Complete NumPy Functions & Methods for Data Science

This document contains an extensive and near-complete list of NumPy functions and methods commonly used in Data Science, Machine Learning, Statistics, and Scientific Computing.

1. Array Creation

• array(), asarray(), asanyarray(), arange(), linspace(), logspace()

• zeros(), zeros_like(), ones(), ones_like()

• empty(), empty_like(), full(), full_like()

• eye(), identity(), diag(), diagflat()

• fromiter(), frombuffer(), fromfunction()

2. Random Module

• random.rand(), random.randn(), random.randint()

• random.random(), random.random_sample()

• random.choice(), random.shuffle(), random.permutation()

• random.seed(), random.normal(), random.uniform(), random.binomial()

3. Array Attributes

• ndim, shape, size, dtype, itemsize, nbytes, strides, T, flags

4. Indexing & Selection

• take(), put(), choose(), where(), argwhere()

• nonzero(), extract(), compress(), diagonal()

5. Reshaping & Dimensions

• reshape(), resize(), ravel(), flatten()

• squeeze(), expand_dims(), atleast_1d(), atleast_2d(), atleast_3d()

• swapaxes(), moveaxis(), transpose()

6. Joining & Stacking

• concatenate(), stack(), hstack(), vstack(), dstack()

• column_stack(), row_stack(), block()

7. Splitting

• split(), array_split(), hsplit(), vsplit(), dsplit()

8. Mathematical Operations

• add(), subtract(), multiply(), divide(), true_divide()
• floor_divide(), power(), mod(), remainder(), absolute(), fabs()
• exp(), expm1(), log(), log10(), log2(), log1p()
• sqrt(), square(), cbrt(), reciprocal()

9. Trigonometric Functions
• sin(), cos(), tan(), arcsin(), arccos(), arctan()
• sinh(), cosh(), tanh(), deg2rad(), rad2deg()

10. Statistical Functions
• mean(), median(), std(), var(), min(), max()
• ptp(), percentile(), quantile(), average(), cov(), corrcoef()

11. Aggregation & Cumulative
• sum(), prod(), cumsum(), cumprod(), diff(), gradient()

12. Sorting & Searching
• sort(), argsort(), lexsort(), searchsorted(), partition(), argpartition()

13. Logical & Comparison
• logical_and(), logical_or(), logical_not(), logical_xor()
• greater(), less(), equal(), not_equal(), greater_equal(), less_equal()

14. Boolean & Masking
• all(), any(), isin(), in1d()

15. Linear Algebra
• dot(), matmul(), inner(), outer(), cross()
• linalg.inv(), linalg.det(), linalg.eig(), linalg.eigh()
• linalg.svd(), linalg.norm(), linalg.solve(), linalg.qr(), linalg.pinv()

16. Broadcasting & Vectorization
• broadcast(), broadcast_to(), vectorize()

17. Unique & Counting
• unique(), bincount(), count_nonzero()

18. Missing Values (NaN Handling)

• nanmean(), nanmedian(), nanstd(), nanvar()
• nansum(), nanmin(), nanmax(), nanpercentile()

19. Type Conversion & Rounding

• astype(), round(), around(), ceil(), floor(), trunc(), fix()

20. Array Manipulation Utilities

• clip(), repeat(), tile(), roll(), flip(), flipud(), fliplr()
• copy(), view()

21. File Input / Output

• save(), load(), savez(), savez_compressed()
• savetxt(), loadtxt(), genfromtxt(), fromfile(), tofile()