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Course Outline: AI Developer Training (3 Months)

Month 1: Introduction to Artificial Intelligence

Introduction to Artificial Intelligence

- Understanding AI and its applications
- Types of AI: Narrow vs. General AI

Machine Learning Fundamentals

- Supervised, unsupervised, and reinforcement learning
- Regression and classification algorithms

Neural Networks and Deep Learning

- Building blocks of neural networks
- Activation functions and backpropagation

Python for AI Development

- Introduction to Python programming language
- Libraries for AI development (NumPy, Pandas, TensorFlow, Keras)

Month 2: Advanced AI Techniques

Natural Language Processing (NLP)

- Processing and analyzing text data
- Building NLP models for sentiment analysis and language generation

Computer Vision and Image Processing

- Image data preprocessing and feature extraction
- Convolutional Neural Networks (CNNs) for image recognition

Recommender Systems

- Collaborative and content-based filtering
- Building recommendation engines

AI Model Deployment and Scalability

- Deploying AI models as web services
- Handling large-scale data and real-time predictions

Month 3: AI Project Development and Job Readiness

Building an AI Application

- Identifying a real-world problem for AI application
- Developing a complete AI solution

AI Project Deployment

- Deploying the final AI project on a cloud platform
- Creating a user-friendly interface for the AI application



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Job Readiness and Interview Preparation

- Resume building and showcasing AI skills
- Preparing for AI developer job interviews
- Practicing coding challenges and technical assessments

Networking and Job Placement Assistance

- Connecting with AI professionals and attending industry events
- Leveraging online platforms for job search
- Receiving job placement assistance and guidance

Week 1: Understanding Artificial Intelligence and Machine Learning Fundamentals

Day 1: Introduction to Artificial Intelligence

- Definition of Artificial Intelligence and its historical context.
- Real-world examples of AI applications in various industries.

Day 2: Types of AI: Narrow vs. General AI

- Explanation of narrow AI and general AI.
- Discussing the current state of AI and its limitations.

Day 3: Introduction to Machine Learning

- Understanding the basics of machine learning and its role in AI.
- Differentiating between traditional programming and machine learning.

Day 4: Supervised Learning

- Explanation of supervised learning with examples.
- Understanding the concept of labeled data and training a model.

Day 5: Unsupervised Learning

- Definition of unsupervised learning and its applications.
- Clustering and dimensionality reduction techniques.



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Week 2: Machine Learning Algorithms and Neural Networks

Day 6: Regression Algorithms

- Introduction to regression algorithms for predicting continuous values.
- Linear regression and its implementation in Python.

Day 7: Classification Algorithms

- Overview of classification algorithms for categorical predictions.
- Logistic regression, decision trees, and random forests.

Day 8: Introduction to Neural Networks

- Understanding the basics of neural networks and their biological inspiration.
- The concept of neurons, layers, and activations.

Day 9: Activation Functions and Backpropagation

- Explaining activation functions and their role in neural networks.
- Introduction to backpropagation for optimising neural network weights.

Day 10: Python for AI Development - Part 1

- Introduction to Python programming language for AI development.
- Setting up a Python development environment with Jupyter Notebook.

Week 3: Libraries for AI Development and Hands-on Practice

Day 11: Python for AI Development - Part 2

- Working with Python libraries like NumPy and Pandas for data manipulation.
- Data preprocessing techniques for AI applications.

Day 12: Introduction to TensorFlow and Keras

- Overview of TensorFlow and its role in deep learning.
- Introduction to Keras, a high-level neural network API.

Day 13: Building a Simple Neural Network



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- Step-by-step guide to building a basic neural network using Keras.
- Training the model and evaluating its performance.

Day 14: Hands-on Project - Part 1

- Introducing the hands-on project for the month.
- Forming teams and identifying project goals.

Day 15: Hands-on Project - Part 2

- Guided work session for the hands-on project.
- Mentor support and troubleshooting.

Week 4: Project Completion and Wrap-up

Day 16-20: Hands-on Project - Part 3

- Continued work on the hands-on project.
- Weekly project reviews and feedback sessions.

Day 21: Project Presentations

- Finalising the hands-on project and preparing for presentations.
- Each team presents their project to the class.

Day 22-27: Project Showcase and Wrap-up

- Showcasing the completed projects to the wider community.
- Reflection and discussion on key takeaways from the course.

Day 28: Course Recap and Next Steps

- Recap of the key topics covered during the month.
- Discussing potential next steps for learners interested in further AI development