1. Blay mount Amateur Dramatic Society is staging a play and wants to know how much to spend on advertising, by getting a better understanding of the relationship between advertising and attendance. For the past 11 productions they have recorded their spending on advertising (in $) and the size of their audience and have performed a regression of attendance on spending (the resulting regression output is below). Unfortunately, none of the society members has taken a statistics (or Quantitative Analysis) course. To explain these regression results to the society, specifically address the following:
   1. the overall statistical significance of the regression
   2. the interpretation and the statistical significance of the intercept term
   3. the statistical significance of the spending variables (with such a small data set you decide to use a significance level of 10% to determine statistical significance)
   4. the relationship between advertising expenditures and attendance
      1. If they were already planning to spend $500 on advertising for their next production, what would happen to attendance if they decided to spend a dollar more (i.e., the marginal benefit of advertising)? Round to the nearest whole person!
      2. If instead they were planning to spend only $100 on advertising for the upcoming production, what would happen to attendance if they decided to spend a dollar more? Round to the nearest whole person!

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| --- | --- | --- | --- | --- | --- | --- |
| SUMMARY OUTPUT | |  |  |  |  |  |
|  |  |  |  |  |  |  |
| *Regression Statistics* | |  |  |  |  |  |
| Multiple R | 0.931647116 |  |  |  |  |  |
| R Square | 0.867966348 |  |  |  |  |  |
| Adjusted R Square | 0.834957935 |  |  |  |  |  |
| Standard Error | 88.75504356 |  |  |  |  |  |
| Observations | 11 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| ANOVA |  |  |  |  |  |  |
|  | *df* | *SS* | *MS* | *F* | *Significance F* |  |
| Regression | 2 | 414280.3379 | 207140.2 | 26.29531 | 0.000303905 |  |
| Residual | 8 | 63019.66205 | 7877.458 |  |  |  |
| Total | 10 | 477300 |  |  |  |  |
|  |  |  |  |  |  |  |
|  | *Coefficients* | *Standard Error* | *t Stat* | *P-value* |  |  |
| Intercept | -190.171507 | 113.6546959 | -1.67324 | 0.132817 |  |  |
| Spending (in $) | 2.357834083 | 0.649257794 | 3.631584 | 0.00667 |  |  |
| Spending Squared | -0.00175563 | 0.000811289 | -2.164 | 0.0624 |  |  |