

# **FRED Graph Observations**

## **Federal Reserve Economic Data**

CSUSHPISA

- S&P/Case-Shiller U.S. National Home Price Index, Seasonally Adjusted
- This variable serves as a proxy for home prices and represents the home price index for the United States.

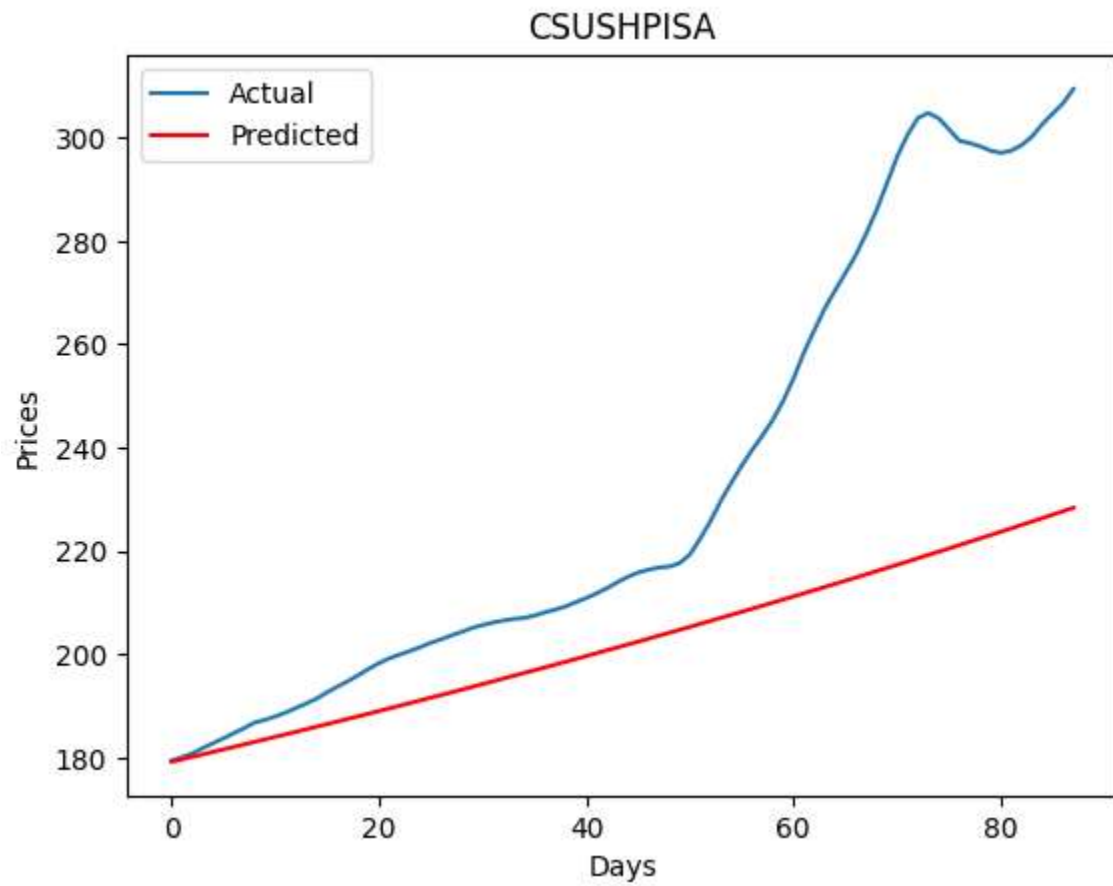
# **1. Univariate Data Analysis**

- Qualitative and Quantitative Data Analysis
- Measure of Central Tendency
  - Mean, Median, Mode
- Measure of Location of data
  - Percentile
  - Inter Quartile Range
  - Potential Outlier
  - Frequency
  - Relative Frequency
  - Cumulative Relative Frequency
- Skewness
- Kurtosis
- Measure of Spread
  - Variance
  - Standard Deviation
- Normal Distribution
- Probability Density Function
- Cumulative Density Function

## **2. Time Series Analysis**

- Plot 2D Graph
- Multiplicative
  - Seasonal, Trend, Residual
- Additive
  - Seasonal, Trend, Residual
- Augmented Dickey Fuller Test
- Autocorrelation
- Partial Autocorrelation
- Forecastability of Time Series Data
  - Approximate Entropy (ApEn)
  - Sample Entropy (SampEn)

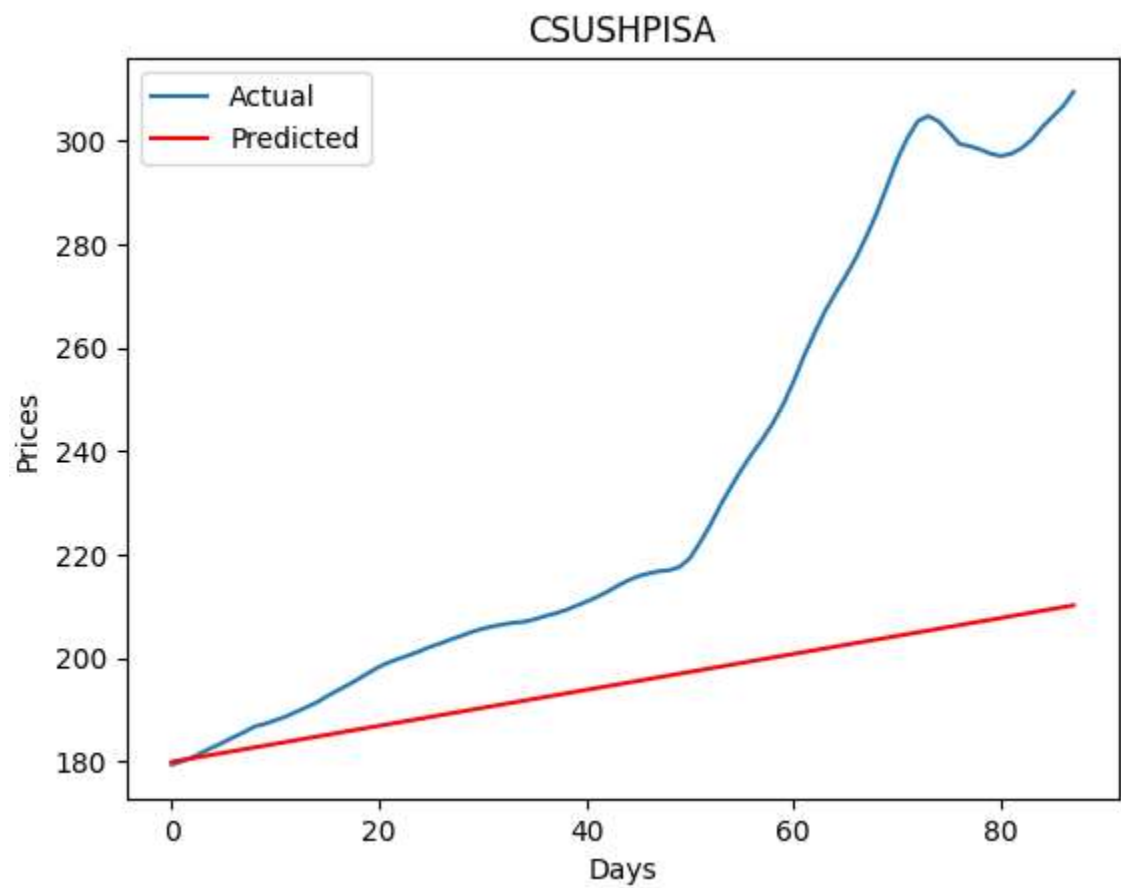
### 3. Auto Regression



**Predicted\_CSUSHPISA**

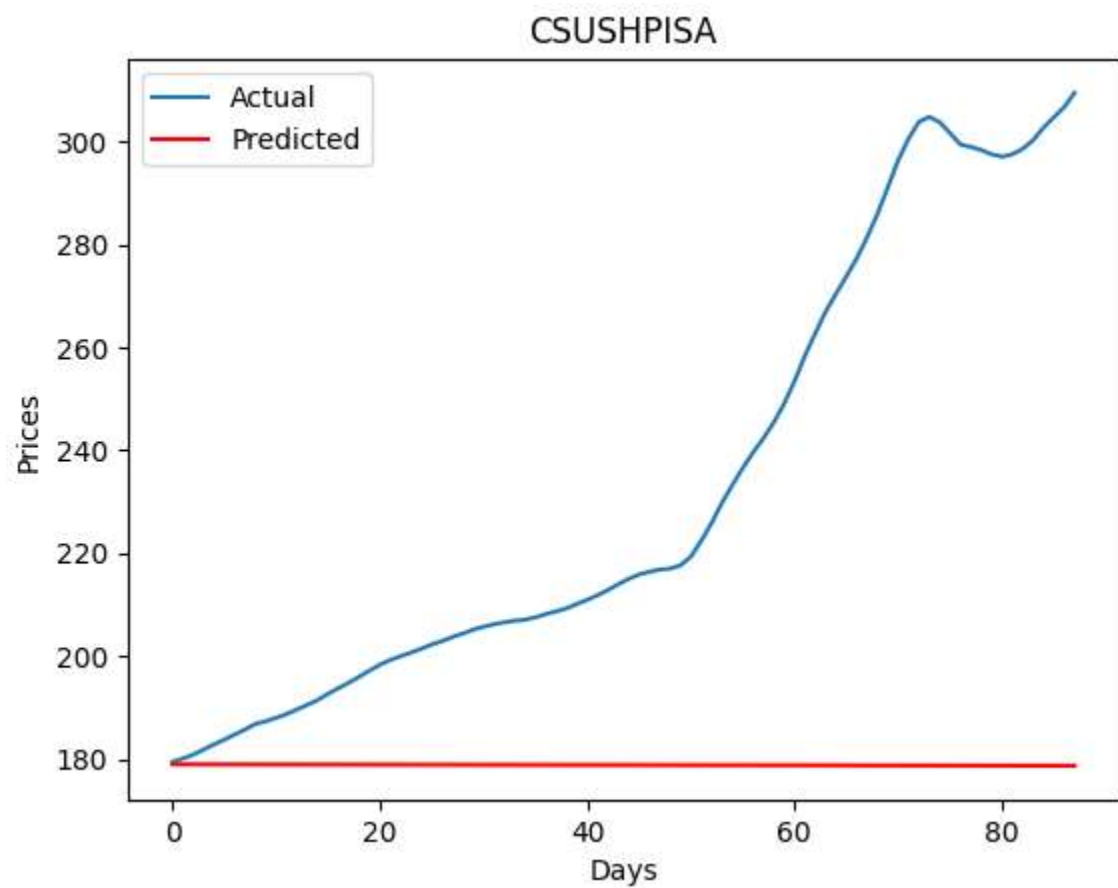
0	229.032982
1	229.707904
2	230.385586
3	231.066039
4	231.749274

## 4. Moving Average



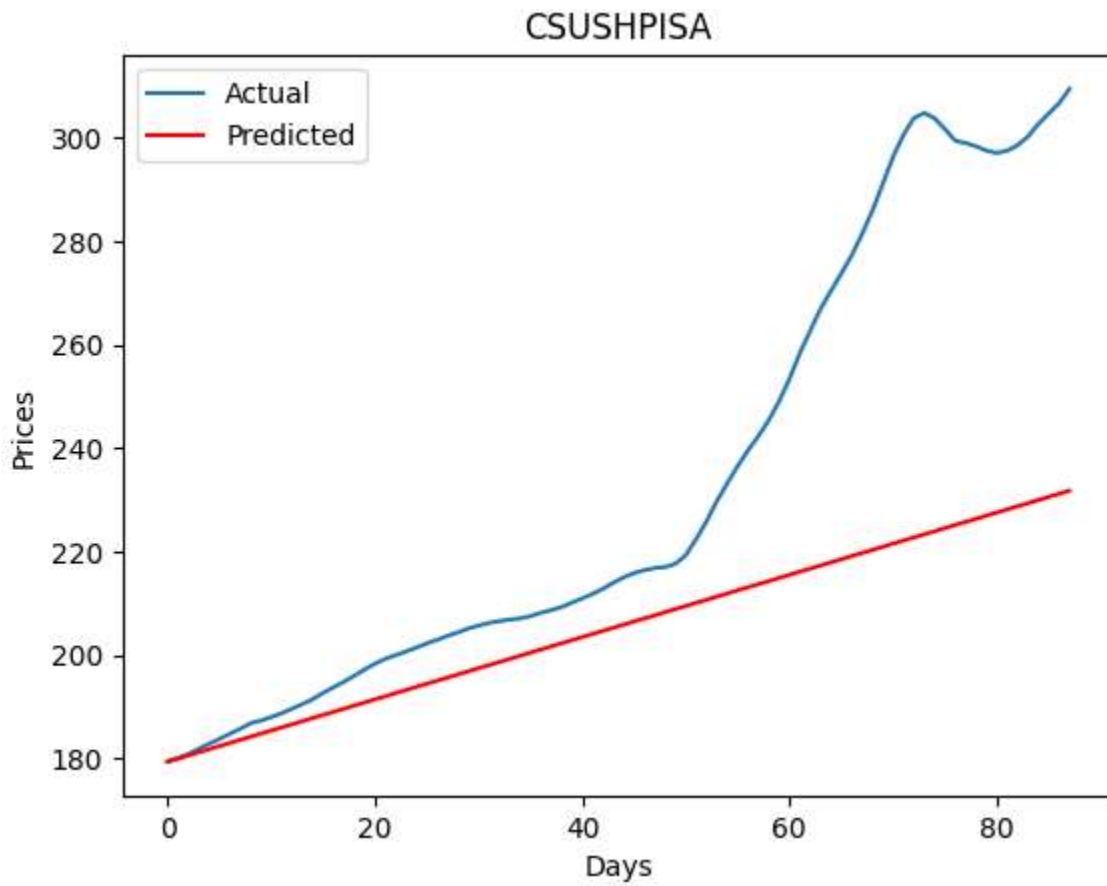
Predicted_CSUSHPISA	
0	210.559398
1	210.906836
2	211.254274
3	211.601713
4	211.949151

## 5. AutoRegressive Moving Average



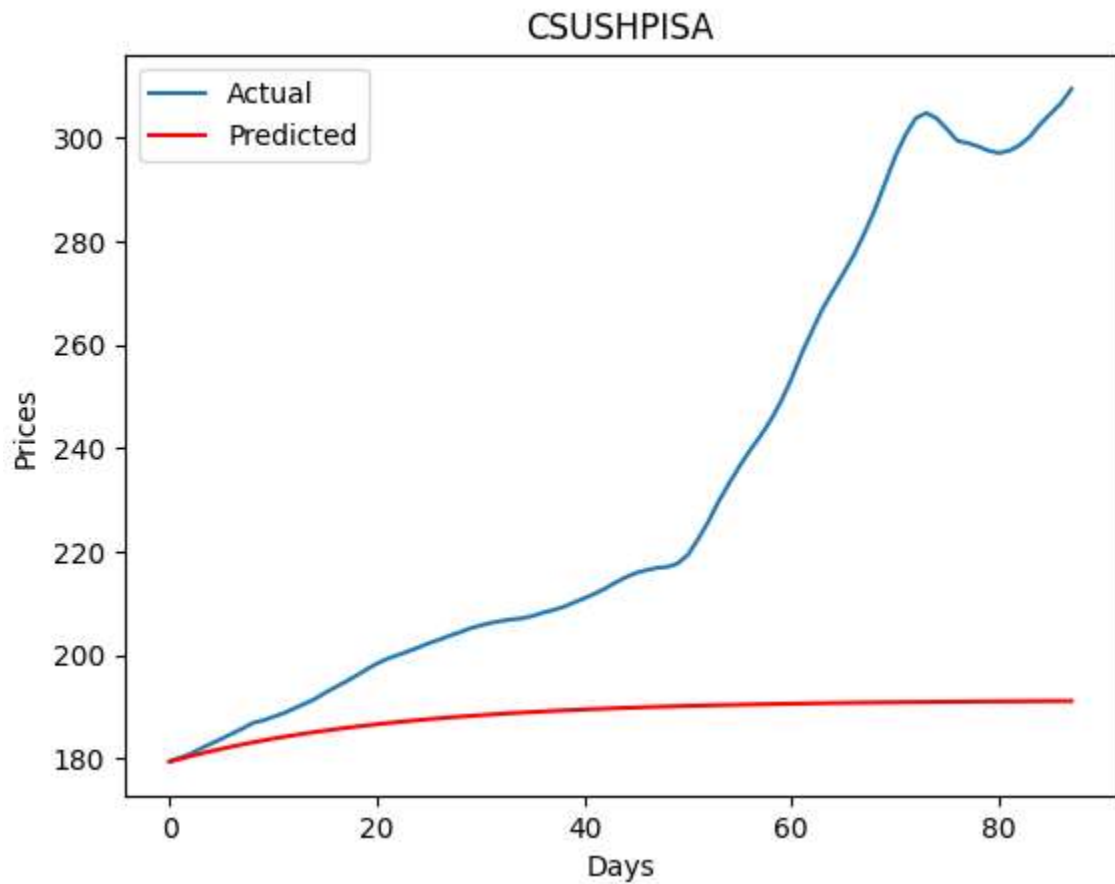
Predicted_CSUSHPISA	
0	178.684914
1	178.681913
2	178.678913
3	178.675913
4	178.672913

## 6. AutoRegressive Integrated Moving Average



Predicted_CSUSHPISA	
0	232.343999
1	232.945999
2	233.547999
3	234.149999
4	234.751999

## 7. Seasonal AutoRegressive Integrated Moving Average with Exogenous Variable



**Predicted\_CSUSHPISA**

0	191.080229
1	191.089253
2	191.097867
3	191.106089
4	191.113936