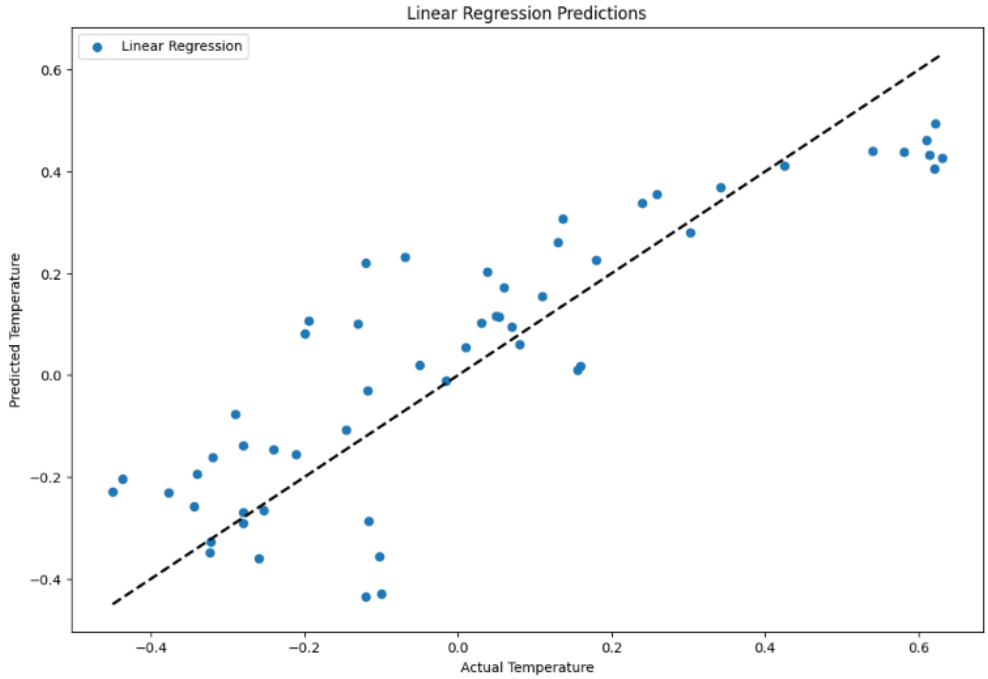
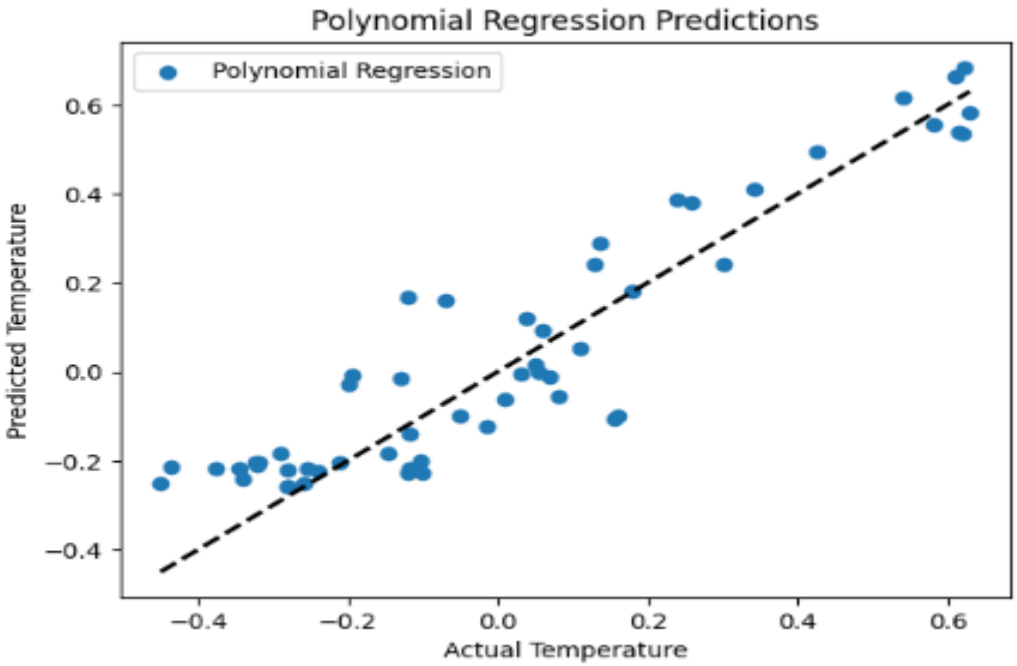
Result and Summary

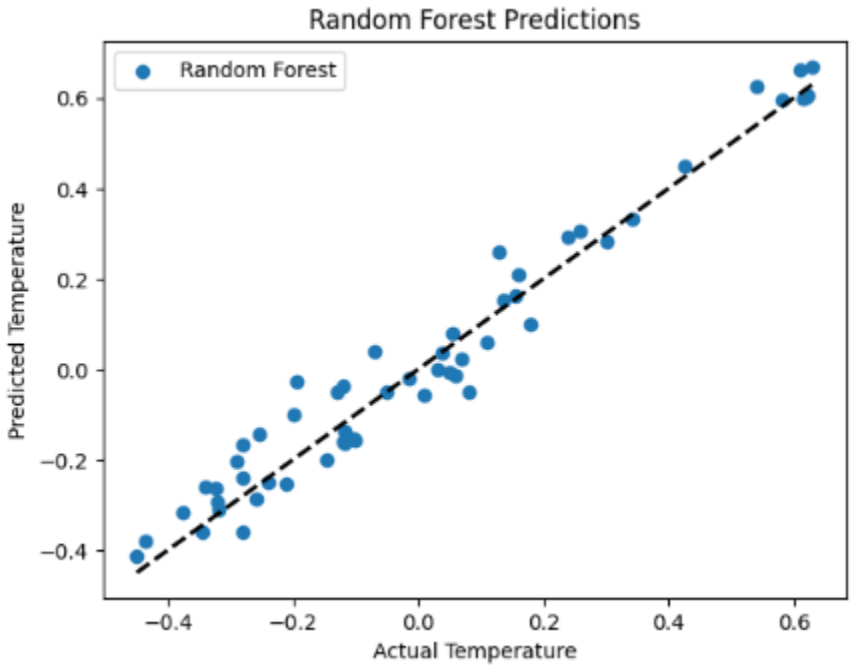
Linear Regression



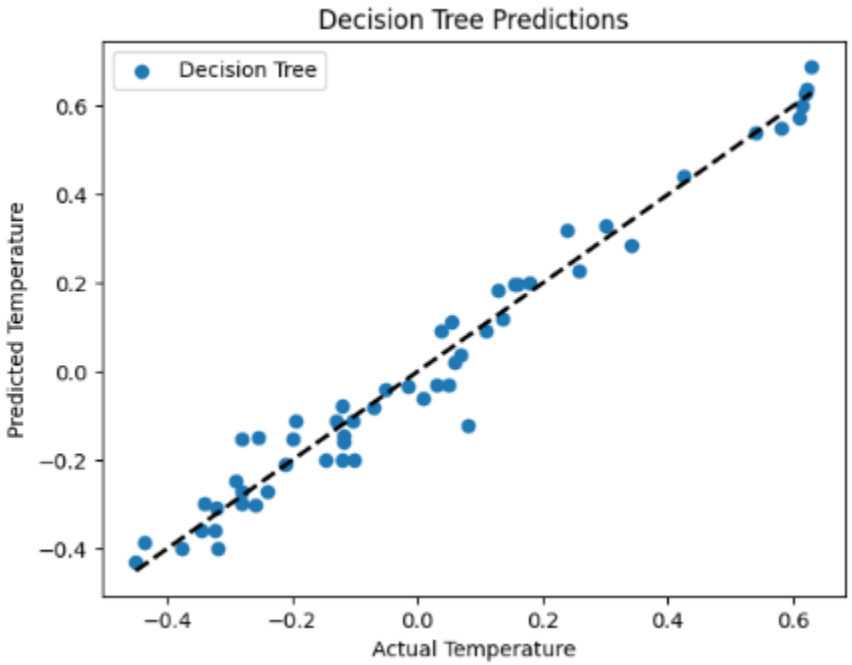
Polynomial Regression



Random Forest Regression



Decision Tree Regression



Summary of Regression Models

Linear Regression

Performance: Shows a linear relationship between actual and predicted values.

R-squared: Moderate fit, capturing the general trend but not all variations.

Polynomial Regression

Performance: Captures more complexity than linear regression, fitting the data slightly better.

R-squared: Slightly higher than linear regression, indicating a better fit for non-linear patterns.

Random Forest Regression

Performance: Provides a robust fit by averaging multiple decision trees.

R-squared: High, indicating a strong ability to capture complex patterns in the data.

Decision Tree Regression

Performance: Fits the data well, but can be prone to overfitting.

R-squared: Similar to random forest but less stable due to overfitting risks.

Support Vector Regression (SVR)

Performance: Provides a smooth fit using a kernel trick, but may not capture all data variations.

R-squared: Moderate, indicating a decent fit but not as strong as ensemble methods.

Conclusion

Best Model: Random Forest Regression provides the best prediction accuracy with the highest R-squared score. It effectively captures complex patterns without overfitting as much as a single decision tree.

Recommendation: For this dataset, using Random Forest Regression is recommended due to its balance between accuracy and robustness. It is well-suited for capturing the underlying patterns in the temperature data.