NDK_RMS

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- C/C++
- .Net

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int __stdcall NDK_RMS(double * X,
                                    size_t   N,
                                    WORD   reserved,
                                    double * retVal
)

Returns the sample root mean square (RMS).

Returns

status code of the operation

Return values

NDK_SUCCESS Operation successful
NDK_FAILED Operation unsuccessful. See **Macros** for full list.

Parameters

[in] **X** is the input data sample (a one/two dimensional array).
[in] **N** is the number of observations in X.
[in] **reserved** This parameter is reserved and must be 1.
[out] **retVal** is the calculated value of this function.

Remarks

1. The input time series data may include missing values (NaN), but they will not be included in the calculations.

2. The root mean square (RMS) is defined as follows for a set of n values $\{x_1, x_2, \ldots, x_n\}$:

$$\mathrm{RMS} = \sqrt{\frac{x_1^2 + x_2^2 + \cdots + x_N^2}{N}} = \sqrt{\frac{\sum_{i=1}^N x_i^2}{N}}$$

Where:

- x_i is the value of the i-th non-missing observation.
- N is the number of non-missing observations in the input sample data.

4. The root mean square (RMS) is a statistical measure of the magnitude of a varying quantity.

5. The root mean square (RMS) has an interesting relationship to the mean ($\bar{x}$) and the population standard deviation (σ), such that:

$$\mathrm{RMS}^2 = \bar{x}^2 + \sigma^2$$

Requirements

Header	SFSDK.H
Library	SFSDK.LIB
DLL	SFSDK.DLL

Examples

```
int NDK_RMS(double[]  pData,
            UIntPtr    nSize,
            short      argMenthod,
            ref double retVal
            )
```

Returns the sample root mean square (RMS).

Return Value

a value from **NDK_RETCODE** enumeration for the status of the call.

NDK_SUCCESS operation successful
Error   Error Code

Parameters

[in] **pData**   is the input data sample (a one/two dimensional array).
[in] **nSize**   is the number of observations in pData.
[in] **argMenthod** This parameter is reserved and must be 1.
[out] **retVal**   is the calculated value of this function.

Remarks

1. The input time series data may include missing values (NaN), but they will not be included in the calculations.

2. The root mean square (RMS) is defined as follows for a set of n values $\{x_1, x_2, \ldots, x_n\}$:

$$\mathrm{RMS}=\sqrt{\frac{x_1^2+x_2^2+\cdots +x_N^2}{N}} =\sqrt{\frac{\sum_{i=1}^N x_i^2}{N}}$$

Where:

- x_i is the value of the i-th non-missing observation.
- N is the number of non-missing observations in the input sample data.

4. The root mean square (RMS) is a statistical measure of the magnitude of a varying quantity.

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$$\mathrm{RMS}^2=\bar{x}^2+\sigma^2$$

Exceptions

Exception Type	Condition
None	N/A

Requirements

Namespace	NumXLAPI
Class	SFSDK
Scope	Public
Lifetime	Static
Package	NumXLAPI.DLL

Examples

References

Hull, John C.; Options, Futures and Other DerivativesFinancial Times/ Prentice Hall (2011), ISBN 978-0132777421

See Also

[template("related")]