# Tensorflow Test Program

Installation of Tensorflow

In [1]:
```
import tensorflow as tf
```

Print out Tensorflow version

In [2]:
```
print(tf.__version__)
```

```
2.8.0
```

In [3]:
```
print(tf.reduce_sum(tf.random.normal([1000,1000])))
```

```
tf.Tensor(-1292.2336, shape=(), dtype=float32)
```

# Keras Test Program

In [4]:
```
from keras import datasets
```

Loading MNIST Data

In [5]:
```
(train_images,train_labels),(test_images,test_labels)=datasets.mnist.load_data()
```

Check the dataset loaded

In [6]:
```
train_images.shape,test_images.shape
```

Out[6]:
```
((60000, 28, 28), (10000, 28, 28))
```

# Theano Test Program

In [7]:
```
import numpy
```

In [8]:
```
import theano.tensor as T
```

```
WARNING (theano.configdefaults): g++ not available, if using conda: `conda install m2
w64-toolchain`
c:\users\hp\appdata\local\programs\python\python39\lib\site-packages\theano\configdef
aults.py:560: UserWarning: DeprecationWarning: there is no c++ compiler.This is depre
cated and with Theano 0.11 a c++ compiler will be mandatory
  warnings.warn("DeprecationWarning: there is no c++ compiler."
WARNING (theano.configdefaults): g++ not detected ! Theano will be unable to execute
optimized C-implementations (for both CPU and GPU) and will default to Python impleme
ntations. Performance will be severely degraded. To remove this warning, set Theano f
lags cxx to an empty string.
WARNING (theano.tensor.blas): Using NumPy C-API based implementation for BLAS functio
ns.
```

In [9]:
```
from theano import function
```

**Addition of two scalars**

Declaring Two Variables

In [10]:
```
x = T.dscalar('x')
```

In [11]:
```
y = T.dscalar('y')
```

summing up the two numbers

In [12]:
```
z = x + y
```

In [13]:
```
f = function([x,y],z)
```

In [14]:
```
f(5,7)
```

Out[14]:
```
array(12.)
```

# PyTorch Test Program

Importing torch

In [15]:
```
import torch
```

In [16]:
```
import torch.nn as nn
```

Print out PyTorch version

In [17]:
```
print(torch.__version__)
```

```
2.1.0+cpu
```