Week 11 Quiz

Question 1

1/1 point (graded)

What is the role of advertising?

- ○ Reminds consumers to buy
- ○ Educates consumers about the product
- ○ Persuades consumers to buy
- ○ Creates brand awareness
- ◉ All of the above ✔

Submit You have used 1 of 1 attempt

ℹ Answers are displayed within the problem

XYZ company is interested in quantifying the impact of TV advertising and online advertising on the sales volume of its fruit juice brand. XYZ has historical data on the following variables for the last 24 months:

Sales: Monthly sales volume in thousand cases (a case contains 12 liters of juice)

TVAd: Monthly spending on TV advertising in thousand Dollars

OnlineAd: Monthly spending on online advertising (mostly display ads) in thousand Dollars

Question 2

1/1 point (graded)

For the dataset described above, which of the three variables would be the dependent variable?

- (•) Sales ✔
- ( ) OnlineAd
- ( ) TVAd
- ( ) None of the above

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Answers are displayed within the problem

Reminder

Sales: Monthly sales volume in thousand cases (a case contains 12 liters of juice)

TVAd: Monthly spending on TV advertising in thousand Dollars

OnlineAd: Monthly spending on online advertising (mostly display ads) in thousand Dollars

A regression analysis was applied on XYZ historical dataset and produced this summarized regression output::

Sales = **121** + **0.41***TVAd + **0.32***OnlineAd

R-squared=0.55

F-Statistic=12.83

p-value=0.01 (for the overall regression)

All regression coefficients are statistically significant at the 5% level.

Use this output to answer the following questions.

For the purpose of this exercise, assume that you can interpret the estimated coefficient values as causal effects of advertising on sales.

Question 3

1/1 point (graded)
Is the overall regression equation statistically significant at the 5% level?

- No, because the R-squared=0.55 value is not sufficiently large
- Yes, because the R-squared=0.55 value is large
- No, because the p-value=0.01 is less than 5%
- Yes, because the p-value=0.01 is less than 5% ✔

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Answers are displayed within the problem

Question 4

1/1 point (graded)
How do you interpret the R-squared value of 0.55?

- There is 0.55 chance that the regression model is correct
- We can predict sales volume with 55% accuracy

- (•) 55% of the variance of sales is accounted for by TV and online advertising ✔
- ( ) None of the above

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Answers are displayed within the problem

Question 5

1/1 point (graded)

What would be the predicted sales volume (thousand cases) if XYZ does not advertise either on TV or online?

- ( ) 851
- ( ) 410
- ( ) 320
- (•) 121 ✔

Explanation

$121 + 0.41 * 0 + 0.32 * 0$

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Answers are displayed within the problem

Question 6

1/1 point (graded)

By how much would the sales volume increase if XYZ increases its online advertising spending by one thousand Dollars?

- 851 cases
- 410 cases
- 121 cases
- 320 cases ✔

Explanation

$1 * 0.32 * 1000 = 320$

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

Question 7

1/1 point (graded)

By how much would the sales volume increase if XYZ increases its TV advertising spending by one thousand Dollars?

- 851 cases
- 410 cases ✔
- 121 cases
- 320 cases

Explanation

$1 * 0.41 * 1000 = 410$

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

Question 8

1/1 point (graded)

If XYZ makes a net margin of $6 per case, what is the impact of an incremental one thousand Dollar TV advertising spend on profit?

- $2106
- $1920
- $726
- $1460 ✔

Explanation

$\$6 * 410 - \$1000 = \$1460$

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

Question 9

1/1 point (graded)

If you had an extra one thousand Dollars, which you could spend on advertising or not spend at all, how would you allocate it in order to maximize profits, assuming $6 net profit margin and non-diminishing returns on advertising?

- Save the $1000 and not spend it
- Online advertising
- $500 on TV and $500 on online advertising

- TV advertising ✔

Explanation
TV advertising has higher effect on sales (0.41 vs. 0.32 from online ads), and 420*$6 - $1000 > 0 (positive return on investment), so it makes sense to spend that money on advertising.

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

Reminder

Sales: Monthly sales volume in thousand cases (a case contains 12 liters of juice)

TVAd: Monthly spending on TV advertising in thousand Dollars

OnlineAd: Monthly spending on online advertising (mostly display ads) in thousand Dollars

Suppose we add an interaction term TVAd*OnlineAd to the regression equation and obtain the following estimated equation:

Sales = **121** + **0.41***TVAd + **0.32***OnlineAd + **0.10***TVAd*OnlineAd

where the interaction coefficient as well as other coefficients are statistically significant at the 5% level.

Suppose also that current spending on TV advertising is $1000, and zero on online ads.

Question 10

1/1 point (graded)
What is the expected effect of increasing online advertising by $1000 on sales volume?

- 510 cases

- (●) 420 cases ✔
- ( ) 410 cases
- ( ) 320 cases

Explanation

$1000 * (0.32 * 1 + 0.1 * 1 * 1) = 420$

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Answers are displayed within the problem

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