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- **AIM :-**

Study of deep learning packages : Tensorflow, keras, Theano and PyTorch.
Document the distinct Features & Functionality of the packages.

- **objective :-**

study & Installation of following Deep learning Packages.
1] Tensor Flow
2] keras
3] Theano
4] PyTorch

- **Software Requirements :-**

Sr NO	Name	latest version
1	Python, Jupyter Notebook	3.9 - 3.12
2	Windows	10, 11

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- Theory →

- TensorFlow

TensorFlow is a free and opensource software library used to computational mathematics to build machine learning models more profoundly deep learning models.

Features

- computational Framework
It is platform that provide huge computational framework at one place

- Mobile Deployment
It is an easy way to build projects with mobile deployment

- High performance
Due to its ease & varying toolkits its gives high-performanc-e user experience

Installation

command → pip install tensorflow

- keras

- keras is a high level neural networks API, designed to enable Fast experimentation.
- keras provides support for convolutional & recurrent neural networks. & can run seamlessly on both CPUs & GPUs

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- keras can run on top of multiple backends such as TensorFlow, Theano & CNTK

Installation

command → pip install keras

- **Theano**

- Theano is a mathematical computation library that enables efficient computation of multidimensional arrays.
- Theano provides deep integration with Numpy & its symbolic expression model allows for optimization in complex computations.

installation

command → pip install theano.

- **PyTorch**

PyTorch is known for its dynamic computation graph, meaning the graph can be changed on the fly, making debugging & experimentation easier.

Installation

command → pip install torch torchvision

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- Conclusion ⟶

Tensorflow, PyTorch, keras & Theano all these packages are installed & ready For deep learning applications. As per application domain & dataset we can choose the appropriate package & build the required type of neural network.