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Serial. No.	Topic.	Date.	Signature
1)	Exploring the Deep Learning Platforms & Frameworks	31/07/2025.	
2)	Implement a Classifier using an open-source dataset	7/8/2025	7/8/25
3)	Study of Classifiers with respect to Statistical Parameter	7/8/2025	
4)	Build a simple feed forward network to recognize handwritten character	14/8/2025	14/8/25
5)	Study of Activation Functions and its role	9/9/2025	9/9
6)	Implement gradient descent and backpropagation in deep neural network.	13/9/2025	
7)	Build a CNN model to classify Cat & dog image	13/9/2025	
8)	Experiment using LSTM	13/9/2025	
9)	Build a Recurrent Neural Network	13/9/2025.	13/9/25
10)	Perform compression on MNIST	02/11/25	
11)	Experiment using VAE		
12)	Implement a DCGAN		
13)	Understand pre-trained model		
14)	Transfer Learning		
15	YOLO Model		

Completed

Exp-12 - Implement a Deep Convolutional GAN to generate complex colour images

Aim:

To implement a Deep Convolutional Generative Adversarial Network (DCGAN) that generates complex colour images using convolutional and transposed convolutional layers.

Objective:-

- Understand the architecture and working of DCGAN
- Train a generator to create realistic colour images.
- Train a discriminator to distinguish between real & fake images.

Algorithm:-

1) Start.
2) Import necessary libraries.
3) Load dataset and normalise pixel values to [-1, 1].
4) Define Generator Network:
   - Input random noise vector.
   - Layers: Convolutions, BatchNorm.
   - Output.
5) Define Discriminator Network
   - Input: colour image.
   - Layers: Convolutions, LeakyReLU
   - Output: probability (Sigmoid).
6) Initialize Network, BCE Loss & optimizers (Adam).

7) Train GAN:
   - Train Discriminator.
   - Train ~~GAN~~ Generator

8) Visualize generated images.

9) End.

Observation: The generator gradually learns to create visually meaningful colour images. The discriminator becomes more accurate initially but stabilizes as generator quality improves.

Result: The experiment was carried out successfully.