

Python Data Science and Machine Learning



About Course

The Data Science with Python course teaches you to master the concepts of Python programming. Through this Data Science with python certification training, you will learn Data Analysis, Machine Learning, Data Visualization, Web Scraping, & NLP.

Machine Learning is making the computer learn from studying data and statistics. Machine Learning is a step into the direct on of artificial intelligence (AI). Machine Learning is a program that analyses data and learns to predict the outcome.

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Curriculum

① Getting Started With Python Libraries

What is data analysis ?

Why Python for data analysis ?

Essential Python Libraries

Installation and setup

Ipython

Jupyter Notebook

② Numpy Arrays

Creating multidimensional array

NumPy-Data types

array attributes

Indexing and Slicing

Creating array views and copies

Manipulating array shapes

I/O with NumPy

3 Working with Panda

Installing pandas

Panda dataframes

Panda Series

Data aggregation with Panda DataFrames

Concatenating and appending DataFrames

Joining DataFrames

Handling missing data

4 Data Loading, Storage and File Format

Writing CSV files with numphy and pandas

HDF5 format

Reading and Writing to Excel with pandas

JSON data

Parasing HTML with Beautiful Soup

PyTables

5 Statics and Linear Algebra

Basic statistics with numphy

Linear Algebra with numphy

Numphy random numbers

Creating a numphy masked array

6 Data Visualization

- Installation matplotlib
- Basic matplotlib plots
- Scatter plots
- Saving plots to file
- plotting functions in pandas

7 Introduction to Machine Learning

- What is ML ?
- Types of ML
- Decision trees
- Linear regression
- Logistic regression
- Naive Bayes
- k-Nearest Neighbors
- File handling with Hadoopy
- Pig
- Pyspark

8 Overview of Machine Learning

- Overview about sci-kit learn and tensorflow
- Some complementing fields of ML
- ML algorithms
- Machine learning examples

9 Regression based learning

Simple regression

Multiple regression

Logistic regression

Predicting house prices with regression

10 Clustering based Learning

Definition

Types of Clustering

The k-means clustering algorithm

11 Data Mining

Production of Data Mining

Decision Tree

Affinity Analysis

Clustering

12 Classification-Sentiment Analysis

13 Natural Language Processing

Install NLTK

Tokenize words

Tokenize sentences



- Stemming words with NLTK
- Speech tagging
- Sentiment analysis with NLTK

14 Making sense of data through visualization

- Introducing matplotlib
- Bar charts
- Line charts
- Scatter plots
- Bubble charts

15 Working with OPENCV

- Setting up opencv
- Loading and displaying images
- Applying image filter
- Tracking faces
- Face recognition

16 Performing prediction with linear regression

- Simple linear regression
- Multiple regression
- Training and testing model



17 Support vector machine (SVM)

18 Neural Networks

19 Python essential introduction

What is Python ?

A brief history of Python

Why should I learn Python ?

Installing Python

How to execute Python Program

Write your first Python Program

20 Variables & Data Types

Variables

Number

String

List, Tuples & Dictionary

21 Conditional statement & loops

if...statement

if...else statement

elif...statement

The while...Loop

22 Control statement

Continue statement

Break statement

Pass statement

23 Functions

Define function

Calling a function

Function arguments

Built-in functions

24 Modules & Packages

Modules

How to import Module ?

Packages

How to create Packages

25 Classes & Objects

Introduction about classes and objects

Creating a class & object

Inheritance

Methods Overriding

Data hiding

26 Files and Exception Handling

- Writing data to a file
- Reading data from a file
- Read and write data from csv file
- Try...except
- Try...except...else
- Finally
- OS module




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