



Artificial Intelligence with Machine Learning **Training- 65 hours**

PYTHON

- Introduction to Python
 - Introduction to python programming
 - Working with the python interpreter
 - Numbers and expressions
 - Variables and statements
 - Conditional statements and loop
 - Handling user input
- Working with Strings
 - An overview of strings in python
 - String operators
 - Built -in string methods
- Lists & Tuples
 - Common sequence operations
 - Manipulation of Lists
 - Manipulation of Tuples
- Working with dictionaries
 - Introduction to dictionaries
 - Creating, assigning, updating dictionaries
 - Dictionary operators, functions and built-in methods
- Functions
 - Creating user-defined functions
 - Passing functions
 - Formal arguments
 - Recursion
 - Variable-length arguments
 - Variable scope
 - Variable-length keyword - arguments
- File Handling
 - Reading from files
 - Writing to files





- Working with CSV files
- Processing excel files
- Processing xml files

- Overview of Standard Library Basics Introductions
 - os
 - sys
 - math
 - filecmp
 - random
 - datetime
 - time
 - re

- Modules : 1
 - Importing modules and module attributes
 - Creating custom modules

- Error and Exception Handling
 - Introduction to exceptions
 - Detecting and handling exceptions
 - Exceptions as Strings and Classes
 - Raising exceptions
 - Creating exceptions
 - Standard exceptions

- OOPS
 - Introduction to OOP using python
 - Classes and class attributes
 - Inheritance

- Regular Expression
 - Characters
 - Quantifiers
 - Replacing

INTRODUCTION TO AI

- Introduction to Artificial Intelligence
 - Meaning, Scope, and Stages Of Artificial Intelligence





- Three Stages of Artificial Intelligence
- Applications of Artificial Intelligence
- Image Recognition
- Applications of Artificial Intelligence - Examples
- Effects of Artificial Intelligence on Society
- Supervises Learning for Telemedicine
- Solves Complex Social Problems
- Benefits Multiple Industries

- Fundamentals of Machine Learning and Deep Learning
 - Fundamentals Of Machine Learning and Deep Learning
 - Meaning of Machine Learning
 - Relationship between Machine Learning and Statistical Analysis
 - Process of Machine Learning
 - Types of Machine Learning
 - Meaning of Unsupervised Learning
 - Meaning of Semi-supervised Learning
 - Algorithms of Machine Learning
 - Regression
 - Naive Bayes
 - Naive Bayes Classification
 - Machine Learning Algorithms
 - Deep Learning
 - Artificial Neural Network Definition
 - Definition of Perceptron
 - Online and Batch Learning

- Machine Learning Workflow
 - Learning Objective
 - Machine Learning Workflow
 - Get more data
 - Add Data to the Table
 - Check for Quality



Transform Features

- Performance Metrics

- Meaning, Scope, and Stages Of Artificial Intelligence
- Three Stages of Artificial Intelligence
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- Effects of Artificial Intelligence on Society
- Supervises Learning for Telemedicine
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Benefits Multiple Industries

MACHINE LEARNING

Lesson 1: Introduction to Artificial Intelligence and Machine Learning

Topics:

- Emergence of Artificial Intelligence
- Relationship between AI, ML, and Data Science
- Machine Learning Approach
- Applications of Machine Learning

Lesson 2: Data Wrangling and Manipulation

Topics:

- Data Exploration
- Data Wrangling
- Data Manipulation

Lesson 3: Supervised Learning

Topics:

- Overview of Supervised Learning
- Types of Supervised Learning
- Types of Regression Algorithms

Lesson 4: Feature Engineering

Topics:

- Feature Selection



- Factor Analysis

Lesson 5: Supervised Learning-Classification

Topics:

- Definition of Classification
- Use Cases and Algorithms
- Decision Tree Classifier
- Random Forest Classifier
- Performance Measures
- Support Vector Machines

Lesson 6: Unsupervised learning

Topics:

- Describe Unsupervised Learning
- K-means Clustering
- Hierarchical Clustering

Lesson 7: Time Series Modelling

Topics:

- Time Series Data Types
- Stationarity in Time Series
- ARIMA Modelling

Lesson 8: Ensemble Learning

Topics:

- Introduction to Ensemble Learning
- Bagging and Boosting Algorithms
- Model Selection

Lesson 9: Recommender Systems

Topics:

- Introduction to Recommender Systems
- Association Rules Mining
- Memory Based Collaborative Filtering



Lesson 10: Text Mining

Topics:

- Introduction to text mining
- The NLTK library
- Text Extraction and Preprocessing
- Structuring Sentences

DEEP LEARNING WITH TENSORFLOW

Lesson 1: Introduction to TensorFlow

Topics:

- Intro to TensorFlow
- Computational Graph
- Key highlights
- Creating a Graph
- Regression example
- Gradient Descent
- TensorBoard
- Modularity
- Sharing Variables
- Keras

Lesson 2: Deep Learning Algorithms

- Convolutional neural networks
- Recurrent neural networks
- Deep belief networks
- Generative adversarial networks
- Auto encoder

Lesson 3: Deep Learning applications

Topics:

- Image Processing
- Natural Language Processing
- Speech Recognition
- Video Analytics

