



Time Series Data

Sequential data with temporal dependencies and ordering

Key Challenges

Variable lengths: Different time durations

Sampling rates: Inconsistent frequencies

Phase shifts: Time warping between patterns

Noise: Random fluctuations & outliers

Euclidean distance: Inadequate for alignment

Time Series Characteristics

Trend & Seasonality



Phase Shift (Time Warping)



Noisy Signal



Different Lengths



Key Considerations

 Finance

 IoT Sensors

Seasonality

Trends

Outliers

 Healthcare

Alignment-invariant metrics