

Mini Report – AI/ML Internship Assessment

1. ML Classification (Iris Dataset)

This task involved training a basic neural network classifier on the Iris dataset using PyTorch, implemented entirely from scratch without using high-level wrappers such as `nn.Sequential` or `optim.SGD`.

Model Architecture:

- Input Layer: 4 features (sepal length, sepal width, petal length, petal width)
- Hidden Layer: 16 neurons, ReLU activation
- Output Layer: 3 neurons (for 3 classes)

Training Configuration:

- Loss Function: `CrossEntropyLoss`
- Optimizer: Manual SGD with learning rate = 0.01
- Epochs: 50

Results:

- Final Training Accuracy: ~75%
- Final Test Accuracy: ~74%
- Both accuracies increased slowly over time.
- The accuracy vs epoch graph was created and included in the submission.

Key Takeaways:

Writing the training loop and model manually helped me understand how neural networks learn using weights, activations, and backpropagation. I also understood how accuracy changes over time while training.

2. Generative AI Task (GPT-2 Text Generation)

In this part, I used a GPT-2 model from Hugging Face to generate text based on a prompt.

Prompt: "Once upon a time"

Two outputs were generated using:

- Temperature = 0.7
- Temperature = 1.0

Observations:

- Temperature 0.7 output: The output was more meaningful and easier to understand.
- Temperature 1.0 output: The output was more random and creative.

The outputs were saved in a text file called 'generated_outputs.txt' and added to the submission.

3. Key Learnings

- Learned how to build and train a neural network without high-level shortcuts.
- Understood how temperature affects how GPT-2 writes text.
- Learned how to compare and explain outputs based on generation settings.