```
import pandas as pd
    import numpy as np
    # Create a DataFrame with random values
    data = np.random.randn(10, 4) # 10 rows, 4 columns
    df = pd.DataFrame(data, columns=['A', 'B', 'C', 'D'])
    # Introduce NaN values at random positions
    nan indices = [(0, 1), (2, 2), (4, 0), (6, 3), (9, 2)] # List of indices where NaNs will be introduced
    for idx in nan indices:
        df.iloc[idx] = np.nan
    # Highlight NaN values using style
    def highlight nan(val):
        color = 'red' if pd.isna(val) else ''
        return f'background-color: {color}'
    # Apply the styling
    styled df = df.style.applymap(highlight nan)
    # Display the styled DataFrame
    styled df

<ipython-input-2-4d34c7922de0>:19: FutureWarning: Styler.applymap has been deprecated. Use Styler.map instead.

      styled df = df.style.applymap(highlight nan)
                                             D
     0 0.363316
                            0.594925 0.968790
                       nan
                  1.199258 -1.479719 -0.113387
        0.258651
        0.295008 -0.134901
                                     -1.298162
     3 -0.365289 -0.084684 1.290258 -1.200692
             nan -0.356519 0.294632 -0.136161
     5 -1.795682 0.292742 -0.163703 1.205948
```