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Assignment

N = 100 K employees.

Sample data = 500

200 L 200 XL

HR wants to know how many L & XL t-shirts

Get the C.I = 95%

Sample data = 500

n = 500

There are 300 XL t-shirts and 200 L t-shirts.

Let say XL = 2, L = 4 (There are are random number)

so there are 2×300 XL, 4×200 L

$\bar{x} = \frac{600 + 800}{500}$

$\frac{1400}{500}$

2.8

$\bar{x} = 2.8$

(a)

$$\sigma = \sqrt{\frac{(x-\bar{x})^2}{n-1}}$$

x	$\bar{x}$	$x-\bar{x}$	$(x-\bar{x})^2$
2	2.8	−0.8	0.64
2	2.8	⋮	⋮
⋮	⋮	⋮	⋮
2	⋮	−0.8	0.64
4	⋮	1.2	1.44
⋮	⋮	1.2	⋮
4	2.8	1.2	1.4

There are ~~0.64~~ 300 0.64's and 200 1.44's

So the summation $0.64 \times 300 + 1.44 \times 200$

$64 \times 3 = 192$

$144 \times 2 = 288$

480

$$SE = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}} = \sqrt{\frac{480}{499}} = 0.98$$

$\alpha = 1 - 0.95$

$\alpha = 0.05$

$\frac{\alpha}{2} = 0.025$

Remaining area

$1 - 0.025 = 0.975$

$Z_{\frac{\alpha}{2}} = 1.96$

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Point estimate

$$LF = 2.8 - 1.96 \times \left(\frac{0.98}{\sqrt{500}}\right)$$

$$\sqrt{500} \rightarrow 22.36$$

$$2.8 - 1.96 \times 0.043$$

$$LF = 0.235$$

$$HF = 2.8 + 1.96 \times 0.043$$

$$2.884$$

Population mean may fall between 0.235 and 2.884.

I DON'T KNOW how to find how many XL's and L's are required.