

# (B.TECH) Semester-VII AY 2023-24

**DL Lab Assignment No. 02**

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| **Date: 06-10-2023** | **Faculty: Prof. Anita** |

**Problem Statement:** To study the features of Tensorflow and implement the tensors in TensorBoard.

**Objectives:**

1. To understand the features of TensorFlow.
2. To perform installation of TensorFlow.
3. To implement arithmetic operations using the tensors of type constants and variable.

**Theory:** (describe the following)

**TensorFlow Features:**

* TensorFlow offers flexibility for various machine learning tasks.
* It's a powerful deep learning framework.
* TensorBoard for model visualization.
* Supports CPU and GPU acceleration.
* Has a rich ecosystem and active community.

Installation Steps for TensorFlow:

**CPU Installation:**

* Install Python (3.x).
* Install pip.
* Optionally, create a virtual environment.
* Install TensorFlow with pip install tensorflow.
* Verify installation by importing TensorFlow.

**GPU Installation:**

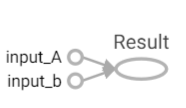
* Install NVIDIA GPU drivers.
* Install CUDA Toolkit.
* Install cuDNN library.
* Install TensorFlow-GPU with pip install tensorflow-gpu.
* Verify GPU usage by checking available GPUs in TensorFlow.

# Operations to be performed:

1. Download the necessary package for TensorFlow with anaconda environment.
2. Perform the installation steps using Anaconda cmd prompt.
3. Run a small program to of ‘Hello World’ to test the installation of the library.
4. Implement few examples using TensorFlow.

# Program code: (paste your program code)

**Output: (paste output screen & graphs plotted)**

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# FAQs:

1. State the building blocks of TensorFlow.
2. Explain the terms with the help of examples:
   1. Constant
   2. Variable
   3. Placeholder
   4. Tensor
   5. Session

# Conclusion:

The features of TensorFlow were studied and the installation was performed successfully.

