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Tarea 2 (Estadística Aplicada I)

Sabemos que se encuestaron 504 personas

87.6 % población > 18 años

(Población (EEUU)) = 328,239,523 (19 de julio 2019)

$\therefore N = \boxed{28753\ 7822.1} = 287537822\ (=N)$

$\mathbb{P}(|\bar{Y} - \mu_Y| \leq c) \geq 0.95 \quad (\alpha = 0.05)$

$$n_+ = \left\lceil \frac{\sigma^2}{\left(\frac{c}{z_{(1-\frac{\alpha}{2})}}\right)^2 + \frac{\sigma^2}{N}} \right\rceil$$

$$z_{1-\frac{\alpha}{2}} = \Phi^{-1}(1-\tfrac{\alpha}{2}) \overset{\alpha=0.05}{\cong} 1.96$$

Margin Sampling error = 4.8 % $\left(= z_{0.95} \cdot \frac{\sigma}{\sqrt{504}}\right)$, $z_{0.95} = 1.645$

$\therefore \pm 1.597 = \pm \frac{\sigma}{\sqrt{504}} \quad \therefore \sigma \approx 35.85256$

$\therefore \sigma^2 \approx 1285.4061$

$\therefore$ Con $c = 2$

$$n_+ = \left\lceil \frac{1285.4061}{\left(\frac{2}{1.96}\right)^2 + \frac{1285.4061}{287,537,822}} \right\rceil = \lceil 1234.4487 \rceil = 1235$$

$\therefore n_+ = 1235$