



# Certificate of Internship Completion

This is to certify that Addhyan Nigam has successfully completed a two-month internship with Axis India Machine Learning, from 1st May 2024 to 30th June 2024. During this period, the intern demonstrated dedication and proficiency while working on several small projects that incorporated the following key topics:

- Basics of Deep Learning:** Understanding foundational models such as McCulloch and Pitts Neuron Model, Rosenblatt's Perceptron Model, Multi-Layered Perceptrons (MLPs), and the Perceptron Learning Rule. The intern also learned to implement backpropagation from scratch using Python, NumPy, and Pandas, providing a strong foundation in training neural networks.
- Linux Shell Basics:** Hands-on experience with setting up Ubuntu on Windows Subsystem for Linux (WSL), navigating the Linux file system, executing essential Linux commands for DevOps/MLOps, and transitioning between Windows and Linux file systems.
- AI/ML Project Directory Structure Setup:** Practical skills in creating and managing Python virtual environments, handling dependencies through `requirements.txt`, initializing and managing Git repositories synced with GitHub, and organizing project directories for effective development workflows.
- Docker for DevOps/MLOps:** Gained expertise in installing and configuring Docker on WSL Ubuntu, using essential Docker commands to build and manage containers, writing Dockerfiles, and understanding their role in streamlining deployment pipelines.
- Training Models and Making Inferences in Docker:** Implemented FastAPI to convert machine learning models into APIs, served models through APIs, performed port mapping for containerized APIs, and exposed container ports to the localhost, facilitating smooth deployment and inference workflows.

The internship provided the intern with valuable hands-on experience, bridging theoretical concepts with real-world applications. Mastering these topics has significantly enhanced the intern's skill set, preparing them for roles such as **Data Scientist**, **AI Engineer**, or **Machine Learning Engineer**.

We commend **Adhyan Nigam** for their active participation and successful completion of this internship and wish them success in their future endeavors.

**Date of Completion:** 01.07.2024

**Certificate ID:** AIML/0506/PU/BTECH/04/05/2024

**Authorized Signature**  
Axis India Machine Learning

**AXIS INDIA MACHINE LEARNING**  
**MSME Registration No.**  
**RJ17D0150213**