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#Roll no: B511066
```

```
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://pypi.org/simple>,) <https://download.pytorch.org/whl/cu115> (<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
```

