Lesson 4: Optimizers in Deep Learning

What Are Optimizers?
Optimizers are algorithms used to minimize the loss function by adjusting the model's weights during training. They play a crucial role in speeding up the training process.

Types of Optimizers:
- Gradient Descent: The most basic optimization algorithm. It moves the model's weights in the opposite direction of the gradient of the loss function.
- Adam Optimizer: An adaptive optimizer that adjusts the learning rate based on the gradients, providing faster convergence.

Code Example: Using Adam Optimizer in PyTorch

python
Define Adam optimizer
optimizer = optim.Adam(model.parameters(), lr=0.001)

Key Topics to Explore:
- Learning Rate Scheduling: Adjusting the learning rate over time for better training efficiency.
- Advanced Optimizers: Explore RMSProp, AdaGrad, and other advanced optimization algorithms.