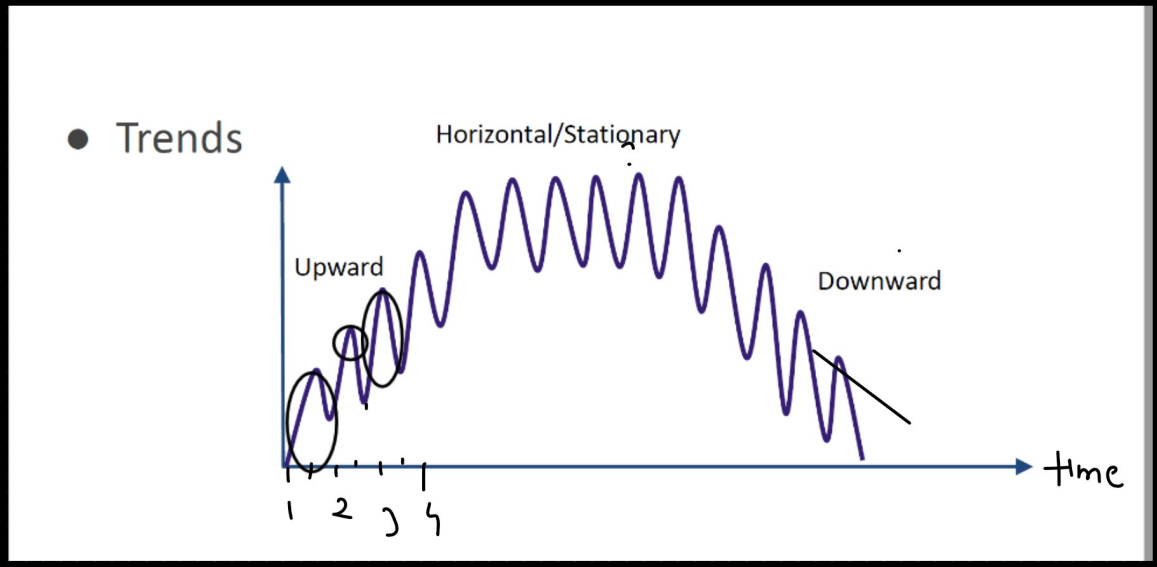
Time Series ⇒
1. Trend
2. Season
3. Cycle
4. Noise



Trend ⇒
1. Upward (if my time series going up)
2. Downward (down)
3. Flat (Horizontal)

Season ⇒ frequently repetation (weekly, monthly, Day, hour)

1. Sale of ice Creame in Summer
2. traffic data ⇒ 5 baje (4P)
3. tourism ⇒ holiday newyear, christmas

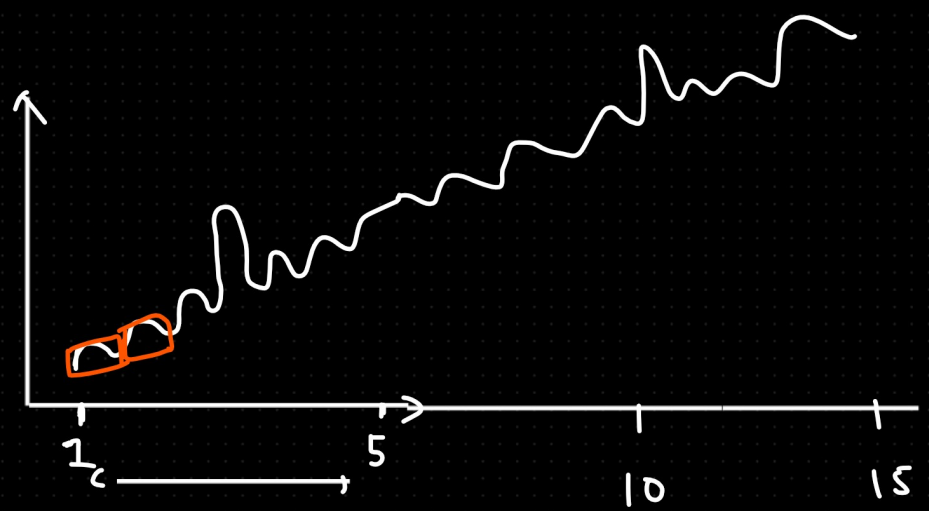
Cycle => = Over the long time

= Stock Price => XYZ => Pattern

= election => 5 year

= abc, bdc, nnp

Ecomic => GDP



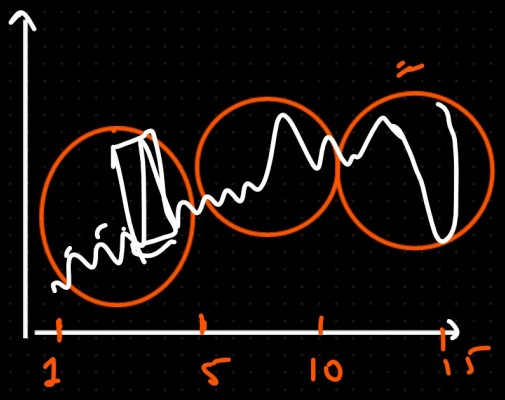
Cyclic Pattern => over the long time Period => Season + flucation (randomey)

④ Noise => Randomey, Residual, White Noise

= famous Personity => Stock Price up

agency

random news



- Trend ⇒ ① upward ② downward ③ flat
- Season ⇒ Most frequent-

hour, Day, month, year →

- Cycle ⇒ long term Period ⇒ Season + Noise
- Noise ⇒ flucation, randomen, white Noise, error

Uncertain ⇒ Speech, report, war, Pandamic

Time Series

$y(t) = T + S + N \Rightarrow$ additive series

$y(t) = T \times S \times N \Rightarrow$ multiplicative series

$T = 10$
$S = 20$
$N = 50$

⇓

over the time you can build

TS

Day 1	50
Day 2	60
Day 3	70
Day 4	75
Day 5	80

Additive ⇒ ① over the time linear
② over the time will be constant var.

Multiplicative ⇒ ① Non linear relationship
② over the time lots of noise and var.