Assignment 12

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Papoulis chap 8 Exercise 8.10

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Problem

8-10 Among 4000 newborns, 2080 are male.Find the 0.99 confidence interval of the probability $p = P\{male\}$

Solution

With $\bar{x} = \frac{2080}{4000} = 0.52$, n=4000 and $z_u \approx 2.326$ for $u = 0.99$.

$$P_{1,2} \approx \bar{x} \pm z_u \sqrt{\frac{\bar{x}(1-\bar{x})}{n}} = .52 \pm 0.18 \tag{1}$$

Hence, $.502 < p < .538$
The 0.99 confidence interval of probabilty $p = P\{male\}$ lies between 0.502 and 0.538

CODES

Python

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