Lab Assignment: Implementing the Observer Design Pattern

Objective:

The goal of this lab assignment is to implement the Observer design pattern in C#. You will create a simple weather monitoring application where different display elements observe changes in the weather data.

Requirements:

1. Implement the Observer design pattern.
2. Create a `WeatherData` class that acts as the subject.
3. Create an `IObserver` interface for the observers.
4. Create an `IDisplayElement` interface for the display elements.
5. Implement several concrete observer classes (`CurrentConditionsDisplay`, `StatisticsDisplay`, `ForecastDisplay`).
6. Demonstrate the functionality by simulating changes in the weather data.

Steps:

1. **Define the IObserver Interface:**
    - Create an interface `IObserver` that declares a method `Update(float temperature, float humidity, float pressure)`.
2. **Define the IDisplayElement Interface:**
    - Create an interface `IDisplayElement` that declares a method `Display()`.
3. **Create the Subject (WeatherData) Class:**
    - Create a class `WeatherData` that maintains a list of observers and notifies them of any changes.
4. **Implement Concrete Observers:**
    - Create classes `CurrentConditionsDisplay`, `StatisticsDisplay`, and `ForecastDisplay` that implement `IObserver` and `IDisplayElement`.

5. **Client Code:**

    - Write a client code to demonstrate adding, removing, and notifying observers.