**BT 307 Lab 03**

1. Harsh Arora (200106034)
2. data2.csv
3. Our original equation was S = a + b1\*M + b2\*N + b3\*P + b4\*Q + b5\*R

H0  =>all α= 0

Ha  => all α ≠ 0

Since the p-value for t-test is 1.72e-09, our null hypothesis is rejected.

H0  =>all β = 0

Ha  => all β ≠ 0

Since the p-value for anova is 1.221e-07 our null hypothesis is rejected.

Now we will check for individual-

H0  =>all β1 = 0

Ha  => all β1 ≠ 0

Since the p-value for t-test is 2.59e-06, our null hypothesis is rejected.

H0  =>all β2 = 0

Ha  => all β2 ≠ 0

Since the p-value for t-test is 0.33342, our null hypothesis is accepted. Hence we drop coefficient of N.

H0  =>all β3 = 0

Ha  => all β3 ≠ 0

Since the p-value for t-test is 0.02450, our null hypothesis is rejected.

H0  =>all β4 = 0

Ha  => all β4 ≠ 0

Since the p-value for t-test is 0.86266, our null hypothesis is accepted. Hence we drop coefficient of Q.

H0  =>all β5 = 0

Ha  => all β5 ≠ 0

Since the p-value for t-test is 0.00715, our null hypothesis is rejected.

The equation of fitted linear model is -

S = (0.3723753) + (-1.348203) M + (1.741004) P + (1.21067) R

1. The adjusted R2 value is 0.596.
2. The p-values (t-test) for each of the coefficients are-

Intercept = 1.06e-11

M = 2.20e-09

P = 0.022589

R = 0.000155

1. The p-value from the F-test is 8.349e-09
2. The confidence interval for each parameter are-

Intercept = 0.3723753 **±** 0.0805501

M = -1.348203 **±** 0.571585

P = 1.741004 **±** 1.483721

R = 1.21067 **±** 0.5867076