SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107
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Department of Artificial Intelligence and Data Science

Course Name – Big Data Analytics
III Year / V Semester

Unit 2 – Data Science using Python

Topic 4- Scipy

Scipy

- SciPy is a free and open-source Python library used for scientific computing and technical computing.

- It is a collection of mathematical algorithms and convenience functions built on the NumPy extension of Python.

- It adds significant power to the interactive Python session by providing the user with high-level commands and classes for manipulating and visualizing data.

Scipy

Why use SciPy

- SciPy contains varieties of sub packages which help to solve the most common issue related to Scientific Computation.
- SciPy package in Python is the most used Scientific library only second to GNU Scientific Library for C/C++ or Matlab's.
- Easy to use and understand as well as fast computational power.
- It can operate on an array of NumPy library.

Scipy

Numpy VS SciPy

Numpy:

- Numpy is written in C and use for mathematical or numeric calculation.
- It is faster than other Python Libraries
- Numpy is the most useful library for Data Science to perform basic calculations.
- Numpy contains nothing but array data type which performs the most basic operation like sorting, shaping, indexing, etc.

Scipy

•SciPy is built in top of the NumPy

•SciPy module in Python is a fully-featured version of Linear Algebra while Numpy containsonly a few features.

•Most new Data Science features are available in Scipy rather than Numpy

Scipy

Sub-packages of SciPy:

- File input/output – scipy.io
- Special Function – scipy.special
- Linear Algebra Operation – scipy.linalg
- Interpolation – scipy.interpolate
- Optimization and fit – scipy.optimize
- Statistics and random numbers – scipy.stats
- Numerical Integration – scipy.integrate
- Fast Fourier transforms – scipy.fftpack
- Signal Processing – scipy.signal
- Image manipulation – scipy.ndimage

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THANK YOU