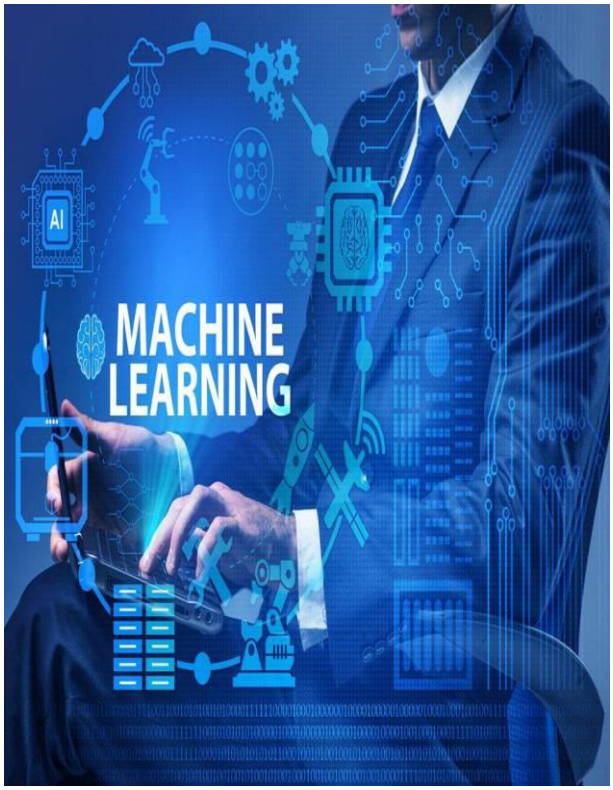
TechyEdz Solutions

Training | Consulting | Developement | Outsourcing



Data Science + Machine Leaning

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Data Science + Machine Learning Combo Course

Course Overview:

Python is the most popular programming language for Data Science as on Today. Python is powerful , easy to learn and flexible tool for coding Data Science and Machine Learning algorithms. In recent years, Python has evolved immensely with respect to Data Science sphere, with a huge community around Python creating quite a few power data science and analytics packages such as Pandas, Numpy, Scikit Learn, Scipy and more. As a result, analyzing data, modeling machine learning algorithms with Python has never been easier.

Machine Learning and Data Science is everywhere; if you want to know how companies like Google, Amazon, and even Udemy extract meaning and insights from massive data sets, this data science course will give you the fundamentals you need. Data Scientists enjoy one of the top-paying jobs, with an average salary of $120,000 according to Glassdoor and Indeed. That's just the average! And it's not just about money - it's interesting work too!

If you've got some programming or scripting experience, this course will teach you the techniques used by real data scientists and machine learning practitioners in the tech industry - and prepare you for a move into this hot career path.

Course Outline:

Introduction to Data Science

- What is Data Science?
- What is Machine Learning?
- What is Deep Learning?
- What is AI?
- Data Analytics & it's types

Python Programming Fundamentals

- Programming Basics
- Python Data Types
- Structures and conditional statements
- Python core packages
- Introduction to Jupyter Notebook

Data Science Essentials

- Data Science Introduction
- Data Science work flow
- Machine Learning Overview

Data Mugging with Numpy and Pandas

- Introduction to Numpy and Pandas
- Data filtering and selecting
- Find duplicates and treating missing values
- Concatenate and transform data

Basic Statistics

1. Central Tendency

- Mean
- Median
- Mode
- Skewness
- Normal Distribution

2. Probability Basics

- What does it mean by probability?
- Types of Probability
- ODDS Ratio?

3. Standard Deviation

- Data deviation & distribution
- Variance

4. Bias variance Tradeoff

- Underfitting
- Overfitting

5. Distance metrics

- Euclidean Distance

- Manhattan Distance

6. Outlier analysis

- What is an Outlier?
- Inter Quartile Range
- Box & whisker plot
- Upper Whisker
- Lower Whisker
- catter plot
- Cook's Distance

7. Missing Value treatments

- What is an NA?
- Central Imputation
- KNN imputation
- Dummification

8. Correlation

- Pearson correlation
- Positive & Negative correlation

9. Error Metrics Duration

- Classification
- Confusion Matrix
- Precision
- Recall
- Specificity
- F1 Score

10. Regression

- MSE
- RMSE
- MAPE

11. Visualization, web scraping

- Creating basic charts

- Statistical Charts
- Web Scrapping tools

Introduction to Machine Learning

- Overview of Supervised and Unsupervised Machine Learning
- Linear Regression
- Clustering with K-means
- Naive Bayes Classification
- Introduction to Neural Networks

Supervised Learning

- **Linear Regression**
- Linear Equation
- Slope
- Intercept
- R square value
- **Logistic regression**
- ODDS ratio
- Probability of success
- Probability of failure
- ROC curve
- Bias Variance Tradeoff

Unsupervised Learning

- K-Means
- K-Means ++
- Hierarchical Clustering

Other Machine Learning algorithms

- K – Nearest Neighbour
- Naïve Bayes Classifier
- Decision Tree – CART
- Decision Tree – C50
- Random Forest

Machine Leaning

Course Outline:

Python for Machine Learning

- Programming Basics
- Python Data Types
- Structures and conditional statements
- Python core packages
- Introduction to Jupyter Notebook
- Introduction to Numpy and Pandas
- Data filtering and selecting
- Find duplicates and treating missing values
- Concatenate and transform data

Setting up and installations

- Installing python
- Setting up Python environment for development
- Installation of Jupyter Notebook
- How to access our course material
- Write your first program in python

Python object and data structures operations

- Introduction to Python objects
- Number objects and operations
- Variable assignment and keywords
- String objects and operations
- Print formatting with strings

Python statements

- Introduction to Python statements
- If, else-if and else statements
- Comparison operators
- Chained comparison operators
- What are loops?
- For loops

- While loops

File and exception handling

- Process files using python
- Read/write and append file object
- File functions
- File pointer and operations
- Introduction to error handling
- Try, except and finally

Basic Statistics for Machine Learning

- Basic Statistics and Exploratory Analysis
- Descriptive summary statistics with Numpy
- Summarize continous and categorical data
- Outlier analysis

Introduction to Machine Learning

- Overview of Supervised and Unsupervised Machine Learning
- Linear Regression
- Clustering with K-means
- Naive Bayes Classification
- Introduction to Neural Networks

Data Processing for Machine Learning

- Advanced Data Mugging
- Outlier Analysis
- Treating for missing values
- Normalization vs Standardization of data

Machine Learning Algorithms

- Supervised Machine Learning algorithms
- K-Nearest Neighbors (KNN) concept and application
- Naive Bayes concept and application
- Logistic Regression concept and application
- Classification Trees concept and application
- Unsupervised Machine Learning algorithms

- Clustering with K-means concept and application
- Hierarchial Clustering concept and application

Building and Training Machine Learning models

- Setting up the project with ML workflow.
- Data Preprocessing and statistical exploration
- Building , Training and evaluation of Machine Learning Model

Prerequisites:

- Basic Programming is recommended
- Basic Statistics knowledge is recommended

Who Can attend:

- Candidates wanted to pursue Data Science career, with basic or no programming skills
- Seasoned conventional programmer aiming to gain basic machine learning coding skills
- Job seekers, pursuing a career as Data Science Developer
- Professionals, whose job involves Data Science and Python.

Number of Hours: 80hrs

Key Features:

- One to One Training
- Online Training
- Fastrack & Normal Track
- Resume Modification
- Mock Interviews
- Video Tutorials
- Materials
- Real Time Projects
- Virtual Live Experience

- Preparing for Certification