

Burić - 2. konze

10. (11. poglavlje - zadaci za vežbu)

$$\hat{p} = \frac{110}{200} = 0.55$$

b)

$$\begin{aligned} 1 - \alpha &= 99\% \\ 1 - \alpha &= 0.99 \\ \alpha &= 0.01 \end{aligned}$$

$$u_{1-\frac{\alpha}{2}} = u_{0.995} = 2.576 \quad (\text{iz tablica čitamo vrijednost kvantila})$$

$$\begin{aligned} p_{1/2} &= \hat{p} \pm u_{1-\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \\ &= 0.55 \pm 2.576 \sqrt{\frac{0.55(1-0.55)}{200}} \\ &= 0.55 \pm 0.091 \end{aligned}$$

$$p_1 = 0.641$$

$$p_2 = 0.459$$

INTERVAL POVRJANOSTI:

$$P(0.459 \leq p \leq 0.641) = 0.99$$

c) $p_2 = 0.5$

$$p_2 = \hat{p} - u_{1-\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

$$0.5 = 0.55 - u_{1-\frac{\alpha}{2}} \cdot \underbrace{\sqrt{\frac{0.55 \cdot 0.45}{200}}}_{0.0352}$$

$$u_{1-\frac{\alpha}{2}} = 1.42$$

$$\frac{1-\alpha}{2} = 0.923 \quad (\text{otprilike određeno po tablici})$$

$$\alpha = 0.154$$

$$1-\alpha = 0.846 \rightarrow 84.6\%$$

d) $p_2 = 0.5$, $\alpha = 5\% = 0.05$

$$p_2 = \hat{p} - u_{1-\frac{\alpha}{2}} \sqrt{\frac{p(1-p)}{n}}$$

$$0.5 = 0.55 - \underset{\substack{\downarrow \\ 1.959}}{u_{0.975}} \sqrt{\frac{0.55 \cdot 0.45}{n}}$$

$$n = 379.93 \approx 380$$

12. poglavje (Testiranje hipoteza)

1. (žadaci za učenje)

$$\sigma^2 = 6$$

$$H_0 \Rightarrow a_0 = 15$$

$$\bar{x} = 16.2$$

$$H_1 \Rightarrow a \neq 15$$

$$n = 100$$

$$\alpha = 0.05$$

→ 52. str. tablica (U-test)

$$u_{1-\frac{\alpha}{2}} = u_{0.975} = 1.959$$

$$\hat{U} = \frac{\bar{x} - a_0}{\frac{\sigma}{\sqrt{n}}} = \frac{16.2 - 15}{\frac{\sqrt{6}}{10}} = 4.899$$

$$|\hat{U}| > u_{1-\frac{\alpha}{2}} \rightarrow |4.899| > 1.959$$

→ ISTINA, znači odbacujemo hipotezu H_0

7. $n = 8$

$$\alpha = 0.05$$

$$\bar{x} = \frac{165 + \dots + 210}{8} = 188.5$$

(zamisliti da $p \geq$)

$$H_0 \Rightarrow a_0 = 200$$

$$H_1 \Rightarrow a_0 < 200$$

→ str. 53. T-test

$$\hat{t} = \frac{\bar{x} - a_0}{\frac{s}{\sqrt{n}}}$$

$$s^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2 = 253.43$$

$$s = 15.92$$

$$\hat{t} = \frac{188.5 - 200}{\frac{15.92}{\sqrt{8}}} = -2.04$$

→ Treba vidjeti da li je $\hat{t} < -t_{1-\alpha}$

$$1 - \alpha = 1 - 0.05 = 0.95$$

$$1 - \frac{\alpha}{2} = 0.95$$

$$\hookrightarrow \alpha = 0.1$$

→ tražimo u tablici

(stupanj slobode = $\overset{(n-1)}{7}$)

$$t_{1-\alpha} = 1.895$$

$$\hat{t} < -t_{1-\alpha}$$

$-2.04 < -1.895 \rightarrow$ ISTINA, odbacujemo hipotezu

H_0 i prihvaćamo alternativnu hipotezu



Proizvođač laže!

→ tražimo u tablici
pa moramo
podijeliti