Analysis of variance test is showing a statistic of 6.0005 and a p-value of 0.0. It means that engagement score is different from the others based on UserID, suggesting that UserID does influence the EngagementScore.

The linear models, yielded an R2 score of around 0.21. This relatively low score suggests that these models may not fully capture non-linear relationships present in the dataset.
Interestingly, the Ridge regression model indicated a negative coefficient for followers (-1.17), suggesting that having more followers does not necessarily lead to higher engagement, which could be counterintuitive. With a positive coefficient of 1.13, more comments are clearly linked with higher EngagementScore, reinforcing the idea that active engagement (such as commenting) boosts overall engagement metrics.

The significant difference in r2 scores between cv=5 (0.65) and cv=6 (0.88) highlights the impact of data partitioning on model evaluation. In cv=5, the placement of high-error instances in the test set adversely affected the model's performance score. The residual plot, showing large errors particularly at higher predicted values.

Decision Tree Regressor, feature importance:

Followers (Importance: 0.606354)

- This is the most significant feature, indicating that the number of followers has the strongest influence on the EngagementScore.

Comments (0.296999)

- This is the significant feature. This relationship shows the importance of interactive engagement, as comments may signify higher user interest and interaction

Likes (0.054)

- Likes are also a strong predictor of engagement, although significantly less so than followers or comments.

PostWeekday (Importance: 0.026104)

- This feature indicates that the day of the week on which the post is made has a minor influence on engagement.

PostHour and Shares have a very small impact.

Age, PostType, Country have no impact on the Engagement score.