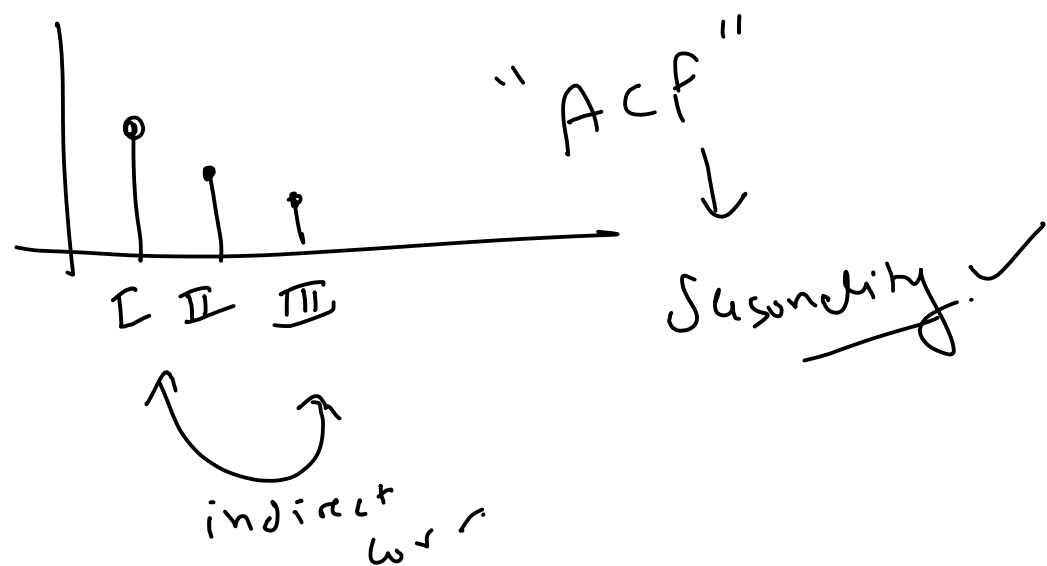Agenda
① Confidence Interval
② Exogenous Var. [SARIMAX]

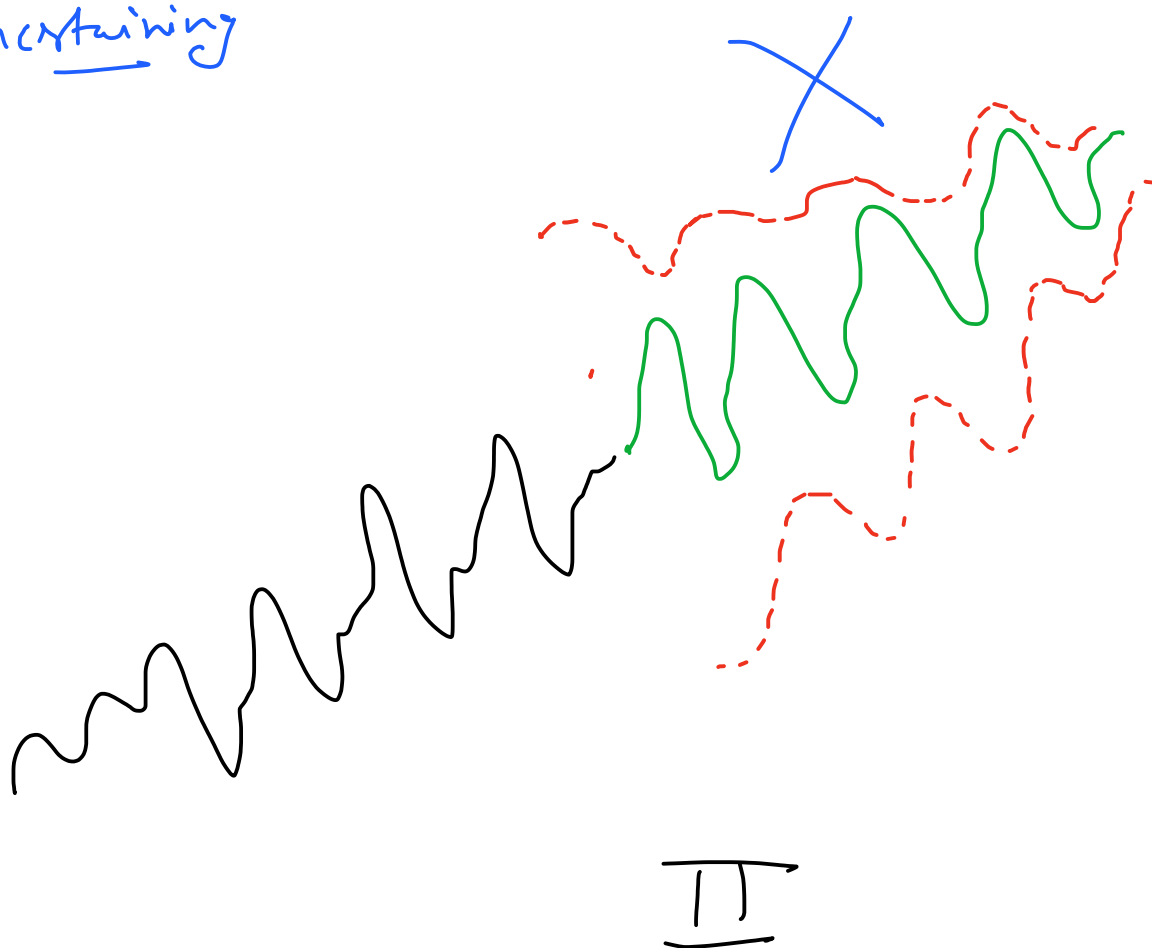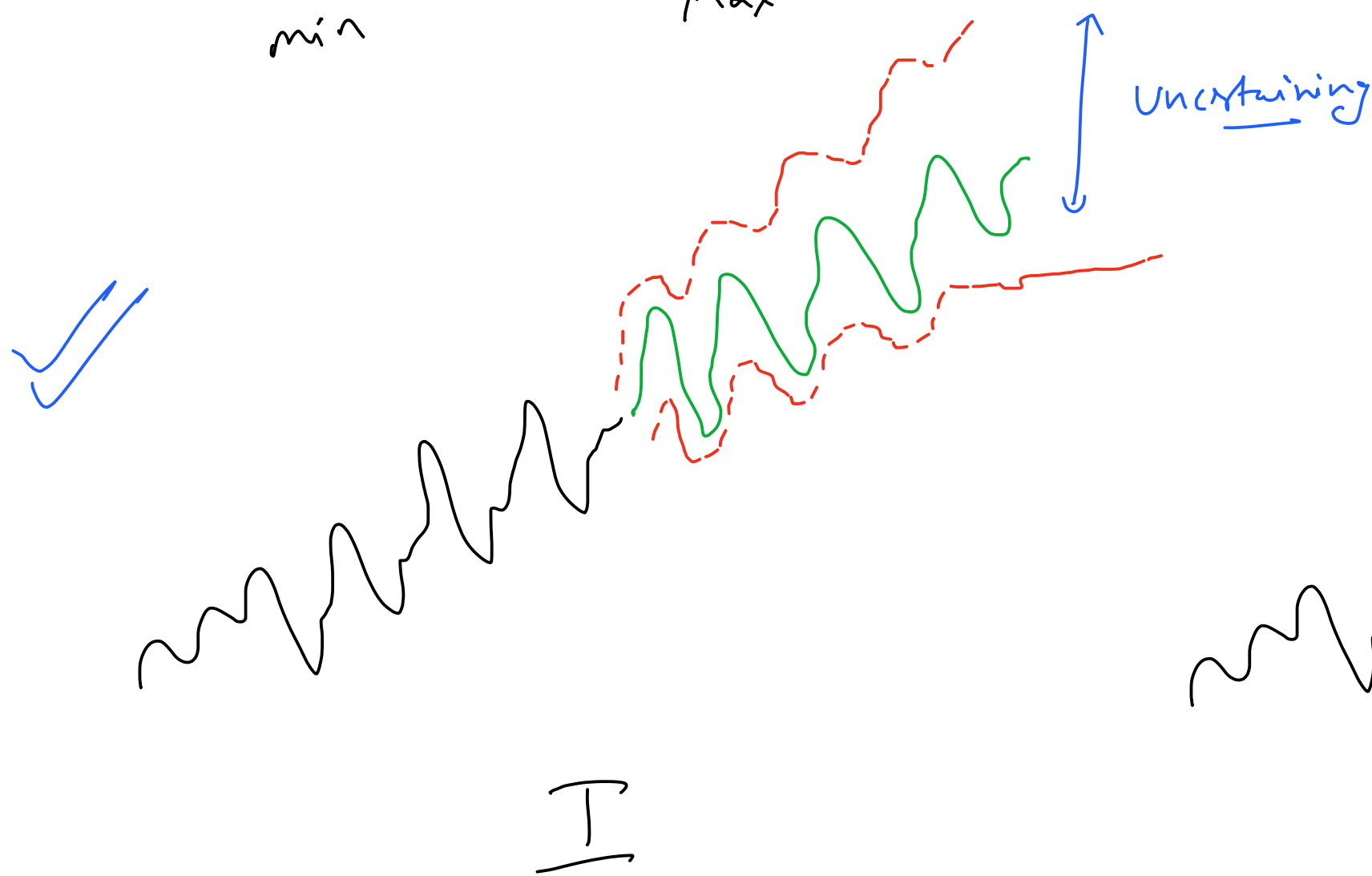→ linear interpolation
→ CMA

"ACF"
↓
Seasonality ✓

I Ⅱ Ⅲ
indirect corr.

$\overset{6}{\leftarrow \cdot \rightarrow}$
$\leftarrow \cdot \rightarrow$
3 ✓
ffill   bfill
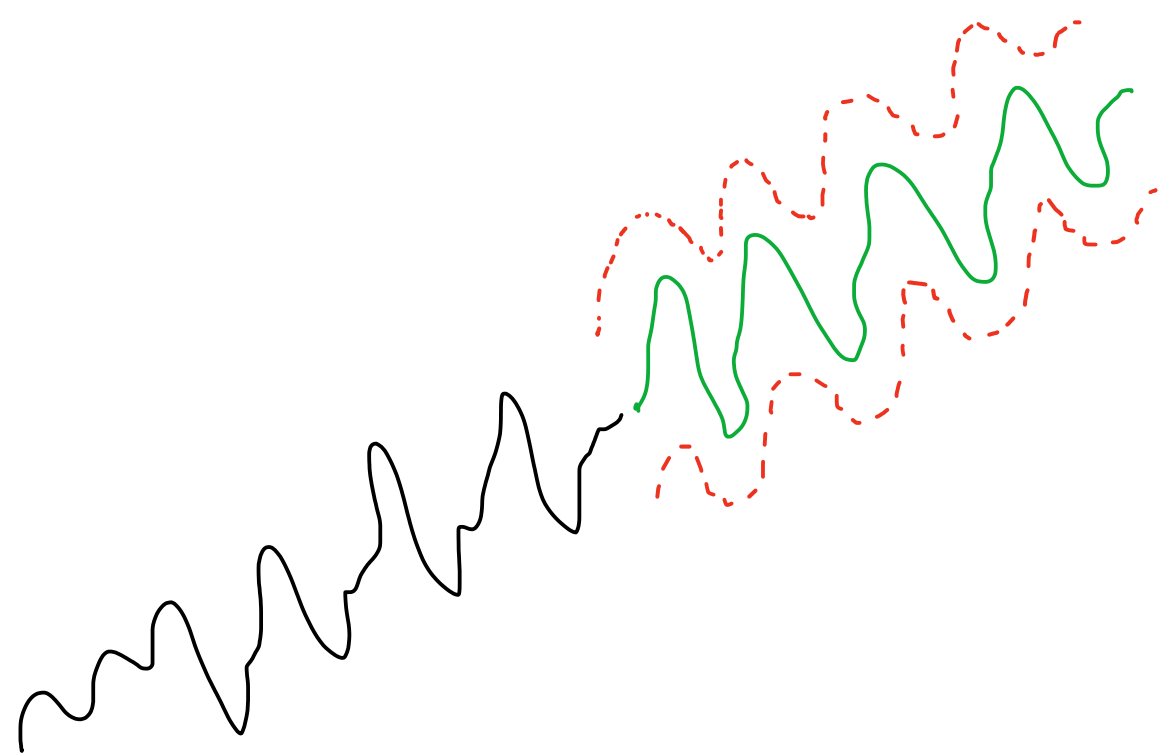
← Point forecast

250

235 ← 250 → 265   95% confidence.
min   Max

↕ Uncertainty

✓   I   ✗   Ⅱ

Confidence Interval
↓
90% → 280 − 320
95% → 260 − 345
99% → 240 − 380

~~Range~~ → 100% guaranteed
↓
260 − 345 → interval ✓

Q→   90%
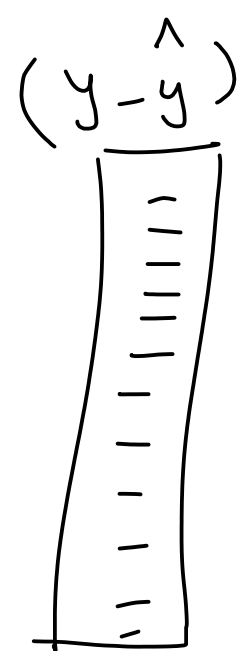   250 − 255
      [Model A]
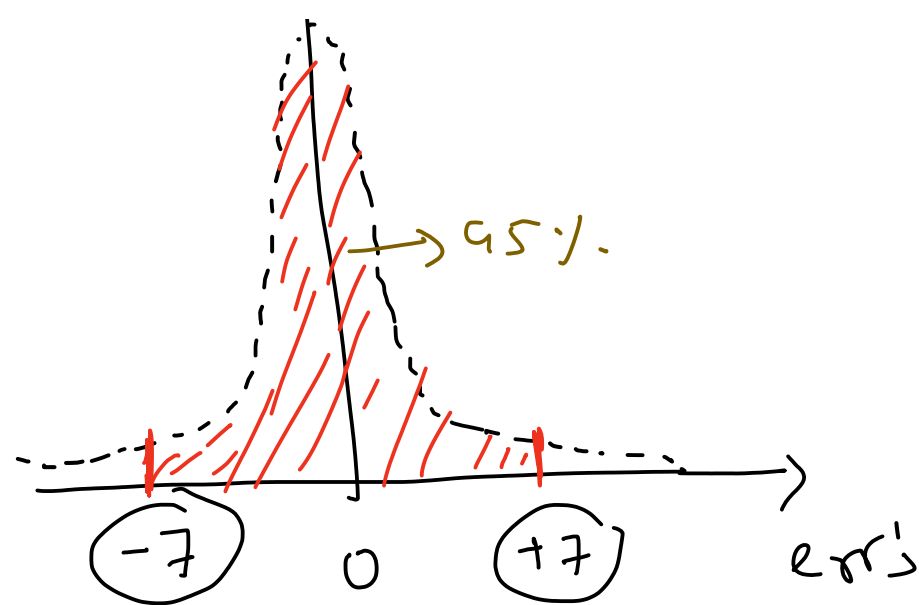
      90%
      252 − 254
      ✓ [Model B]

CI Calculation?

--

$(y - \hat{y})$

→ 95%

err's

ppf (95%)
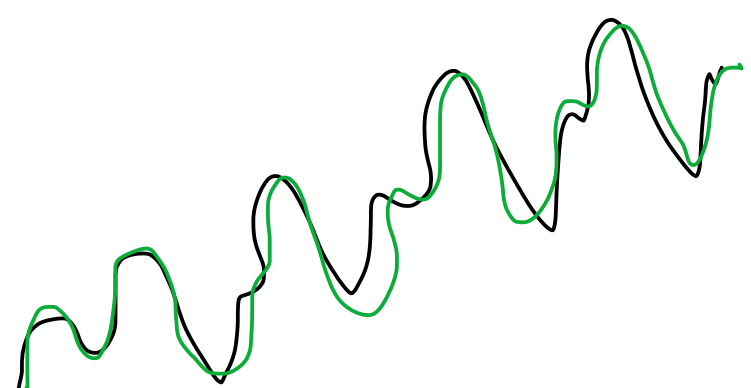
"Train"   err: residual

-7

$\hat{y} \pm 7$ is 95% CI

$\hat{y} = 250$

Interval ⇒ [243, 257]

Exogenous Variable [Exog]

sales

endogenous var.

SARIMA X

time

marketing   → exog
                external var.

flash sale (12hrs)   BBD sale.
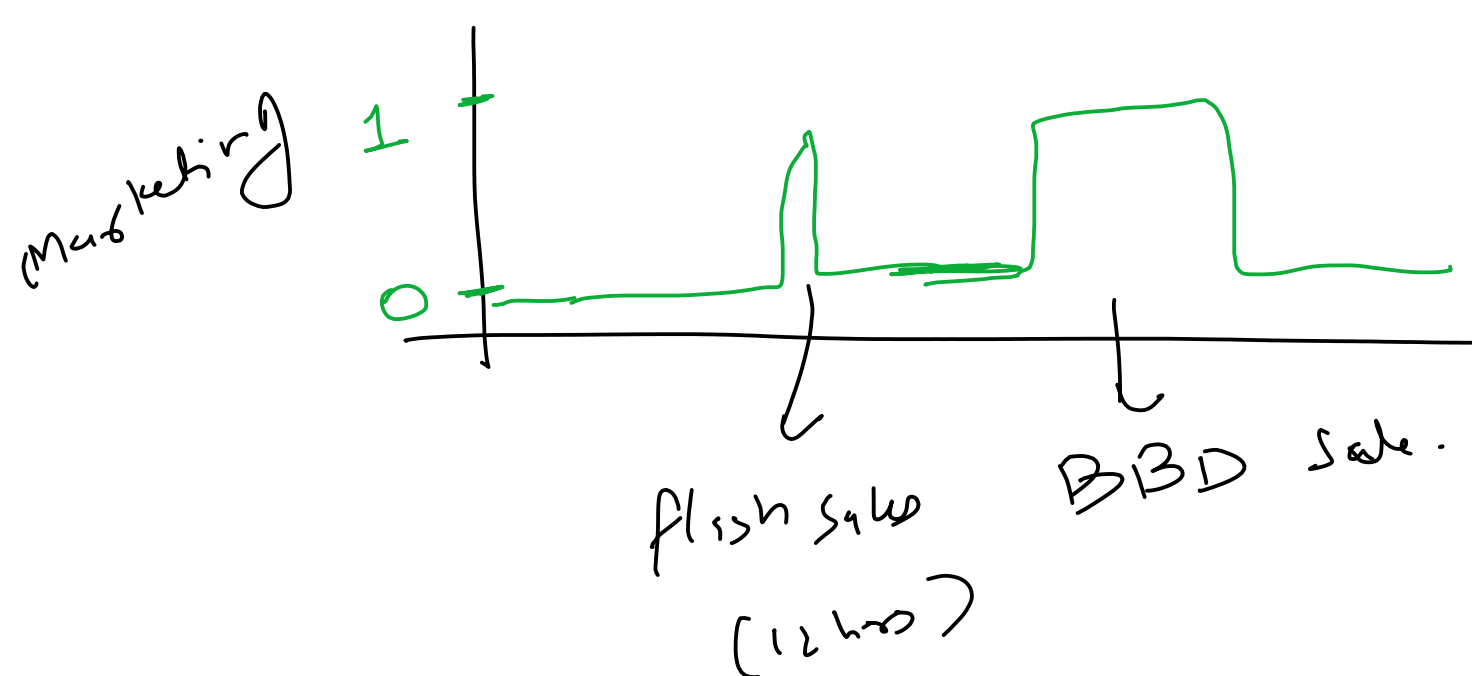
Apple.   is New Model Launced?

Biz logic   setting exog (0 or 1)

Apr → 0
May → 0
  ⋮
Sept → 1

[low, ← forecast, higher]   Biz.   May. ↓

            "Risk" → $10K
            $2000