AI / ML DEVELOPER – DAY-WISE INTERNSHIP PLAN (4 MONTHS)

Duration: 4 Months
Working Days: 5 days/week (Mon–Fri)
Daily Time Split (Recommended):

- 40% Learning
- 50% Hands-on
- 10% Review / Discussion

MONTH 1 – FOUNDATIONS (Days 1–20)

WEEK 1 – Python, Tools & Engineering Basics

Day 1 – Orientation + AI Overview

- Company & internship overview
- What is AI, ML, DL, LLM
- Real-world use cases (Insurance, Finance, Chatbots)
- Roadmap explanation

Task

- Install Python, VS Code, Git
- Create GitHub account

Deliverable
✓ Internship repo created

Day 2 – Python Basics

- Variables, data types
- Conditions & loops
- Functions

Task

- Write basic Python programs
- Solve 10 coding problems

Day 3 – Advanced Python

- Lists, tuples, dicts, sets
- List/dict comprehensions
- Lambda functions

Task

- Data manipulation exercises

Day 4 – Python for ML

- File handling
- Exception handling
- Virtual environments
- pip & requirements.txt

Task

- Create virtual env
- Install ML libraries

Day 5 – Git & Linux Basics

- Git workflow (clone, commit, push)
- Branching
- Linux commands

Task

- Push Python scripts to GitHub

WEEK 2 – Math, Stats & Data Handling

Day 6 – NumPy

- Arrays, indexing
- Matrix operations

Task

- Numerical computation notebook

Day 7 – Statistics

- Mean, median, mode
- Variance, std deviation
- Normal distribution

Task

- Stats calculations using Python

Day 8 – Probability & ML Intuition

- Probability basics
- Bias vs Variance
- Gradient Descent intuition

Task

- Visualize gradient descent

Day 9 – Pandas Basics

- DataFrames
- Reading CSV/Excel
- Filtering, sorting

Task

- Load & explore dataset

Day 10 – Data Cleaning

- Missing values
- Encoding categorical data
- Feature scaling

Task

- Clean real dataset

WEEK 3 – EDA & Visualization

Day 11 – Data Visualization

- Matplotlib
- Seaborn

Task

- Create plots (hist, box, heatmap)

Day 12 – Exploratory Data Analysis

- Finding patterns
- Correlations
- Outliers

Task

- EDA notebook

Day 13 – Feature Engineering

- Feature creation
- Feature selection

Task

- Improve dataset features

Day 14 – Data Pipeline

- Data → Clean → Features → Model

Task

- Build preprocessing pipeline

Day 15 – Review & Assessment

- Python test

- Pandas & EDA evaluation

WEEK 4 – Intro to Machine Learning

Day 16 – ML Basics

- Supervised vs Unsupervised
- Train/test split

Day 17 – Linear Regression

- Theory
- Implementation

Task

- Predict numeric value

Day 18 – Logistic Regression

- Classification
- Accuracy, precision, recall

Day 19 – Model Evaluation

- Confusion matrix
- ROC-AUC

Day 20 – Mini ML Assignment

✓ End-to-end simple ML model

MONTH 2 – CORE MACHINE LEARNING (Days 21–40)

WEEK 5 – Supervised Learning

Day 21 – Decision Trees

Day 22 – Random Forest

Day 23 – XGBoost (Intro)

Day 24 – Model Comparison

Day 25 – Assignment

✓ Compare models on same dataset

WEEK 6 – Unsupervised Learning

Day 26 – Clustering Basics

Day 27 – K-Means

Day 28 – Hierarchical Clustering

Day 29 – PCA

Day 30 – Mini Project

✓ Customer segmentation

WEEK 7 – Optimization & Tuning

Day 31 – Cross Validation

Day 32 – Hyperparameter Tuning

Day 33 – GridSearch / RandomSearch

Day 34 – Feature Importance

Day 35 – Optimization Assignment

WEEK 8 – ML PROJECT

Day 36–39 – ML Mini Project

- Problem definition
- Training
- Evaluation
- Report

Day 40 – Presentation & Review

MONTH 3 – DEEP LEARNING & LLMs (Days 41–60)

WEEK 9 – Deep Learning

Day 41 – Neural Network Basics

Day 42 – Activation Functions

Day 43 – TensorFlow / PyTorch

Day 44 – Build NN

Day 45 – DL Assignment

WEEK 10 – Computer Vision

Day 46 – CNN Basics

Day 47 – Image Processing

Day 48 – Transfer Learning

Day 49 – Image Classifier

Day 50 – CV Mini Project

WEEK 11 – NLP

Day 51 – NLP Basics

Day 52 – Text Preprocessing

Day 53 – TF-IDF

Day 54 – Sentiment Analysis

Day 55 – NLP Assignment

WEEK 12 – LLMs & RAG

Day 56 – LLM Overview

Day 57 – Prompt Engineering

Day 58 – Embeddings & Vector DB

Day 59 – LangChain

Day 60 – Document Q&A Bot

MONTH 4 – DEPLOYMENT & CAPSTONE (Days 61–80)

WEEK 13 – Deployment

Day 61 – Flask / FastAPI

Day 62 – REST APIs

Day 63 – Model Serialization

Day 64 – Docker

Day 65 – Deploy ML API

WEEK 14 – MLOps

Day 66 – ML Pipelines

Day 67 – MLflow

Day 68 – Model Versioning

Day 69 – Monitoring Basics

Day 70 – CI/CD Intro

WEEK 15 – FINAL PROJECT

Day 71–74 – Capstone Project

- Data
- ML/LLM model
- API
- Deployment

WEEK 16 – REVIEW & CONVERSION

Day 75 – Code Review

Day 76 – Performance Review

Day 77 – Final Presentation

Day 78 – Feedback

Day 79 – Improvements

Day 80 – Internship Completion

FINAL OUTPUT FROM INTERN

✔ 4–5 GitHub projects
✔ ML + LLM experience

✓ Deployment knowledge
✓ Industry-ready AI profile