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Div: **BE09-Q09**

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Title: **Assignment 1: Study of Deep learning Packages: Tensorflow, Keras, Theano and PyTorch. Document the distinct features and functionality of the packages.**

In [1]:
```
import numpy as np
```

In [ ]:
```
conda install -c conda-forge cudatoolkit=11.2 cudnn=8.1.0
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$CONDA_PREFIX/lib/
python3 -m pip install tensorflow
python3 -c "import tensorflow as tf; print(tf.config.list_physical_devices('GPU'))"
```

1. Tensorflow

In [ ]:
```
import tensorflow as tf
```

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

2. Keras

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

In [ ]:
```
train_images.shape
```

In [ ]:
```
test_images.shape
```

3. Theano

In [ ]:
```
!pip install Theano
```

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

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

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

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

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

4. PyTorch

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

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

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

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

In [ ]:
```

```