

PYTHON + DATA SCIENCE + MACHINE LEARNING

PYTHON

MODULE 1: PYTHON ESSENTIALS INTRODUCTION

What is Python..?
A Brief history of Python
Why Should I learn Python..?
Installing Python
How to execute Python program
Write your first program

VARIABLES & DATA TYPES

Variables Numbers String Lists ,Tuples & Dictionary

CONDITIONAL STATEMENTS & LOOPS

if...statement if...else statement elif...statement The while...Loop The for...Loop

CONTROL STATEMENTS

continue statement break statement pass statement

FUNCTIONS

Define function
Calling a function
Function arguments
Built-in functions

MODULES & PACKAGES

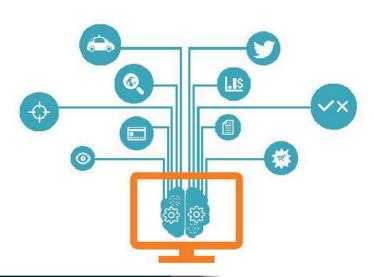
Modules
How to import a module...?
Packages
How to create packages

CLASSES & OBJECTS

Introduction about classes & objects Creating a class & object Inheritance Methods Overriding Data hiding

FILES & 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





DATA SCIENCE

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DATA SCIENCE

MODULE 1: GETTING STARTED WITH PYTHON LIBRARIES

what is data analysis?
why python for data analysis?
Essential Python Libraries
Installation and setup
Ipython
Jupyter Notebook

supyter Notebook

MODULE 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

MODULE 3: WORKING WITH PANDAS

Installing pandas Pandas dataframes Pandas Series Data aggregation with Pandas DataFrames

Data aggregation with Pandas DataFrames Concatenating and appending DataFrames Joining DataFrames Handling missing data

MODULE 4: DATA LOADING, STORAGE AND FILE FORMAT

Writing CSV files with numpy and pandas HDF5 format Reading and Writing to Excel with pandas JSON data Parsing HTML with Beautiful Soup PyTables

MODULE 5: STATISTICS AND LINEAR ALGEBRA

Basic statistics with numpy Linear Algebra with numpy Numpy random numbers Creating a numpy masked array

MODULE 6: DATA VISUALIZATION

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

MODULE 7: INTRODUCTION TO MACHINE LEARNING

What is ML..? Types of ML Decision trees Linear regression

Logistic regression Naive Bayes k-Nearest Neighbors

MODULE 8:

NATURAL LANGUAGE PROCESSING

Install nltk
Tokenize words
Tokenizing sentences
Stop words with NLTK
Stemming words with NLTK
Speech tagging
Sentiment analysis with NLTK

MODULE 9: INTRODUCTION TO OPENCY

Setting up opency Loading and displaying images Applying image filters Tracking faces Face recognition

MODULE 10: WORKING WITH BIG DATA

What is Hadoop? MapReduce File handling with Hadoopy Pig Pyspark



MACHINE LEARNING

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MACHINE LEARNING

INTRODUCTION TO MACHINE LEARNING

What is Machine learing?

Overview about sci-kit learn and tensorflow

Types of ML

Some complementing fields of ML

ML algorithms

Machine learning examples

MODULE 2:

REGRESSION BASED LEARNING

Simple regression

Multiple regression

Logistic regression

Predicting house prices with regression

MODULE 3:

CLUSTERING BASED LEARNING

Defnition

Types of clustering

The k-means clustering algorithm

MODULE 4: DATA MINING

Introducing data mining

Decision Tree

Affiity Analysis

Clustering

MODULE 5:

CLASSIFIATION – SENTIMENT ANALYSIS

MODULE 6

NATURAL LANGUAGE PROCESSING

Install nltk

Tokenize words

Tokenizing sentences

Stop words with NLTK

Stemming words with NLTK

Speech tagging

Sentiment analysis with NLTK

MODULE 7:

MAKING SENSE OF DATA THROUGH

VISUALIZATION

Introducing matplotlib

Bar Charts

Line Charts

Scatter plots

Bubble charts

MODULE 8:

WORKING WITH OPENCY

Setting up opency

Loading and displaying images

Applying image filters

Tracking faces

Face recognition

MODULE 9:

PERFORMING PREDICTIONS WITH LINEAR REGRESSION

Simple linear regression

Multiple regression

Training and testing model

MODULE 10:

SUPPORT VECTOR MACHINES(SVM)

MODULE 11:

NEURAL NETWORKS