

Package ‘AllMetrics’

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Type Package

Title Calculating Multiple Performance Metrics of a Prediction Model

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Description Provides a function to calculate multiple performance metrics for actual and predicted values. In total eight metrics will be calculated for particular actual and predicted series. Helps to describe a Statistical model's performance in predicting a data. Also helps to compare various models' performance. The metrics are Root Mean Squared Error (RMSE), Relative Root Mean Squared Error (RRMSE), Mean absolute Error (MAE), Mean absolute percentage error (MAPE), Mean Absolute Scaled Error (MASE), Nash-Sutcliffe Efficiency (NSE), Willmott's Index (WI), and Legates and McCabe Index (LME). Among them, first five are expected to be lesser whereas, the last three are greater the better. More details can be found from Garai and Paul (2023) <[doi:10.1016/j.iswa.2023.200202](https://doi.org/10.1016/j.iswa.2023.200202)> and Garai et al. (2024) <[doi:10.1007/s110024-11552-w](https://doi.org/10.1007/s110024-11552-w)>.

License GPL-3

Encoding UTF-8

NeedsCompilation no

RoxygenNote 7.3.1

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`all_metrics`*Calculating Multiple Performance Metrics of a Prediction Model*

Description

This provides a function to calculate multiple performance metrics for actual and predicted values.

Usage

```
all_metrics(actual, predicted)
```

Arguments

<code>actual</code>	This is the actual time series values
<code>predicted</code>	This is the predicted values of a time series using a model

Value

- AllMetrics - A data frame containing two columns with first column as the name of the eight metrics and second column as the corresponding values

References

- Garai, S., & Paul, R. K. (2023). Development of MCS based-ensemble models using CEEM-DAN decomposition and machine intelligence. *Intelligent Systems with Applications*, 18, 200202.
- Garai, S., Paul, R. K., Kumar, M., & Choudhury, A. (2023). Intra-annual National Statistical Accounts Based on Machine Learning Algorithm. *Journal of Data Science and Intelligent Systems*. <https://doi.org/10.47852/bonviewJDSIS3202870>
- Garai, S., Paul, R.K., Yeasin, M., Paul, A.K. (2024). CEEMDAN-Based Hybrid Machine Learning Models for Time Series Forecasting Using MARS Algorithm and PSO-Optimization. *Neural Processing Letters*, 56, 92. <https://doi.org/10.1007/s11063-024-11552-w>

Examples

```
actual <- c(1.5, 2.3, 25, 52, 14)
predicted <- c(1.2, 10, 3.5, 4.3, 5.6)
# Inside the function 1st specify actual then predicted
print(all_metrics(actual, predicted))
```

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