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# The Moving Averages

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# MOVING AVERAGE

- A Moving Average is a technical indicator. It does not predict any trend or the direction in which market/stock will move. It simply indicates the current direction i.e. whether it is up or down. If the stock price is above the moving average then the price direction is considered to be up and if the price is below the moving average then the direction is considered to be down. Moving average can be calculated using “Open, High, Low or Closing” price of the stock; however, the most popular is “closing price”.
- The most popular moving averages are 7, 21, 50 and 200 days.
- The two most popular types of moving averages are **Simple Moving Average (SMA)** and **Exponential Moving Average (EMA)**. These moving averages can be used to identify the direction of the trend or indicate potential support and resistance levels.

## Which One Is Better; SMA or EMA

These are two different methods of smoothing the price. None of them can be said to be better than the other. It is a matter of choice. However; it has been observed that few short-term traders prefer EMA over SMA because EMA is quicker to react to the price changes. This is because recent prices get higher weight in EMA calculation.

# SIMPLE MOVING AVERAGE

- A simple moving average is formed by computing the average price of a security over a specific number of time frame. Old data is dropped as and when new data becomes available, and this makes the average to move along the time scale.

## State Bank of India (7-Day SMA)

Price	1 <sup>st</sup> Day of 7 DMA	2 <sup>nd</sup> Day of 7 DMA	3 <sup>rd</sup> Day of 7 DMA
198	198		
200	200	200	
198	198	198	198
195	195	195	195
193	193	193	193
186	186	186	186
187	187	187	187
184		184	184
176			176
SMA	$(198+200+198+195+193+186+187)/7 = 193.85$	$(200+198+195+193+186+187+184)/7 = 191.85$	$(198+195+193+186+187+184+176)/7 = 188.43$

# EXPONENTIAL MOVING AVERAGE

- Exponential moving averages (EMAs) apply more weight to recent prices and reduce the time lag. The weight applied to the most recent price depends on the number of periods in the moving average. EMA differs from SMA because a given day's EMA calculation depends on the EMA calculations for all the days prior to that day.
- EMA calculation has 3 steps. 1<sup>st</sup> step is to calculate SMA, 2<sup>nd</sup> step is to calculate multiplier and 3<sup>rd</sup> step is to apply multiplier to SMA using a formula. I will not get into calculation of EMA but I will mention the formula for reference.
- Multiplier =  $\{2 / (\text{Time Period} + 1)\}$
- $\text{EMA} = (\text{Close Price} - \text{EMA Previous Day}) * \text{Multiplier} + \text{EMA Previous Day}$

# SMA & EMA COMPARITIVE CHART (21 Day)

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