Machine Learning and Data Science Bootcamp

Instructors:

Hitesh Choudhary:

I like to make videos related to code and tech in my free time. I also lead a few tech teams in startups, help in hiring talent for companies. I am also on a part time traveller, with 31 countries checked off so far!

Curriculum:

Getting started with Machine Learning

• Why Machine Learning and How it works

• Where we are using Machine Learning

• What is machine learning

Installation for Windows and MAC

• what you need - Windows

• Installing python Anaconda and setup - Windows

• Let 27s collect our tools first- MAC

• Installing python and anaconda - MAC

Python Quick Refresher

• Python datatypes

• Making decisions in python

• Loops in python

• Practice Python - 1 - Average list

• Practice Python - 2 - Palindrome

• Practice Python - 3 - Identity matrix

• Practice Python - 4 - Multiplication table

• Practice Python - 5 - Second largest

• Practice Python - 6 - merging lists

Mastering NUMPY Library

• Anaconda and python notebooks

• What is numpy

• Basics of numpy - generating matrix

• Numpy - matrix operations

• Numpy file paths and copy issues

• Numpy 2D selection

• Numpy conditional returns

• Numpy Mean Deviation 2C dot and cross products

Mastering PANDAS Library

• Introduction to PANDAS library

• Handle series with Pandas

• DataFrames in Pandas

• Subselection using pandas

• Conditional selection in PANDAS

• Multiple conditions in PANDAS

• basics of datacleanup

• Merging the data and operations

• Reading and writing files

Mastering MATPLOTLIB Library

• Introduction to MATPLOTLIB

• Our first linear graph using MATPLOTLIB

• plotting histograms in matplotlib

• plotting ads data with stackplot

• Pie chart for ads

Mastering SEABORN Library

• Introduction to SEABORN

• Plotting graphs with SEABORN

• Factor plot and Fat consumption data

• Swarmplot with IRIS dataset

Multi index Matrix

• Multilevel indexing

Portfolio Project - Classic 911 analysis

• Setup of resource files and python notebook

• Loading dataset and verifying it

• Answering top 3 questions in dataset

• Python knowledge with Pandas

• working with data time of python

• Group the data by Days and months

Data preprocessing for Machine Learning

• Data preprocessing basics for Machine Learning

• importing dataset and libraries

• Separating dependent and independent matrixes

• Imputation of missing values

• Dummy matrix and one hot encoder

• Preparing test and training dataset

• Feature scaling - Might be needed

Supervised, Unsupervised and Reinforcement Learning

• Supervised, Unsupervised and Reinforcement Learning

Linear regression algorithm

• Linear Regression theory

• Importing libraries and dataset

• creating test and training data sets

• Training the machine for prediction

• plotting graphs on training and predictions

Portfolio Project - Housing dataset analysis

• Housing dataset analysis using Linear Regression

Decision Tree Regression Algorithm

• How decision tree Algorithm works

• Loading our dataset for Decision tree

• Predicting values using Decision Tree algorithm

K-Nearest Neighbors Algorithm

• K-Nearest Neighbors theory

• loading data and libraries

• splitting data into training and test sets

• Applying KNN confusion matrix and plotting

Support Vector Machine Classifier

• Theory of Support Vector Machine SVM

• Loading libraries and dataset

• Test and training data with feature scaling

• Confusion matrix and stackoverflow debugging

Naïve Bayes Algorithm

• What is Bayes theorem

• Naive bayes and scikit docs for it

• importing dataset for NB

• data preprocessing for NB

• prediction and confusion matrix for NB

Neural Network and Deep Learning

• Neural Network and Deep learning

• Installing tensorflow