2011 MANG SU PAPER Q1

A. Interpretation of t-test, p-value, 95% CI for slope coef.

Tests hypothesis $H_0: \beta_1 = 0$ vs $H_1: \beta_1 \neq 0$

t value = 12.83

t crit = "

true $|12.83| >$ t calculated therefor we reject H_0 that population slope is not 0

The p-value measures the probability of observing a more extreme t-value (in each direction) than the one calculated. p value ≈ 0.

95% CI = estimator ± $t_{critical} \cdot Se(estimator)$

$-0.09394 \pm t_{18\ 0.975}$

$-0.09344 \pm 2.10\ (0.01426)$

$(-0.123886, -0.063494)$

We are 95% confident that true value for slope (β_1) lies within this interval. As per above 0 doesn't lie within this interval so we reject $H_0: \beta_1 = 0$

C Lack of fit test.

We use by F-test to test for lack of fit

F = 43.41

$F_{critical\ 0.95\ 1,18}$ 3.00694

$F_{cal} > F_{critical}$

If $F_{calculated} \leq F_{critical}$ do not reject H_0

If $F_{cal} > F_{critical}$ reject H_0.

$\beta_1 \neq 0$

$H_0: \mu \leq$ number vs $H_1: \mu >$ numb

calculate normal teste
get teritical

if teste < teritical do not reject H_0
if teste > teritical reject H_0