ASSIGNMENT -3

NAME:: LAXMINA KUMARI

SUB: PYTHON
ROLL NO: 5

USE OF LIBRARIES:

- Python libraries offer pre-written code, saving developers time and effort by providing reusable functionalities for various tasks, including data analysis, machine learning, web development, and more.

- In python Most common libraries are use is :

  Matplotlib (data visualization)

  NumPy (numerical computations)

  Keras (building and training neural networks)

  Pandas (data manipulation and analysis)

  TensorFlow (deep learning)

1) NUMPY(NUMERICAL COMPUTATIONS)

- NumPy stands for "Numerical Python" and is an open-source library for Python programming. It's designed for efficient numerical computations.

- NumPy provides a wide range of mathematical functions for working with arrays, including linear algebra, Fourier transforms, and random number generation.

ADVANTAGES

- NumPy arrays store data of the same type contiguously in memory.
- Numpy uses less memory and storage space.
- NumPy has better performance on large datasets.
- It is easier and more convenient to use.

DISADVANTAGES

- NumPy is not designed for heterogeneous data sets, that is, data sets with columns of different data types.
- NumPy has limited functionality.
- NumPy can be a bit complex to understand and implement.

CODE OF NUMPY:

```
Import numpy as n
arr = np.array([1, 2, 3, 4, 5])
arr2 = np.array([6, 7, 8, 9, 10])
result = arr + arr2
print(result)
```

Output: [7 9 11 13 15]

2) PANDAS(DATA MANIPULATION AND ANALYSIS)

- Pandas is a Python library used for working with data sets.

- Pandas provides two primary data structures: Series (one-dimensional labeled array) and DataFrame (two-dimensional table with rows and columns).

ADVANTAGES

- Pandas efficiently handles large datasets, saving time during data import and processing.
- Pandas offers powerful features for data alignment and indexing, simplifying operations like merging and joining datasets.

DISADVANTAGES

- Pandas initially have a mild learning slope.
- The code syntax of Pandas becomes really different when compared to the Python code.
- Pandas DataFrames can consume a significant amount of memory.

CODE OF PANDAS

```
Import pandas as pd.
data = {'Name': ['John', 'Alice', 'Bob'],
        'Age': [25, 30, 35],
    'City': ['New York', 'London', 'Paris']}.
df = pd.DataFrame(data).
print(df)
```

Output:-

	Name	**Age**	**City**
0	john	25	Newyork
1	Alice.	30.	London
2	Bob.	35.	Paris

MINI PROJECT

- I can create mini project using a Numpy.

THANK YOU

Name: Laxmina kumari

Sub: python

Roll no: 5