Jeff Registre

Mat-258

Row#2

Lab # 4

Dataset of credit scores and related interest rates.

|  |  |
| --- | --- |
| Credit Scores | Interest Rates |
| 545 | 18.982 |
| 595 | 17.967 |
| 640 | 12.218 |
| 675 | 8.612 |
| 705 | 6.680 |
| 750 | 5.150 |

1. Hypothesis test. Can we predict

Ho: β1 = 0

Ha: B1 ≠ 0

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 1 162.039 162.039 79.90 0.001

Credit Score 1 162.039 162.039 79.90 0.001

Error 4 8.112 2.028

Total 5 170.152

Model Summary

S R-sq R-sq(adj) R-sq(pred)

1.42410 95.23% 94.04% 88.40%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 61.37 5.60 10.96 0.000

Credit Score -0.07637 0.00854 -8.94 0.001 1.00

Regression Equation

Interest Rate = 61.37 - 0.07637 Credit Score

We have that P value for slope ≈ 0 and is therefore less than the significance level 0.05. Therefore we can reject the null hypothesis and state that a linear relationship exists between credit scores and interest rate. We can conclude that we can use credit scores to predict interest rates.

1. Find the predicted interval for the following Credit scores: 689,720, and 550.
2. Predicted interval for credit score 689.

Variable Setting

Credit Score 689

Fit SE Fit 95% CI 95% PI

8.75038 0.663136 (6.90922, 10.5915) (4.38880, 13.1120)

I am 95% confident that the interest rate for credit score 689 lies between 4.388880 and 13.1120.

1. Predicted interval for credit score 720.

Variable Setting

Credit Score 720

Fit SE Fit 95% CI 95% PI

6.38294 0.823929 (4.09535, 8.67053) (1.81494, 10.9509)

I am 95% confident that the interest rate for credit score 720 lies between 1.81494 and 10.9509.

1. Predicted interval for credit score 550.

Variable Setting

Credit Score 550

Fit SE Fit 95% CI 95% PI

19.3657 1.04523 (16.4637, 22.2677) (14.4611, 24.2703)

I am 95% confident that the interest rate for credit score 550 lies between 14.4611 and 24.2703.