Numpy builtin functions

NumPy provides a wide range of built-in functions for numerical operations on arrays. Here is a list of some commonly used NumPy functions categorized by their functionalities:

**Array Creation:**

1. numpy.array(): Create an array from a regular Python list or tuple.
2. numpy.arange(): Return evenly spaced values within a given interval.
3. numpy.linspace(): Return evenly spaced numbers over a specified interval.
4. numpy.zeros(): Return a new array of given shape and type, filled with zeros.
5. numpy.ones(): Return a new array of given shape and type, filled with ones.
6. numpy.eye(): Return a 2-D array with ones on the diagonal and zeros elsewhere (identity matrix).

**Array Manipulation:**

1. numpy.reshape(): Reshape an array into a new shape.
2. numpy.transpose(): Permute the dimensions of an array.
3. numpy.concatenate(): Join a sequence of arrays along an existing axis.
4. numpy.stack(): Join a sequence of arrays along a new axis.

**Mathematical Functions:**

1. numpy.sum(): Sum of array elements over a given axis.
2. numpy.mean(): Compute the arithmetic mean along the specified axis.
3. numpy.std(): Compute the standard deviation along the specified axis.
4. numpy.min(), numpy.max(): Compute minimum and maximum values along a given axis.
5. numpy.abs(): Compute the absolute value element-wise.
6. numpy.exp(), numpy.log(), numpy.log10(): Exponential and logarithm functions.

**Linear Algebra:**

1. numpy.dot(): Dot product of two arrays.
2. numpy.linalg.inv(): Compute the inverse of a matrix.
3. numpy.linalg.eig(): Compute the eigenvalues and eigenvectors of a square matrix.
4. numpy.linalg.solve(): Solve a linear matrix equation.

**Random:**

1. numpy.random.rand(): Random values in a given shape.
2. numpy.random.randn(): Return a sample (or samples) from the "standard normal" distribution.
3. numpy.random.randint(): Return random integers from low (inclusive) to high (exclusive).

**Trigonometric Functions:**

1. numpy.sin(), numpy.cos(), numpy.tan(): Trigonometric sine, cosine, and tangent.
2. numpy.arcsin(), numpy.arccos(), numpy.arctan(): Inverse trigonometric functions.

**Statistical Functions:**

1. numpy.histogram(): Compute the histogram of a set of data.

**Array Indexing and Slicing:**

1. numpy.take(): Return elements from an array along a specified axis.
2. numpy.argmax(), numpy.argmin(): Return indices of the maximum and minimum elements along a given axis.

**Sorting, Searching, and Counting:**

1. numpy.sort(): Return a sorted copy of an array.
2. numpy.argsort(): Return the indices that would sort an array.
3. numpy.where(): Return elements chosen from x or y depending on condition.

**Other Functions:**

1. numpy.unique(): Find the unique elements of an array.
2. numpy.isnan(), numpy.isinf(): Test element-wise for NaN or infinity.
3. numpy.meshgrid(): Return coordinate matrices from coordinate vectors.

These are just some of the many functions provided by NumPy. Each function typically operates on NumPy arrays efficiently, making NumPy a powerful library for numerical computations in Python.