**Result Interpretation:**

* + The analysis of the correlation coefficients indicates that TV advertising has the most significant impact on sales, followed by radio advertising, while newspaper advertising has the least impact.

**Technical Summary of model evaluation:**

The results from the model evaluation provided insights into how well the linear regression model is performing in predicting sales based on TV expenditure. Here's what each metric indicated:

1. Mean Squared Error (MSE): The MSE value of 5.2177 indicates the average squared difference between the predicted sales values and the actual sales values. Here, an MSE of 5.2177 indicated that, on average, the predicted sales values are 5.2177 units away from the actual sales values.

2. Root Mean Squared Error (RMSE): The RMSE value of 2.2842 is the square root of the MSE and provides a more interpretable measure of the error in the same units as the dependent variable (sales). In this case, an RMSE of 2.2842 suggests that, on average, the model's predictions are around 2.2842 units away from the actual sales values.

3. R-squared (R2) score: The R2 score of 0.8122 is a measure of how well the independent variable (TV expenditure) explains the variation in the dependent variable (sales). An R2 score of 0.8122 indicates that approximately 81.22% of the variance in sales can be explained by TV expenditure in the model. A higher R2 score closer to 1 suggests that the model fits the data well and can better predict sales based on TV expenditure.

In summary, based on these results:

- The RMSE value of 2.2842 suggests that the model's predictions are reasonably accurate and close to the actual sales values.

- The R2 score of 0.8122 indicates that the model explains a significant portion of the variability in sales using TV expenditure.

Overall, these results suggest that the linear regression model is performing well in predicting sales based on TV expenditure, with a relatively low RMSE and a high R2 score.

**Overall summary:**

Based on the results of the project, it is evident that different advertising channels have varying impacts on sales. The coefficients show that TV advertising has the strongest positive correlation with sales, followed by radio advertising and then newspaper advertising. This suggests that allocating more resources towards TV advertising could lead to a higher increase in sales compared to the other channels.

The calculated slope of 0.0554 indicates that for every unit increase in TV advertising spend, sales are expected to increase by approximately 0.0554 units. The intercept of 6.9748 represents the expected sales when there is no advertising spend.

The MSE of 5.22 and RMSE of 2.28 indicate the average squared error between actual and predicted sales values, with a lower RMSE suggesting better model performance. The R2 score of 0.812 indicates that the advertising channels explain about 81.2% of the variance in sales, suggesting a good fit for the model.

**Recommendation:**

To optimize advertising strategies, it is recommended to focus more on TV and radio advertising as they have stronger positive correlations with sales. It may be beneficial to allocate more budget towards these channels to maximize the impact on sales. Additionally, continuously monitoring and analyzing the effectiveness of advertising campaigns, along with exploring other potential marketing channels, could further enhance overall sales performance.