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COURSE NAME: DATA SCIENCE TRAINING

Module 1

Visit our website for Course Fees and Course Duration

Placement Eligibility:

Eligible: Any Bachelor Degree, Any Master Degree, MBA

Not Eligible: Diploma

Class Mode:

Classroom | Online | Recorded Session | AI Session

If you have Completed Course, You want only Placements

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DATA SCIENCE COURSE 1 SYLLABUS

PYTHON:

Introduction to Python

- What is Python and the history of Python?
- Unique features of Python
- Install Python and Environment Setup
- First Python Program
- Python Identifiers, Keywords, and Indentation
- Comments and document interlude in Python
- Command-line arguments
- Getting User Input
- Python Data Types
- What are the variables?

Control Statements

- If
- If-elif-else
- while loop
- for loop
- Break
- Continue
- Assert
- Pass
- return

List, Ranges & Tuples in Python

- Introduction
- Lists in Python
- Generators and Yield

- Generators Comprehensions and Lambda Expressions
- Next() and Range()
- Understanding and using Range

Python Dictionaries and Sets

- Introduction to the section
- Python Dictionaries
- More on Dictionaries
- Sets

Python built-in function

- Python Modules & Packages
- Python User defined functions
- Defining and calling Function
- The anonymous Function

Python Object Oriented

- Overview of OOP
- Creating Classes and Objects
- Constructor
- The self variable
- Types Of Variables
- Namespaces
- Inheritance
- Types of Methods
- Instance Methods Static Methods Class Methods
- Accessing attributes
- Built-In Class Attributes
- Destroying Objects
- Abstract classes and Interfaces

- Abstract Methods and Abstract class
- Interface in Python
- Abstract classes and Interfaces

MACHINE LEARNING:

Introduction to Machine Learning:

- What is Machine Learning?
- Types of Machine Learning (Supervised, Unsupervised, Reinforcement Learning)
- Applications of Machine Learning
- Python and Libraries for Machine Learning (NumPy, Pandas, Scikit-Learn)

Data Preprocessing

- Data Cleaning and Exploration
- Feature Engineering
- Data Scaling and Normalization
- Handling Missing Data

Machine Learning Techniques

- Types of Learning
- Supervised Learning
- Unsupervised Learning
- Advice for Applying Machine Learning
- Machine Learning System Design

Supervised Learning

- Regression
- Classification

Supervised Learning - Regression

- Linear Regression & Logistic: A Model-Based Approach
- Regression fundamentals : Data and Models
- Feature selection in Model building
- Evaluating over fitting via training/test split
- Training/ Test curves
- Adding other features
- Regression ML block diagram

Supervised Learning - Classification

- Classification fundamentals : Data and Models
- Understanding Decision Trees and Naive Bayes
- Feature selection in Model building
- Linear classifiers
- Decision boundaries
- Training and evaluating a classifier
- False positives, false negatives, and confusion matrices
- Classification ML block diagram

Unsupervised Learning

- Clustering
- Recommendation
- Deep Learning

Unsupervised Learning - Clustering

- Clustering System Overview
- Clustering fundamentals : Data and Models
- Feature selection in Model building
- Prioritizing important words with tf-idf
- Clustering and similarity ML block diagram

Unsupervised Learning - Deep Learning

- Deep Learning: Searching for Images
- Learning very non-linear features with neural networks
- Application of deep learning to computer vision
- Deep learning performance
- Demo of deep learning model on ImageNet data
- Deep learning ML block diagram

Natural Language Processing (NLP)

- Text Preprocessing
- Bag of Words and TF-IDF
- Sentiment Analysis
- Text Classification
- Word Embeddings (Word2Vec, GloVe)

Neural Networks and Deep Learning

- Introduction to Neural Networks
- Feedforward Neural Networks
- Convolutional Neural Networks (CNN)
- Recurrent Neural Networks (RNN)
- Transfer Learning and Pretrained Models

Reinforcement Learning

- Introduction to Reinforcement Learning
- Markov Decision Processes (MDPs)
- Q-Learning
- Deep Q-Networks (DQN)
- Policy Gradient Methods

Model Deployment and Production

- **Model Serialization**
- **REST APIs for Model Deployment**
- **Cloud Services for Model Deployment**