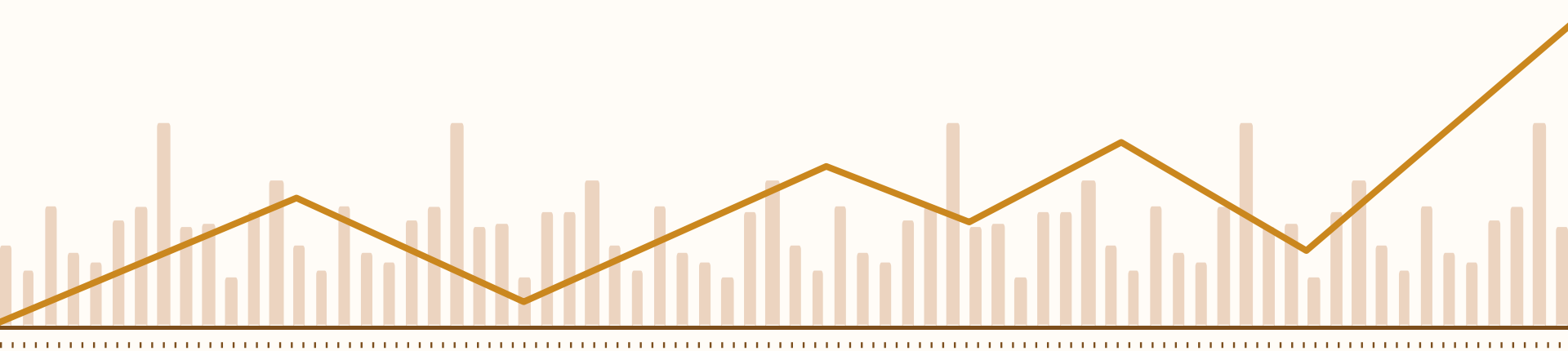


Predicting the Price of the DAX

Here is where your presentation begins

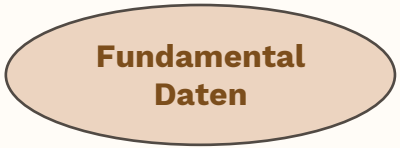
Table of contents

What is the direction of the Market?

- Die typische Darstellung des Marktpreises ist das CandleStick-Diagramm
- Jede Kerze repräsentiert eine Periode (in dem Beispiel einen Tag)
- Jede Kerze wird durch vier Preise erstellt (open, high, low, close)
- The direction can be defindet by the difference between close and open price
- When the difference is positive the direction is upwards and when the difference is negative the direction is downwards

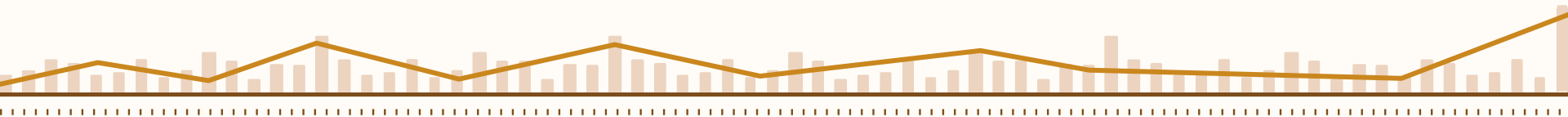
Wie wird der DAX berechnet?

- Der DAX wird aus den 30 größten deutschen Unternehmen berechnet
- Die Preisentwicklung der einzelnen Unternehmen hängt maßgeblich von Angebot und Nachfrage ab
- Es gibt viele verschiedene Einflussfaktoren, die das Marktverhalten der Marktteilnehmer beeinflusst
  - Fundamental Daten:
    - Wirtschaftsnachrichten
    - Wirtschaftskennzahlen der einzelnen Unternehmen
      - Gewinn
      - Umsatz
      - Wachstumsraten
  - Technische Marktanalyse
    - Indikatoren
    - Pattern



Data collection

- Able to get the OLHC-price and the Volume from 1987 until now for the DAX by using the yfinance Libary
- Calculate the direction (closeprice – openprice)
- Computing Indicators in different Timeframes



Indicators

- 10 different types of indicators
  - Momentum (rsi)
  - Trend (adx)
  - Overlap (sma)
  - Volatility (Bollinger Bands)
- for every indicator 3 i used different Timeperiods
- for every indicator which return a market price i created a categorical columns
  - Return 1 if the actual price above the indicator price
  - Return 0 if the acutal price is lover then the indicator price

Data Cleaning

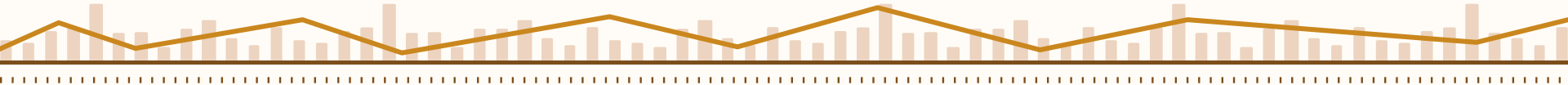
- Before 2000 i had missing Data for the Volume
  - The final Dataset started from 2000
- By computing a Indicator with a certain timeperiod, the first x rows are missing
  - I dropped the first x days

Feature Selection

- Use Varianace Threshold to drop Features with a Varaince less then 0.02
- Use Correlation Matrix to identify Multicorrelarity Threshold = 1

Class Imbalance

- Use Varianace Threshold to drop Features with a Varaince less then 0.02
- Use Correlation Matrix to identify Multicorrelarity Threshold = 1



Results

	Accuracy	F1	Recall	Precission	Kappa
Logistic Regression	0.90	Special offers	$23,000	No	Low
Company B		Reliability	$27,000	No	Low
Company C		Repairs	$30,000	Yes	High
Company D		Marketing	$24,000	No	High
Company E	Technology	Customers	$32,000	Yes	Low
Company F	Comfort	Best prices	$15,000	Yes	High
Company G	Customization	Brand name	$45,000	No	Low