NAME: DIKSHA TIMILSINA

ASSIGNMENT 1

PYTHON LIBRARIES

1.NUMPY

Numpy stands for Numerical Python.it is a Python library used for working with arrays .It also has functions for working in domain of linear algebra, fourier transform, and matrices.it was created in 2005 by Travis Oliphant.

NumPy is a powerful Python library widely used in data science and machine learning for its efficient handling of numerical data. It provides support for large multi-dimensional arrays and matrices, along with a collection of mathematical functions to operate on these arrays. NumPy enables fast and memory-efficient computations, making it essential for tasks like numerical simulations, linear algebra, and data manipulation. Its array broadcasting and vectorized operations significantly speed up processing, especially when working with large datasets.

2.PANDAS

Pandas is a Python library . It has functions for analyzing, cleaning, exploring, and manipulating data. The name "Pandas" has a reference to both "Panel Data", and "Python Data Analysis" and was created by Wes McKinney in 2008.

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3.TENSORFLOW

TensorFlow is a widely-used open-source library developed by Google for machine learning and deep learning tasks. It allows developers to build and train neural networks for various applications, including image and speech recognition, natural language processing, and predictive analytics. TensorFlow supports both high-level APIs like Keras for rapid prototyping and lower-level operations for custom model building. It also offers scalability, enabling models to be trained and deployed across different platforms, from mobile devices to distributed computing environments. TensorFlow's extensive ecosystem makes it a popular choice for AI research and production.

4.KERAS

Keras is a high-level neural networks API that runs on top of TensorFlow, designed for easy and fast prototyping of deep learning models. It simplifies the process of building, training, and evaluating complex neural networks by providing user-friendly functions and abstractions. Keras supports a wide range of neural network layers, optimizers, and activation functions, making it ideal for tasks like image and text classification, regression, and more. Its flexibility and simplicity make Keras a popular choice for both beginners and experienced machine learning practitioners.

5.SKYLEARN

It is a popular Python library for machine learning, offering simple and efficient tools for data mining and data analysis. It provides a wide range of algorithms for classification, regression, clustering, and dimensionality reduction, as well as utilities for model selection, preprocessing, and evaluation. Scikit-learn is widely used for traditional machine learning tasks, such as building predictive models and performing statistical analysis, thanks to its ease of use and comprehensive documentation.

6.PyTorch

It is a powerful deep learning library developed by Facebook, known for its dynamic computation graph and flexibility. It allows developers to build and train neural networks with ease, providing strong support for GPU acceleration. PyTorch is often favored in research due to its intuitive interface, making it easier to experiment with new ideas. It also has a growing ecosystem, including tools for model deployment, reinforcement learning, and natural language processing, making it a popular choice for both academic research and production environments.