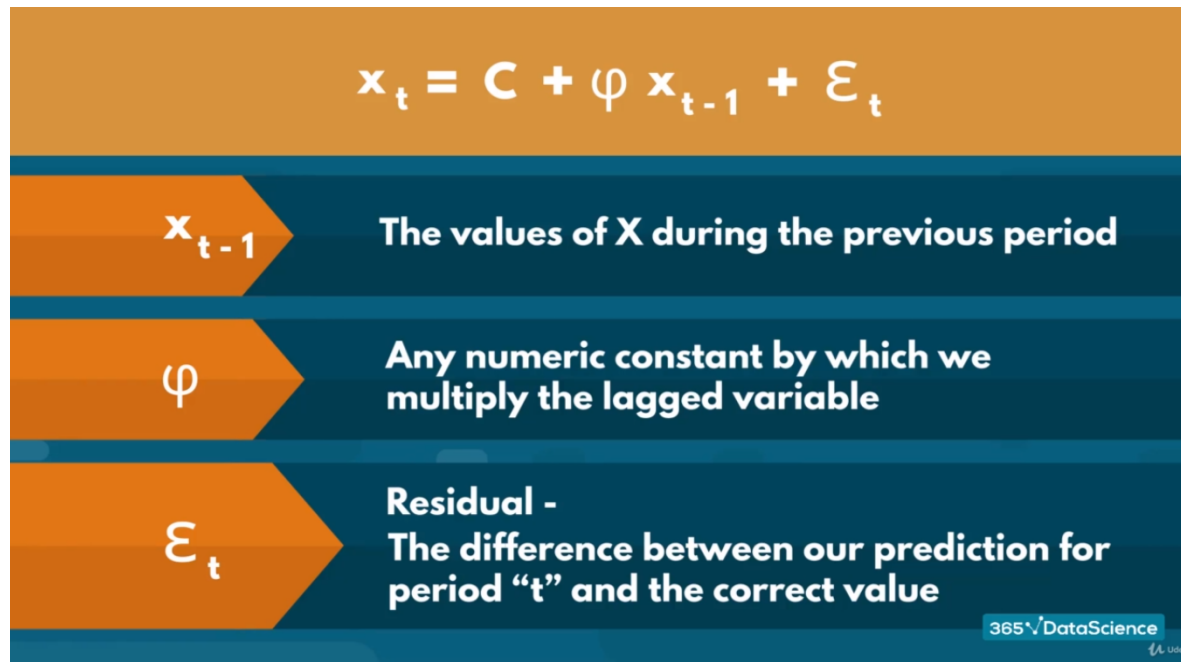


The AR Model

Full Name:

The **A**utoregressive Model

Mathematical Notation:



Description:

The name of the model comes from autoregression. This means that the model uses values of the same variable (auto) to estimate the current one (regression).

We rely on autoregressive models when there is clear autocorrelation within the data. The term (autocorrelation) suggests that the variable is correlated with itself. More precisely, values from consecutive periods are related.

Since time series assumes that patterns found in the past translate to the future, if autocorrelation is present in the data, we need to use some form of AR model to capture this relationship if we wish to make good estimates.

The AR Model

Implementation of the Simple Model in Python:

The library the
ARMA method
comes from

The method we
are importing

```
from statsmodels.tsa.arima_model import ARMA
```

```
model_ar = ARMA(df.market_value, order=(1,0))
```

The variable storing the
model characteristics
that we will fit later

The time series we
wish to analyse

The order of the model **(we use
(1,0), since $AR(1) = ARMA(1,0)$)*

**For an $AR(p)$ model, simply change the
order from (1,0) to (p,0).*