```
# Theano
# Mathematical Operations
# Arrays - Multi-dimensional
# Installation
!pip install theano
```

```
Requirement already satisfied: theano in c:\users\administrator\anaconda3\lib\site-packages (1.0.5)
Requirement already satisfied: six>=1.9.0 in c:\users\administrator\anaconda3\lib\site-packages (from theano) (1.16.0)
Requirement already satisfied: numpy>=1.9.1 in c:\users\administrator\anaconda3\lib\site-packages (from theano) (1.21.5)
Requirement already satisfied: scipy>=0.14 in c:\users\administrator\anaconda3\lib\site-packages (from theano) (1.7.3)
```

```
import theano
from theano import *
import theano.tensor as T
import numpy as np
import pandas as pd
from theano import function
```

```
WARNING (theano.configdefaults): g++ not available, if using conda: `conda install m2w64-toolchain`
C:\Users\Administrator\anaconda3\lib\site-packages\theano\configdefaults.py:560: UserWarning: DeprecationWarning: there is no c++ co
  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 G
WARNING (theano.tensor.blas): Using NumPy C-API based implementation for BLAS functions.
```

```
# scalar variables
v1 = T.dscalar()
v2 = T.scalar()
# subtraction
sres = v1-v2
#add
ares = v1+v2
```

```
#convert the results into functions
calcsres =function([v1,v2],sres)
calcares = function([v1,v2],ares)
calcares(12,23)
calcsres(13,12)
x = T.dmatrix('x')
y = T.dmatrix('y')
```

```
# addition
z = x+y
func = function([x,y],z)
m1 = [
[1,2],
[3,4]
]
m2 = [
[4,5],
[6,7]
]
func(m1,m2)
```

```
array([[ 5.,  7.],
       [ 9., 11.]])
```