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S.No.	Date	Title	Signature
1	07.08.2025	Exploring the Deep learning platforms	
2.	07.08.2025	Implement a classifier using open source dataset	7/8/25
3.	14.08.2025	Study of classifiers with respect to Statistical parameters	14/8/25
4.	22.08.2025	To build and train a simple feed forward Network (FFNN) on MNIST dataset.	21/8/25
5.	22.8.25	Study different activation function used in NN	16/9/25
6.	9.9.25	Implement Gradient Descent & Backpropagation in ANN.	
7.	16.09.2025	Build a CNN model to classify Cat and dog image.	23/9/25

07.08.2025

Exp : 1 Exploring the Deep learning platforms!

Aim:

To explore and understand various deep learning platforms, install key frameworks and run basic deep learning using PyTorch.

Requirements / Tools: Various platform.

Google colab:

- Creator / Organization : Google
- Main features:

* free cloud-based Jupyter notebook environment.
* provide access to GPU and TPU
* No installation or step required.
* Pre installed libraries like Tensorflow and PyTorch.

- popular Use Cases:

* Running deep learning experiments without powerful PC.
* Collaborative coding and educational projects.

- Key Differences :

* Cloud based platforms ideal for beginners and those without hardware Resources.

2.) Tensor flow.

- Creator / Organization : Google Brain
- Main features :
* Uses static computation graph.
* Supports TensorBo
* Provides Tensor flow Lite for mobile development.

- popular Use Cases.
* Image classification
* NLP
* Speech Recognition

- Key Differences.
* Static graph offers high performance in deployment but is less flexible for debugging compared to Dynamic graph.

2. Pytorch :

Creator / organization :

* Developed by Facebook's AI Research lab (FAIR).

Main features :

* Dynamic computation graph (eager execution) - flexible and intuitive for debugging and development

* Strong python integration and native feel.

* Rich ecosystem with libraries for vision (torchvision), NLP (torchtext) and more.

popular Use cases :

* Deep learning research and prototyping.

* Computer vision, natural language processing, reinforcement learning.

* production models via TorchScript and deployment.

Key Differences :-

* Aspect - pytorch.
* purpose - Building and training naural networks.
* Core functionality - Model creation, training and interference
* User : Data scientists, research ML engineers.
* Integration : Works inside python Scripts, notebooks (including Jupyter).
* Developer : Facebook AI Research (FAIR)

4) Jupyterhub :

* Creator / organization :
* Developed and maintained by the project Jupyter community, an open-source initiative -

Main features :

* Multi-user server for hosting Jupyter notebooks.
* Enables teams or institutions to provide centralized Jupyter Notebook.
* Supports various authenticity methods and resource control.

Popular Use Cases :

* Educational platforms for interactive learning.
* Collaborative research environments.
* Cloud-hosted interactive notebooks.

Key Differences:

Type : Multi-User Jupyter notebook Server.

Purpose : Managing and serving Jupyter notebooks for multiple users.

Core functionality : provides shared access to interactive notebooks.

User : Educators, learns, organization reading collaborative notebook access.

Integration : Hosts notebooks that can run pytorch, tensorflow, or any other code kernel.

Developer : project Jupyter Community (open source).

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Result :

Explored various deep learning platforms.