Basic input validation will be performed, but handling of incorrect or non-integer inputs will be limited.
3. **Database Connection:**
   * The application assumes the database connection string is correctly configured with the appropriate server and database names, and that integrated security is being used for simplicity.
4. **Environment:**
   * It is assumed that the application is running in an environment where it has the necessary permissions and network access to connect to the SQL Server database.
5. **Counties Data:**
   * For the purpose of this exercise, it is assumed that only Story, Greene, and Tama counties need to return accurate results regarding adjacency. The adjacency of other counties is not considered in this implementation.

By following these setup instructions and understanding the assumptions, the application should function correctly for checking county adjacency in Iowa.