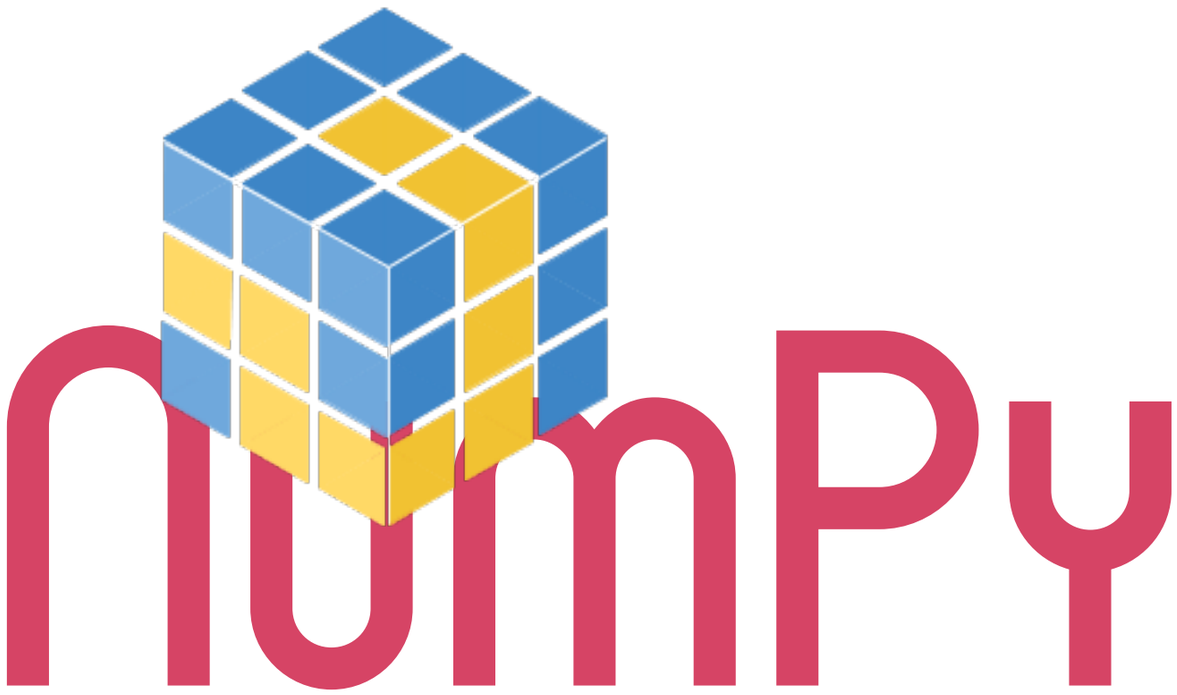
numPy


VS


PANDAS

Memory Consumption

NumPy

NumPy is memory efficient than Pandas

Pandas

Whereas, Pandas consume more memory

Data Compatibility

NumPy

Works with numerical data

Pandas

Works with tabular data

Powerful Tool

NumPy

Arrays are the powerful tool of NumPy

Pandas

Whereas, Data frames are a powerful tool for Pandas

Speed

NumPy

Faster than data frames

Pandas

Relatively slower than arrays

Performance

NumPy

NumPy performs better when the number of rows is 50K or fewer

Pandas

Pandas perform better when the number of rows is 500k or more

Type of Data

NumPy

Homogeneous data type

Pandas

Heterogeneous data type

Application

NumPy

NumPy is popular for numerical calculations

Pandas

While Pandas is popular for data analysis and visualisation

Operations

NumPy

NumPy does not have any additional functions

Pandas

Whereas, Pandas provide special utilities such as “groupby” to manipulate and access subsets

Industrial Coverage

NumPy

NumPy is mentioned in 62 company stacks and 32 developers' stack

Pandas

Whereas, Pandas are mentioned in 73 company stacks, and 46 developers' stack

Data Object

NumPy

Creates “N” dimensional objects

Pandas

Creates “2D” objects

Access Methods

NumPy

Using only index position

Pandas

Using index position or index labels

Indexing

NumPy

If we talk about indexing, then indexing in NumPy arrays is very fast

Pandas

On the other hand, indexing in the Pandas series is very slow

Core Language

NumPy

NumPy was written in C programming when it was initially created

Pandas

Pandas use R language for reference language

Usage in ML and AI

NumPy

Scikit and TensorFlow and can only be fed using NumPy arrays

Pandas

On the other hand, Pandas series cannot be directly fed as input toolkits

External Data

NumPy

NumPy generally uses data created by the user or a built-in function

Pandas

On the other hand, pandas objects are created by external data such as CSV, Excel, or SQL