

Write Python scripts to implement basic operations and TensorFlow 2 tensors.

```
pip install tensorflow          # TensorFlow is a free and open-source machine learning framework

import tensorflow as tf        # Import TensorFlow library
```

Tensor Creation (Creating two 2x2 constant tensors)

```
tensor_1 = tf.constant([[1, 2], [3, 4]])
tensor_2 = tf.constant([[5, 6], [7, 8]])
print("Tensor 1:\n", tensor_1)
print("Tensor 2:\n", tensor_2)
```

Arithmetic Operations (Performing basic element-wise and matrix operations)

```
add = tf.add(tensor_1, tensor_2)
sub = tf.subtract(tensor_1, tensor_2)
mul = tf.multiply(tensor_1, tensor_2)
matmul = tf.matmul(tensor_1, tensor_2)
print("Addition:\n", add)
print("Subtraction:\n", sub)
print("Element-wise Multiplication:\n", mul)
print("Matrix Multiplication:\n", matmul)
```

Reshaping and Slicing (Reshaping a 1D tensor into 2D and slicing specific columns)

```
tensor_3 = tf.constant([1, 2, 3, 4, 5, 6])
reshaped = tf.reshape(tensor_3, [2, 3])
sliced = reshaped[:, 1:]
print("Reshaped Tensor:\n", reshaped)
print("Sliced Tensor:\n", sliced)
```

Type Conversion (Converting data type from int to float)

```
float_tensor = tf.cast(tensor_1, dtype=tf.float32)
print("Float Tensor:\n", float_tensor)
```

Working with tf.Variable (tf.Variable allows mutable tensor updates (assign_add))

```
var = tf.Variable([[1, 2], [3, 4]])
var.assign_add([[10, 10], [10, 10]])
print("Updated Variable:\n", var)
```

Tensor Properties (Getting shape and data type of a tensor)

```
print("Shape of tensor_1:", tensor_1.shape)
print("Data type of tensor_1:", tensor_1.dtype)
```

