PROBLEM: 1

Perform Regression Analysis for the given data to identify how the money spent on Marketing, Research & Development, and Administration is affecting the company's Profit.

SOLUTION: 1

m1 = 0.80571505 m2 = -0.02681597 m3 = 0.027228065 & c = 50122.19299

Now,

Putting all the values in equation (1) we get,

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Profit = 0.80571505 ( R&D_Spend) + (-0.02682) ( Administration_Spend) + 0.027228 (Marketing_Spend) + 50122.19
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which is the relationship between R&D_Spend , Administration_Spend, Marketing_Spend with the Profit.

PROBLEM: 2 & 3

2) What will be the Profit if R&D_Spend is \$21892.92, Administration_Spend is \$81910.77 & Marketing_Spend is \$164270.7?

3) What will be the Profit if R&D_Spend is \$23940.93, Administration_Spend is \$96489.63 & Marketing_Spend is \$137001.1?

SOLUTION: 2 & 3

BY using the above relation we get,

R&D_Spend(X1)	Administration_Spend(X 2)	Marketing_Spend(X3)	Profit
21892.92	81910.77	164270.7	70037.90477
23940.93	96489.63	137001.1	70554.57256

Insight

- a) Here, R-square is 0.95 which means that our model is 95% accurate.
- b) Spending more money on Research & Development will give us a high profit.
- c) Spending more on Administration is not a good practice.
- d) Spending more on Marketing will generate little profit.

Therefore it is advisable to spend more on Research & Development in order to achieve maximum profit for the company.

SUMMARY OUTPUT

Regression Statistics

Multiple R 0.975062046 R Square 0.950745994 Adjusted R Sq 0.947533776 Standard Erro 9232.334837 Observations 50

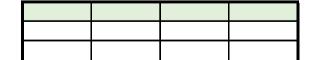
ANOVA

df SS MS F Significance F Regression 3 7.57E+10 2.52E+10 295.98 4.53E-30

Residual 46 3.92E+09 85236007

Total 49 7.96E+10

Coefficients Standard Et Stat P-value Lower 95% Upper 95% Lower 95.0 Upper 95.0 Intercept 50122.19299 6572.353 7.626218 ###### 36892.73 63351.65 36892.73 63351.65 X Variable 1 0.80571505 0.045147 17.84637 ###### 0.714838 0.896592 0.714838 0.896592 X Variable 2 -0.02681597 0.051029 -0.52551 0.6018 -0.12953 0.0759 -0.12953 0.0759



R&D Spend	dministratio	rketing Spe	Profit
21892.92	81910.77	164270.7	
23940.93	96489.63	137001.1	