

Roll no: B512051
BE (Information Technology) : B div
Assignment No : 1

In [22]: `import numpy as np`

1. Tensorflow

In [23]: `import tensorflow as tf`

In [24]: `print(tf.__version__)`

2.10.0

2. Keras

In [25]: `from keras import datasets
Load MNIST datasets from keras
(train_images, train_labels), (test_images, test_labels) = datasets.mnist.load_data()`

In [26]: `train_images.shape`

Out[26]: (60000, 28, 28)

In [27]: `test_images.shape`

Out[27]: (10000, 28, 28)

3. Theano

In [28]: `!pip install Theano`

Requirement already satisfied: Theano in ./anaconda3/lib/python3.8/site-packages (1.0.5)
Requirement already satisfied: numpy>=1.9.1 in ./anaconda3/lib/python3.8/site-packages (from Theano) (1.20.1)
Requirement already satisfied: scipy>=0.14 in ./anaconda3/lib/python3.8/site-packages (from Theano) (1.6.2)
Requirement already satisfied: six>=1.9.0 in ./anaconda3/lib/python3.8/site-packages (from Theano) (1.15.0)

In [29]: `import theano.tensor as T
from theano import function`

In [30]: `# Declaring 2 variables
x = T.dscalar('x')
y = T.dscalar('y')`

In [31]: `# Summing up the 2 numbers
z = x + y`

In [32]: `# Converting it to a callable object so that it takes matrix as parameters
f = function([x, y], z)`

In [33]: `f(5, 7)`

Out[33]: array(12.)

4. PyTorch

In [34]: `!pip3 install torch torchvision torchaudio --extra-index-url https://download.pytorch.org/whl/cu115`

Looking in indexes: <https://pypi.org/simple>, <https://download.pytorch.org/whl/cu115>
Requirement already satisfied: torch in ./anaconda3/lib/python3.8/site-packages (1.12.1)
Requirement already satisfied: torchvision in ./anaconda3/lib/python3.8/site-packages (0.13.1)
Requirement already satisfied: torchaudio in ./anaconda3/lib/python3.8/site-packages (0.12.1)
Requirement already satisfied: typing-extensions in ./anaconda3/lib/python3.8/site-packages (from torch) (3.7.4.3)
Requirement already satisfied: requests in ./anaconda3/lib/python3.8/site-packages (from torchvision) (2.25.1)
Requirement already satisfied: pillow!=8.3.*,>=5.3.0 in ./anaconda3/lib/python3.8/site-packages (from torchvision) (8.2.0)
Requirement already satisfied: numpy in ./anaconda3/lib/python3.8/site-packages (from torchvision) (1.20.1)
Requirement already satisfied: chardet<5,>=3.0.2 in ./anaconda3/lib/python3.8/site-packages (from requests->torchvision) (4.0.0)
Requirement already satisfied: idna<3,>=2.5 in ./anaconda3/lib/python3.8/site-packages (from requests->torchvision) (2.10)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in ./anaconda3/lib/python3.8/site-packages (from requests->torchvision) (1.26.4)
Requirement already satisfied: certifi>=2017.4.17 in ./anaconda3/lib/python3.8/site-packages (from requests->torchvision) (2020.12.5)

In [35]: `import torch
import torch.nn as nn`

In [36]: `print(torch.__version__)`

1.12.1+cu102

In [37]: `torch.cuda.is_available()`

Out[37]: False