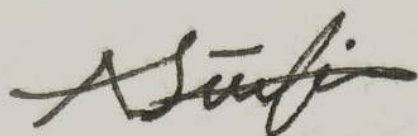


PR 4 STATPROB

ALDEN LUTHFI

2206028932 -STATPROB E

DENGAN INI SAYA NYATAKAN  
BAHWA PR INI ADALAH HASIL  
PEKERJAAN SENDIRI



ALDEN LUTHFI

SAYA MENGERJAKAN PR INI  
DIATAS TISU RESTORAN DI ALARA  
KELUARGA, TOLONG HARGAI  
USAHA SAYA :)

$$\textcircled{1} \textcircled{a} \text{ dik. } \mu = 180$$

$$\sigma = 23,5$$

$$n = 150$$

$X$ : total curah hujan di satu titik

$$X \sim N(n\mu, n\sigma^2)$$

$$\text{dit. } P(X > 28000)$$

$$= P\left(Z > \frac{28000 - (180 \times 150)}{23,5 \cdot \sqrt{150}}\right)$$

$$= P(Z > 3,47)$$

$$= 1 - \Phi(3,47) = 0,003$$

$$\textcircled{b} \text{ dik. } \mu = 180$$

$$\sigma = 23,5$$

$$n = 25$$

$\bar{X}$ : Rata2 produksi

$$\bar{X} \sim N(n\mu, n\sigma^2)$$

dit.

$$P(170 < \bar{X} < 190)$$

$$= P\left(\frac{170 - 180}{\frac{23,5}{\sqrt{25}}} < Z < \frac{190 - 180}{\frac{23,5}{5}}\right)$$

$$= \Phi(2,13) - (1 - \Phi(2,13))$$

$$= 0,8667$$

2. a. dik.  
 $\mu = 150$   
 $p = 30/365$   
 $n = 25$

dit.  $E[X]$ ,  $Var$ ,  $SD$

$$E[X] = np = 2054$$

$$Var = np(1-p) = 1,885$$

$$SD = \sqrt{Var} = 1,373$$

b. dik.  $n = 70$

$$P(Z > 45) = 0,6328$$

$$P(Z > 45) = 0,6328$$

$$= 1 - \Phi(-0,34)$$

$$\underbrace{-0,34}_{\substack{45 - 70p \\ \sqrt{70p(1-p)}}}$$

$$\Rightarrow p = 0,662 \text{ (proporsi tahun ini)}$$

$$0,662 = \frac{x}{365} \rightarrow x \approx 242$$

$\therefore$  terjadi peningkatan dari tahun lalu



(c) dik.  $p = 0,662$   $n = 70$   
dit. Var dan SD

$$\begin{aligned}\text{Var} &= np(1-p) \\ &= 70 \cdot 0,665 (1 - 0,662) \\ &= 15,663\end{aligned}$$

$$\sigma = \sqrt{\text{Var}} = 3,958$$

3. dik.  $n = 12$

$$\sigma = 25000$$

$$\bar{x} = 640.000$$

dit. upper 92%

$$\begin{aligned}\text{CI} &= \left( 640000 - 1,4 \cdot \frac{25000}{\sqrt{11}}, \infty \right) \\ &= \mu \in (629409,414, \infty)\end{aligned}$$

(k) dik. two sided CI 97,5%

$$= (583115,365, 616884,635)$$

$$\bar{x} - \text{MOE} = 583,115,365$$

$$\bar{x} + \text{MOE} = 616884,635$$

$$2\bar{x} = 1200000$$

$$\bar{x} = 600000$$

(c) dik.  $n=6$

$$\alpha = 0,15$$

dit. lower CI

$$\bar{X} = \frac{(22000 + 21000 + 19400 + 217000 + 17000)}{6} = 19500$$

$$\text{Var} = 2500^2 + 1500^2 + 1600^2 + 2200^2 + 2200^2 + 4000^2 = 3148000$$

$$\sigma = 1774,260$$

$$CI = (-\infty, 19500 + 1.156 \cdot \frac{\sigma}{\sqrt{6}})$$

$$\mu \in (-\infty, 20.337, 336)$$

(d) dik  ~~$\bar{X} = 19500$~~   
 ~~$\sigma = 1774,260$~~

$$CI \ 90\% = (17861,797, \infty)$$

$$\sigma = 2091,252, n=7$$

$$\bar{X} = 17861,797 + MOE$$

$$= 17861,797 + 1,138 \cdot 2091,252$$

$$= 19000$$

dit data ke 7

$$= 7 \cdot 19000 - 19500 \cdot 6$$

$$= 16000$$

4. (a) dik.  $\bar{x} = 44800$

$\bar{y} = 36.000$

$\sigma_1^2 = \sigma_2^2$

dit. Two Sided, 99%

$\bar{x} - \bar{y}$

$S_p^2 = 9,270,588.235$

Jwb:

$$(44800 - 36000 \pm 2.898 \sqrt{S_p^2 \left( \frac{1}{n} + \frac{1}{m} \right)})$$

$\nwarrow \quad \searrow$   
 $9 \quad 10$

$CI = \mu_1 - \mu_2 \in (4,745.778, 12,857.22)$

(b) dik.  $\sigma_1 = 4000$

$\sigma_2 = 300$

dit. lower 96%

$$CI = (-\infty, 8800 + 1.75 \sqrt{\frac{\sigma_1^2}{10} + \frac{\sigma_2^2}{9}})$$

$= (-\infty, 11020,501)$

(c) dik  $CI \ 95\% = (-8,647, \infty)$

Art. jumlah pemutaran

$$44800 - \frac{32400 - Y}{10} + 3006.623 = 6667.102$$

$Y = 78194,21$

5. a. dik.  
 $n = 900$   
 $\hat{p} = \frac{1}{3}$

dit. upper 97,5%

$$CI = \left\{ \frac{1}{3} - \left( \frac{\frac{1}{2} \cdot \frac{2}{3}}{900} \right)^{\frac{1}{2}}, 1,96 \right\}$$

$$= (0,302, \infty)$$

b. dik.

$$n = 1000$$

MOE 99% two sided

$$= 0,039$$

dit.  $\hat{p}n$

$$\frac{\sqrt{p(1-p)}}{1000} = \frac{0,039}{2,575}$$

$$p^2 - p + 0,22939014 = 0$$

$$p = 0,35643$$

$$n\hat{p} \approx 367 \text{ komputer}$$



© dik. MOE 95%

two sided = 0,02

dit. n

$$0,02 = \sqrt{\frac{0,1 \cdot 0,2}{n}} \cdot 1,96$$

$$\rightarrow \sqrt{\frac{0,16}{n}} = \frac{1}{98} \rightarrow n = 1536,64$$

$$\approx 1537$$

komputer  
diuji

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