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# Module Three Assignment Guidelines and Rubric



## MAT 240 Module Three Assignment Guidelines and Rubric

### Overview

Recall that samples are used to generate a statistic, which businesses use to estimate the population parameter. You have learned how to produce statistics. For two quantitative variables, businesses can use scatterplots and the correlation coefficient to explore a potential relationship in a regression equation.

### Prompt

This assignment picks up where the Module Two assignment left off and will use components of that assignment as a foundation.

You have submitted your initial analysis to the sales team at D.M. Pan Real Estate Company. You will continue your analysis of the price of homes in your selected region to complete your analysis. You may refer back to the initial report you developed in the Module Two Assignment. The [National Summary Statistics and Graphs Real Estate Data PDF](#) spreadsheet will support your work on the assignment.

**Note:** In the report you prepare for the sales team, the dependent, or response, variable ( $y$ ) should be the listing price and the independent variable ( $x$ ) should be the square feet.

Using the [Module Three Assignment Template Word Document](#), specifically address the following:

- **Regression Equation:** Provide the regression equation for the line of best fit using the scatterplot from the Module Two assignment.
- **Determine  $r$ :** Determine  $r$  and what it means. (What is the relationship between the variables?)
  - Determine the strength of the correlation (weak, moderate, or strong).
  - Discuss how you determine the direction of the association between the two variables.
    - Is there a positive or negative association?
    - What do you see as the direction of the correlation?
- **Examine the Slope and Intercepts:** Examine the slope  $b_1$  and intercept  $b_0$ .
  - Draw conclusions from the slope and intercept in the context of this problem.
    - Does the intercept make sense based on your observation of the line of best fit?
  - Determine the value of the land only.

**Note:** You can assume, when the square footage of the house is zero, that the price is the value of just the land. This makes sense in context?

- **Determine the *R*-squared Coefficient:** Determine the *R*-squared value.
  - Discuss what *R*-squared means in the context of this analysis.
- **Conclusions:** Reflect on the Relationship: Reflect on the relationship between square feet and sales price by answering the following questions.
  - Is the square footage for homes in your selected region different than for homes overall in the United States?
  - For every 100 square feet, how much does the price go up (i.e., can you use slope to help identify price changes)?
  - What square footage range would the graph be best used for?

You can use the following video tutorial that is specifically about this assignment:

- [MAT-240 Module 3 Assignment](#)

## What to Submit

Submit your completed Module Three Assignment Template as a Word document that includes your response, supporting charts/graphs, and a reflection on your learning.

### Module Three Assignment Rubric

Criteria	Exemplary	Proficient	Needs Improvement
<b>Regression Equation</b>	N/A	Provides the regression equation for the line of best fit (100%)	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include an inaccurate equation (55%)
<b>Determine <i>r</i></b>	Exceeds proficiency in an exceptionally clear manner (100%)	Describes the direction, strength of correlation, and association between the variables (85%)	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include missing one or more of the following: direction, strength of correlation, or association between the variables (55%)
<b>Examine the Slope and Intercept</b>	Exceeds proficiency in an exceptionally clear manner (100%)	Draws conclusions from the slope and intercept in context, determines the value of only the land (85%)	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include missing one or more of the following: conclusions from the slope and intercept in context, predictions, or the value of only the land (55%)
<b>Determine the <i>R</i>-squared Coefficient</b>	Exceeds proficiency in an exceptionally clear manner (100%)	Determines the <i>R</i> -squared value (85%)	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include missing one or more of the following: determining the <i>R</i> -squared value (55%)
<b>Conclusions</b>	Exceeds proficiency in an exceptionally clear manner (100%)	Reflects on the relationship between square feet and sales price (85%)	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include missing one or more of the following: reflecting on the relationship between square feet and sales price (55%)

<p><b>Determine the <i>R</i>-squared Coefficient</b></p>	<p>Exceeds proficiency in an exceptionally clear manner (100%)</p>	<p>Determines the <i>R</i>-squared coefficient and explains it in context (85%)</p>	<p>Shows progress toward proficiency, but with errors or omissions; areas for improvement may include an inaccurate determination of the <i>R</i>-squared coefficient or an explanation that is out of context (55%)</p>
<p><b>Conclusions: Reflect on the Relationship</b></p>	<p>Exceeds proficiency in an exceptionally clear, insightful, or sophisticated manner (100%)</p>	<p>Reflects on the relationship between square feet and sales price (85%)</p>	<p>Shows progress toward proficiency, but with errors or omissions; areas for improvement may include a reflection on the relationship between variables that is missing components (55%)</p>
<p><b>Articulation of Response</b></p>	<p>Exceeds proficiency in an exceptionally clear, insightful, sophisticated, or creative manner (100%)</p>	<p>Clearly conveys meaning with correct grammar, sentence structure, and spelling, demonstrating an understanding of audience and purpose (85%)</p>	<p>Shows progress toward proficiency, but with errors in grammar, sentence structure, and spelling, negatively impacting readability (55%)</p>

 Reflect in ePortfolio

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