

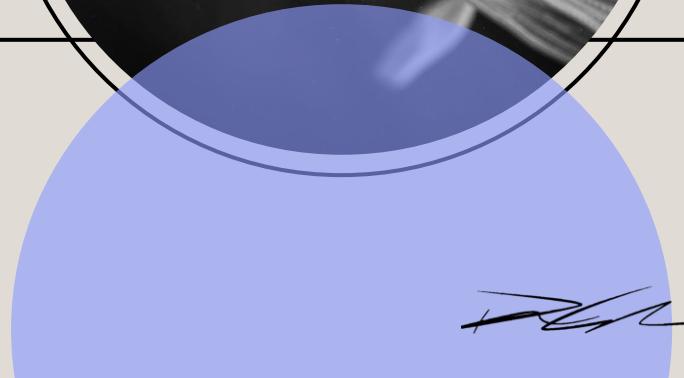


Analysis of Monthly Fish Births in the Pacific



Time Series Exam

1968-87



2023

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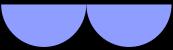
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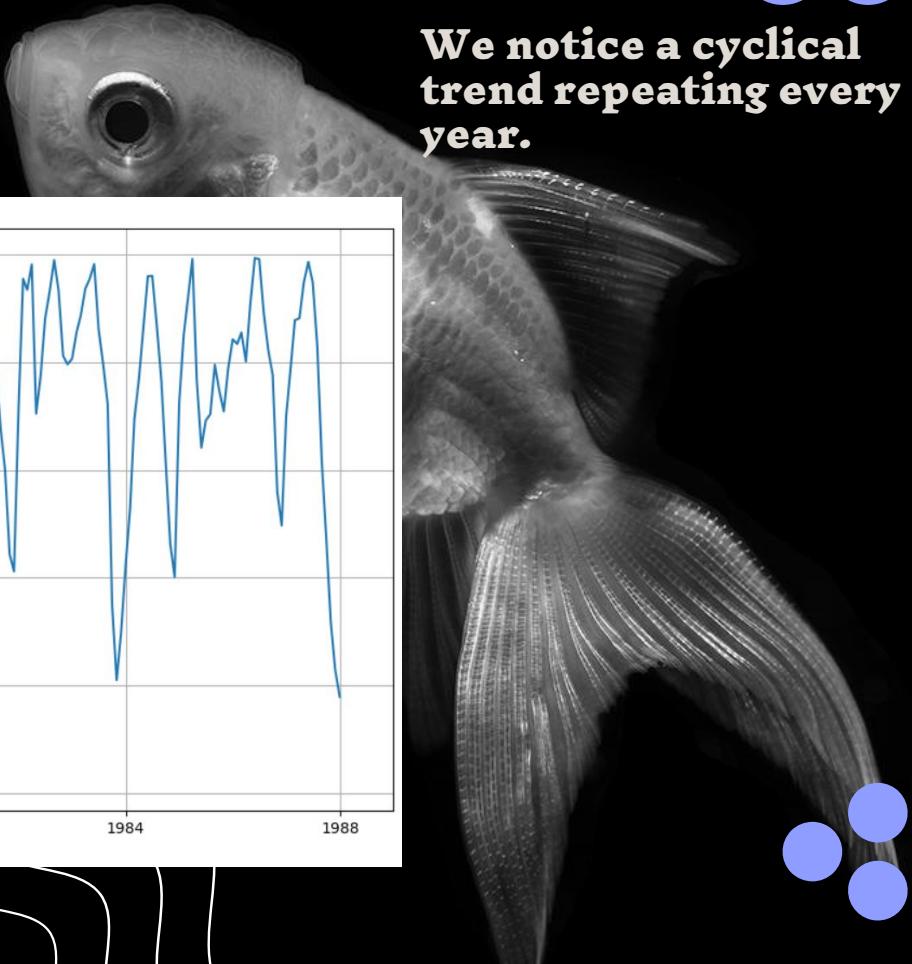
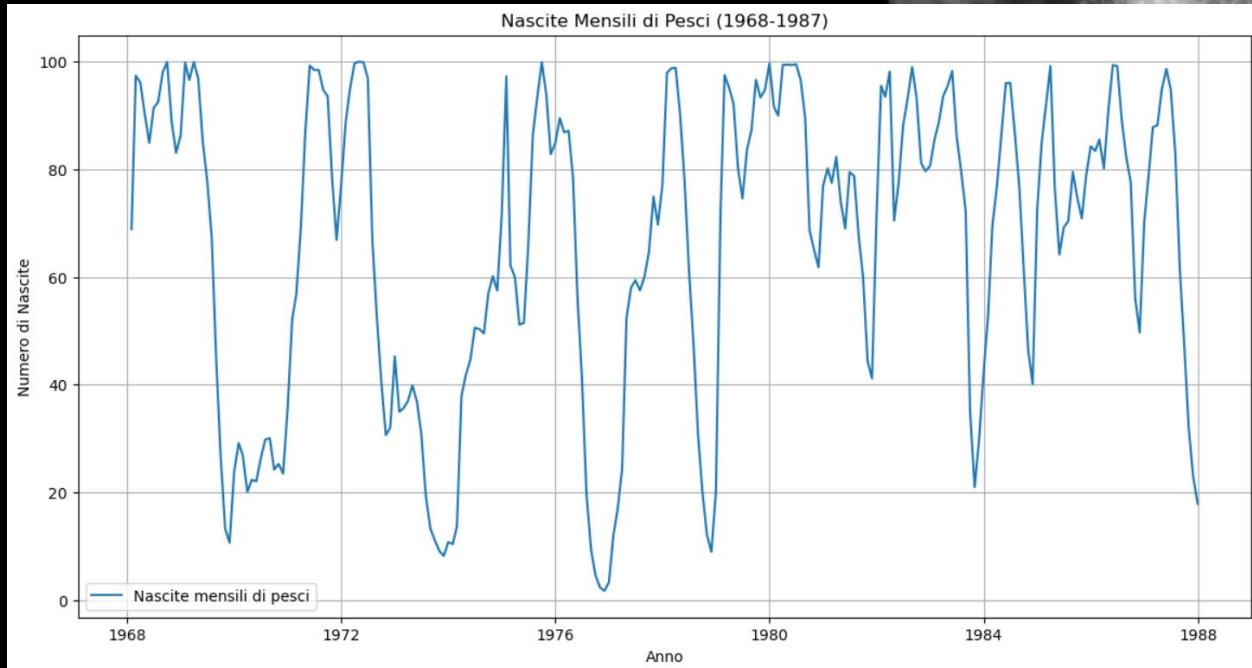
07

**Standardization and
Normalization**

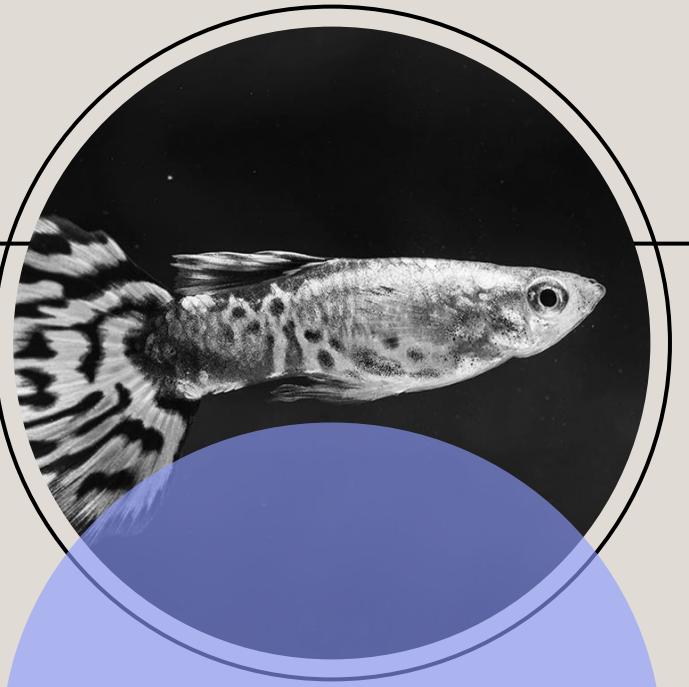
Original Timeseries



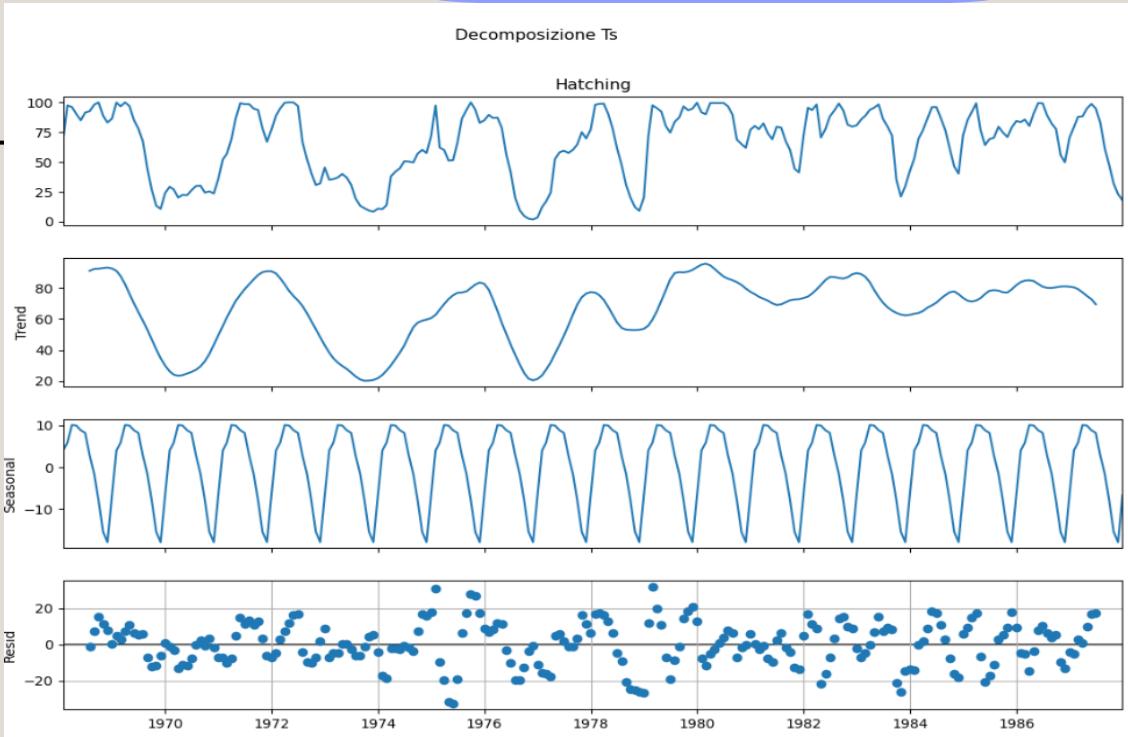
We notice a cyclical trend repeating every year.



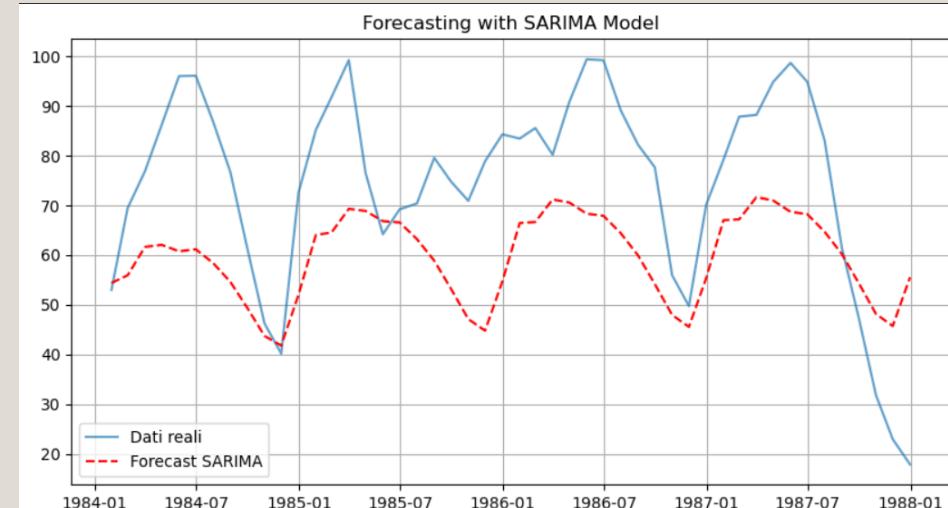
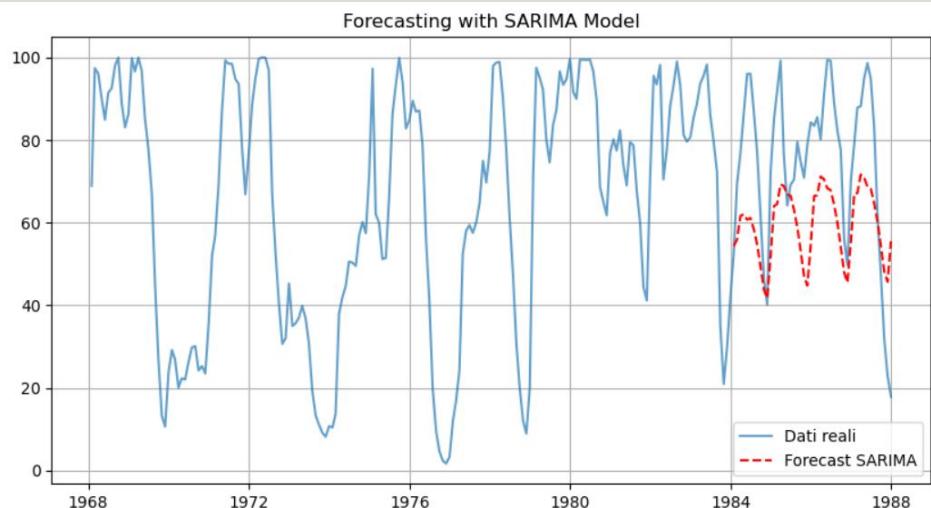
01 – Decomposition and ADF



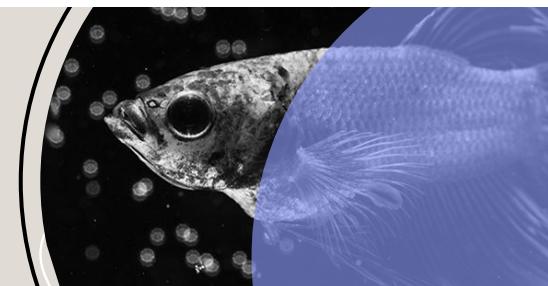
ADF Statistic: -4.608
p-value: 0.000



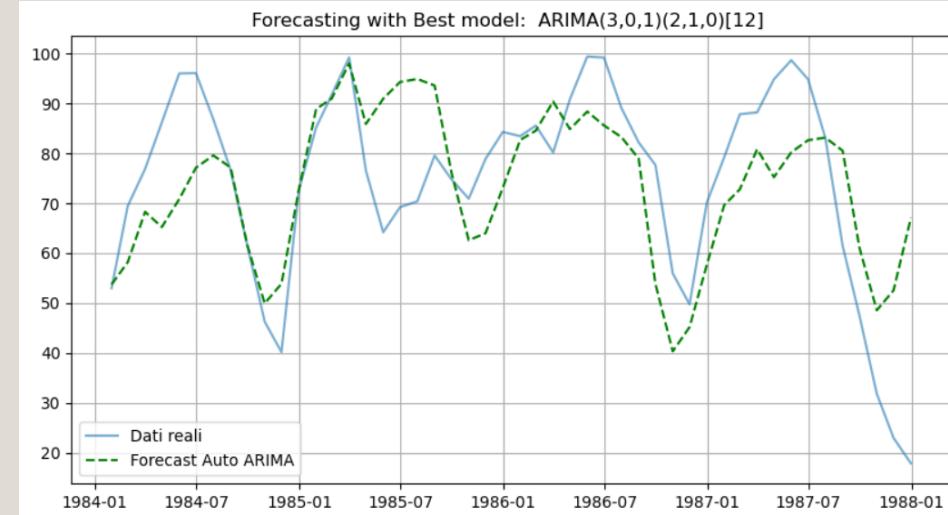
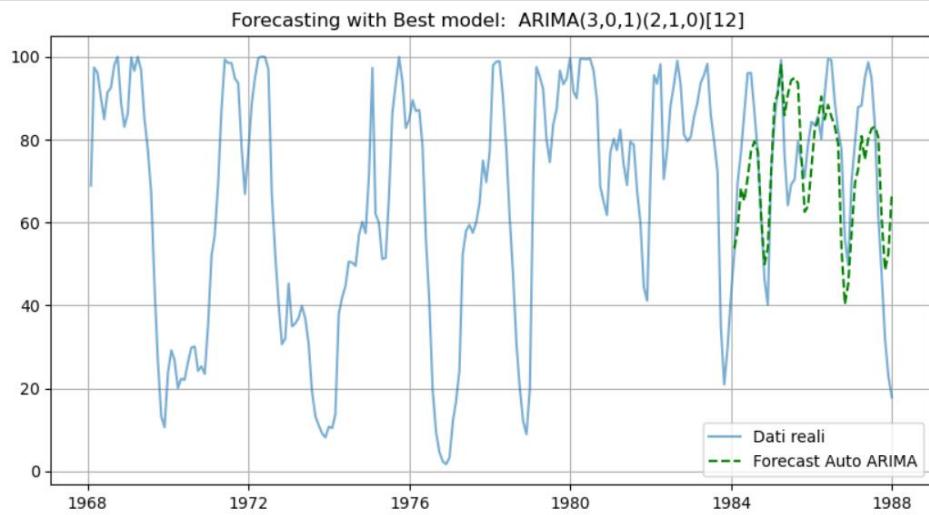
O2 – SARIMA



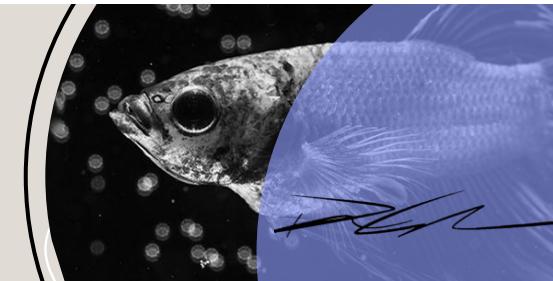
We chose the SARIMA model because it is specifically designed to handle data with a certain seasonality.



O2 – Auto Arima



As you can see, the model captures the trend and seasonality with remarkable precision.





03 – Calcolo dell'Errore

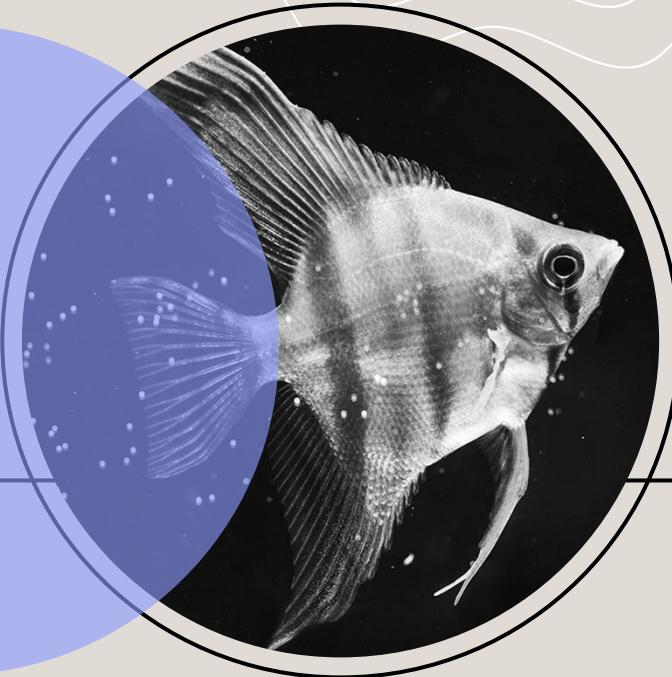
We have a predictive model
that is not only functional but
also quantifiably accurate.

MAE: 18.71

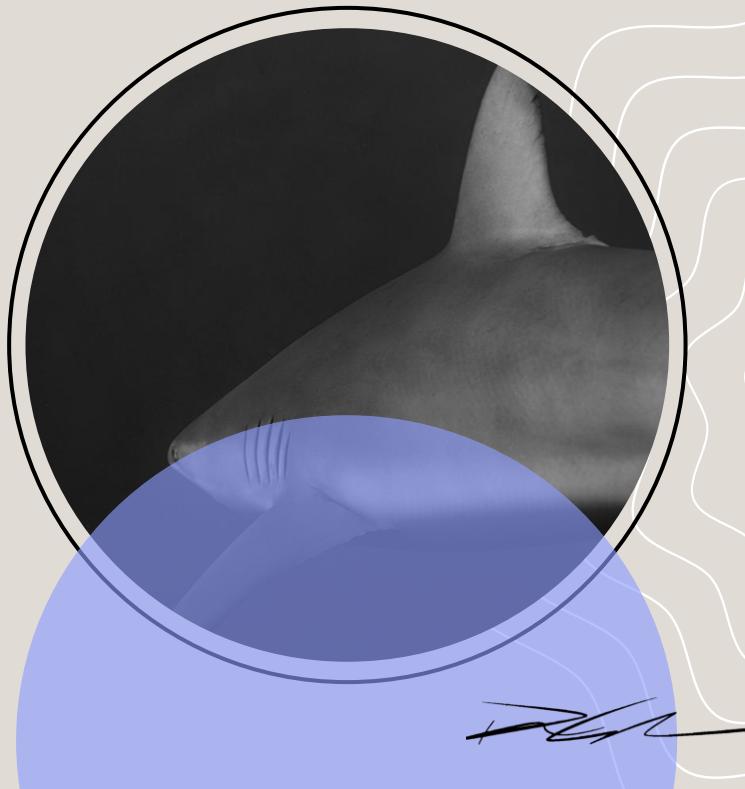
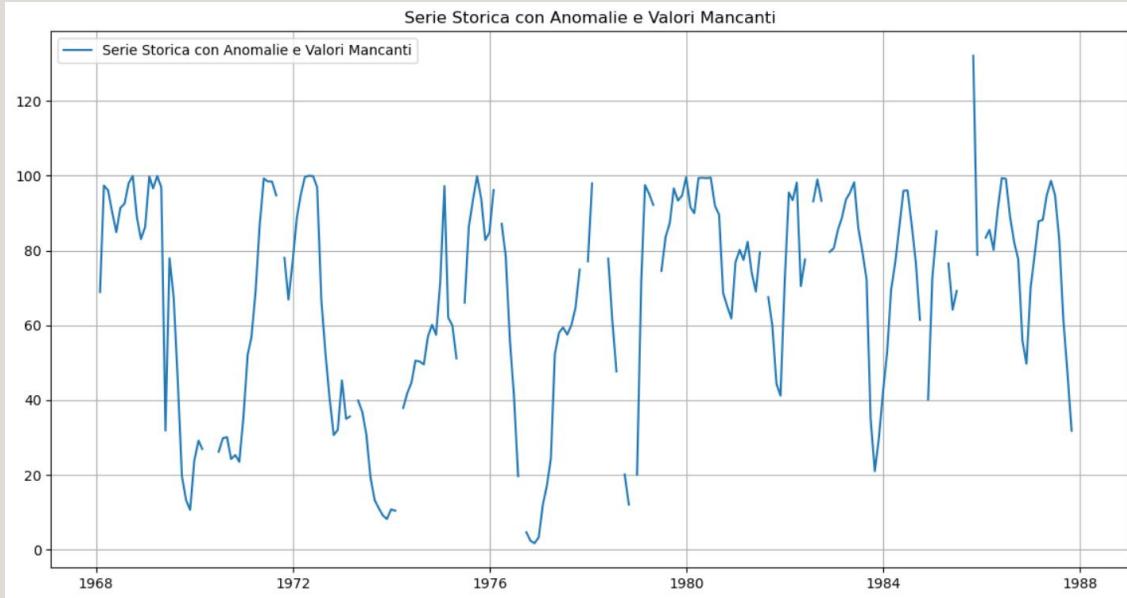
MSE: 452.04

MAE Auto ARIMA: 11.89

MSE Auto ARIMA: 237.63

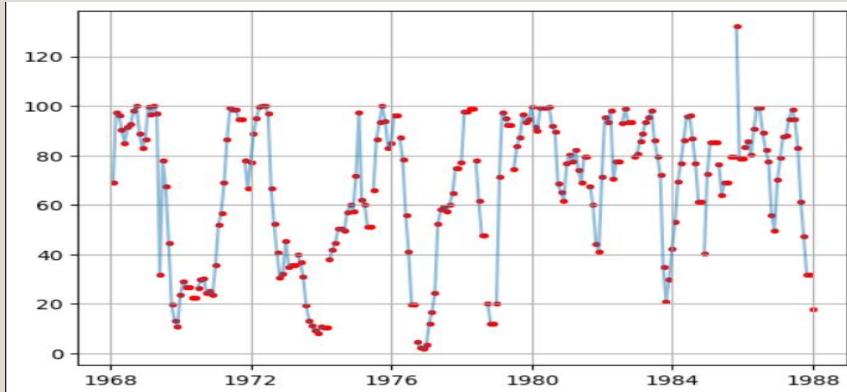


04 – Anomalies and missing Values

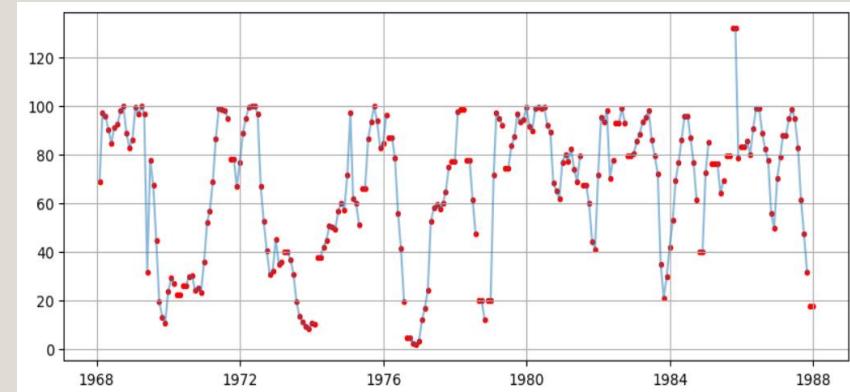


04 – Anomalies and missing Values

Forward Filling

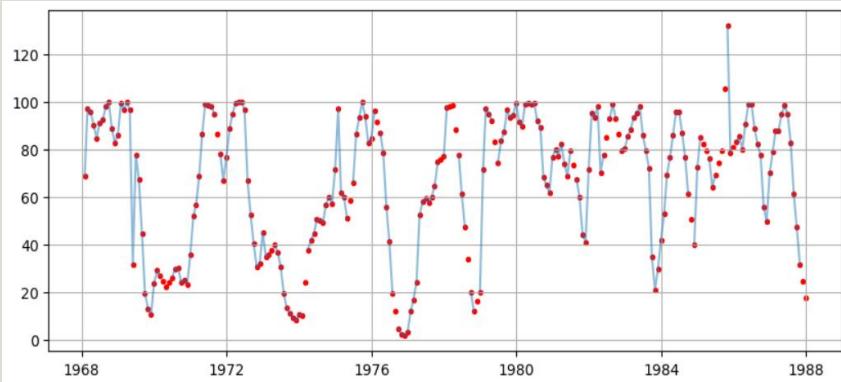


Backward Filling

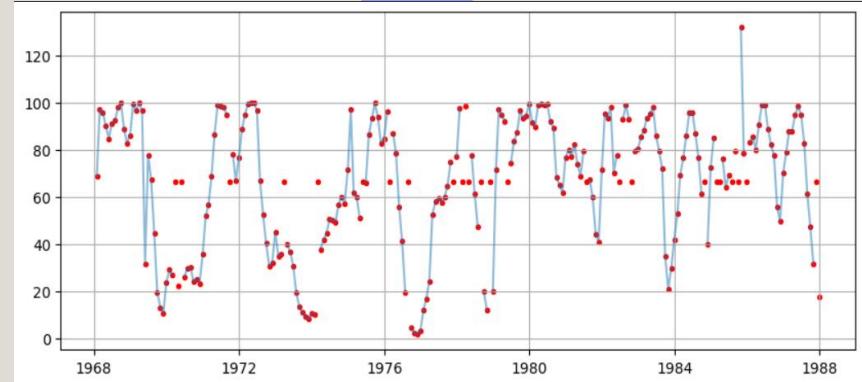


04 – Anomalies and missing Values

Quadratic Interpolation



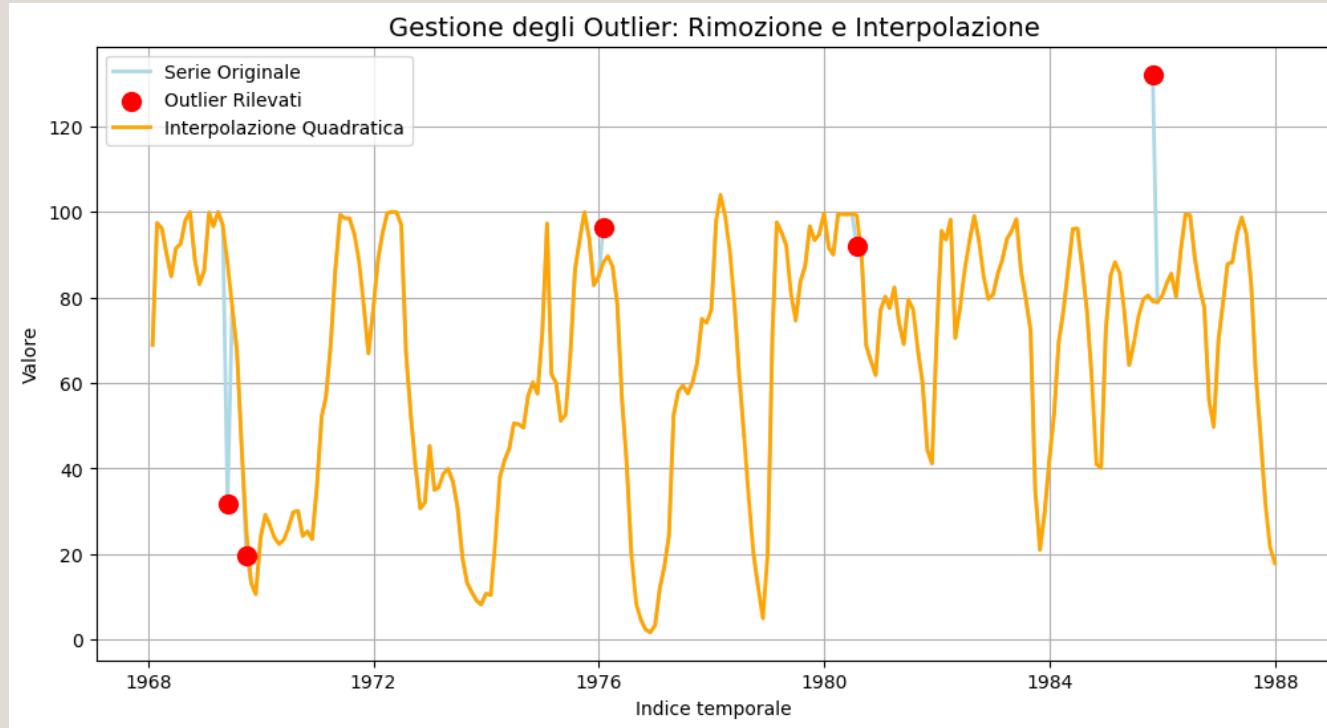
Mean Value



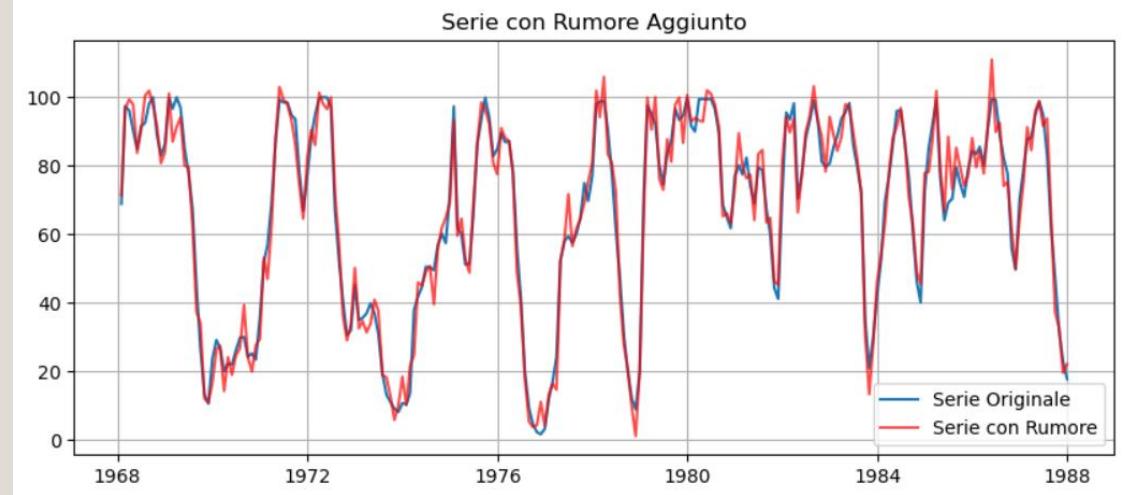
Best Choise

04 – Anomalies and missing Values

Quadratic Interpolation



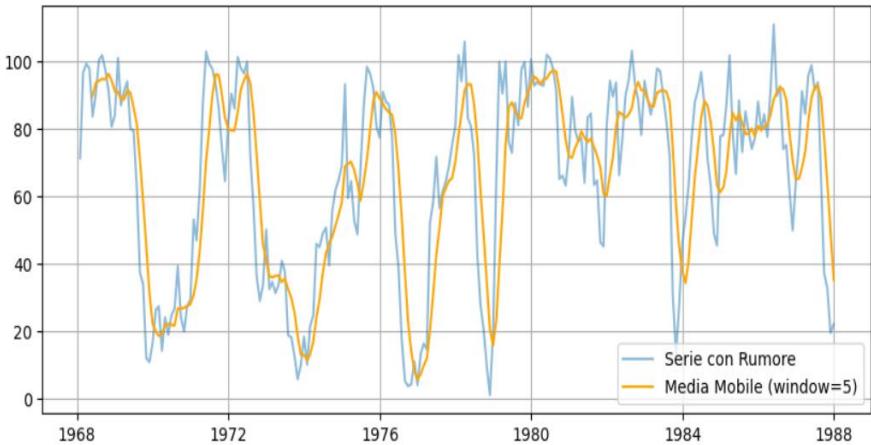
05 – Noise Management



05 – Noise Management

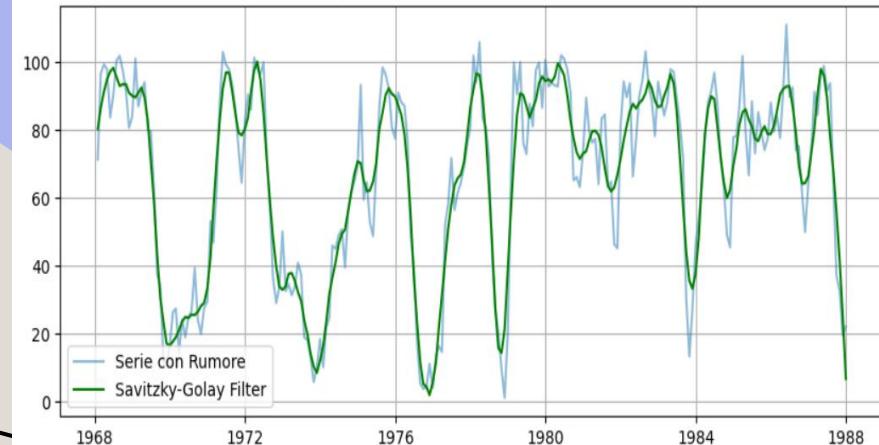
Moving Average

Media Mobile della Serie con Rumore

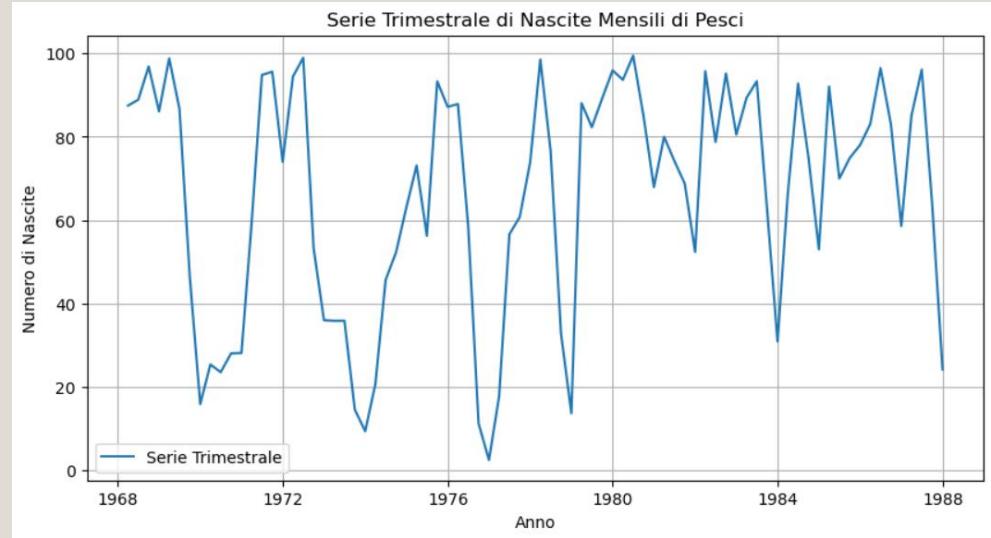
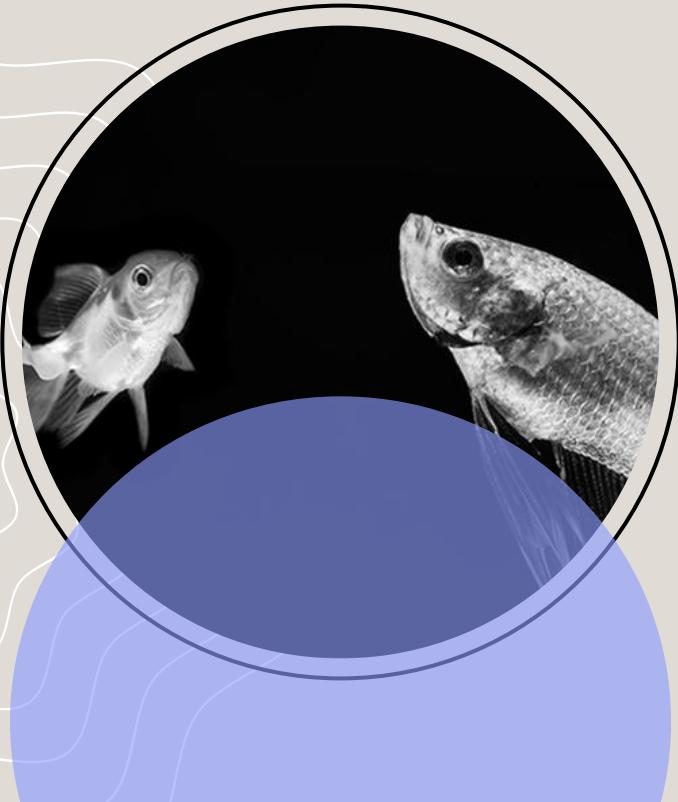


Savitzky-Golay Filter

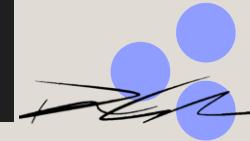
Savitzky-Golay Filter della Serie con Rumore



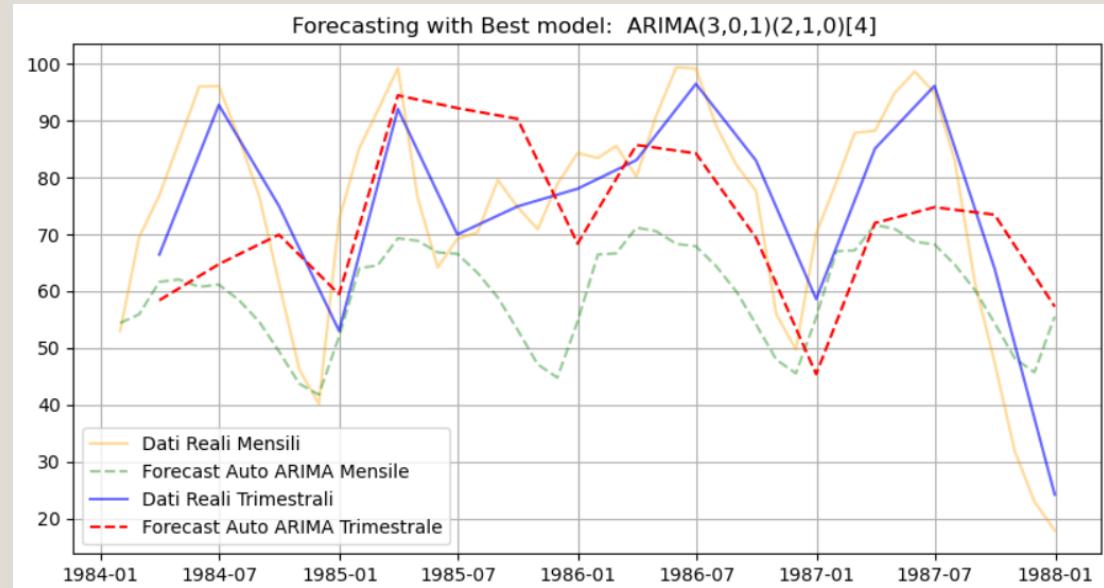
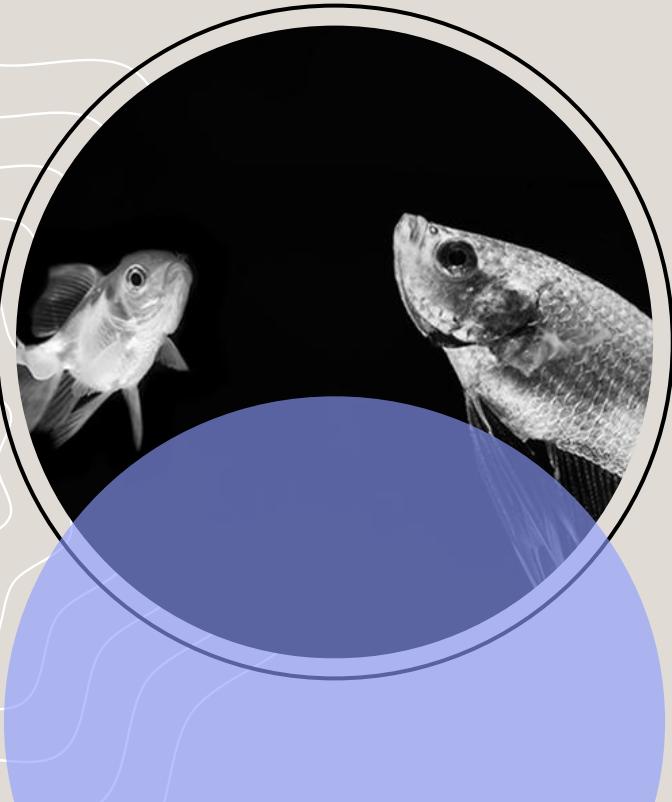
06 – Quarterly Forecast



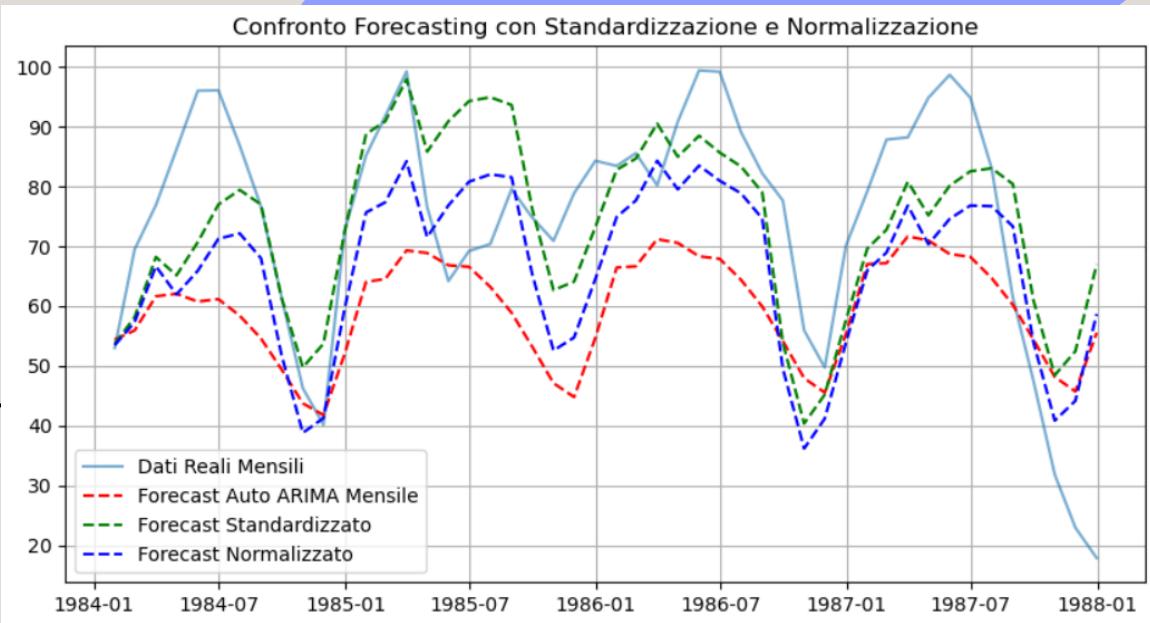
MAE Trimestrale: 13.50
MAE Originale: 18.71



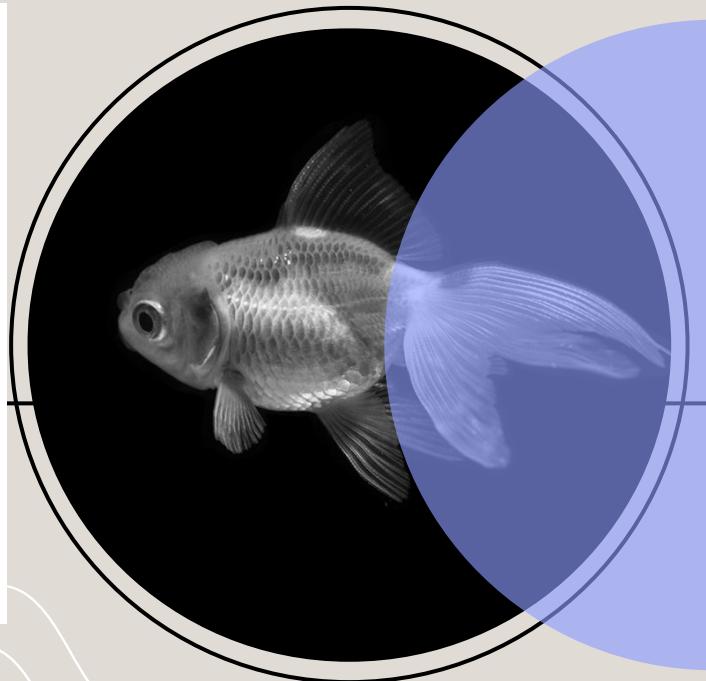
06 – Quarterly Forecast



07 – Standardization and Normalization



MAE Originale: 18.71
MAE Standardizzato: 11.87
MAE Normalizzato: 14.01





**Thank you for
your attention**

